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Covered California's Efforts to Lower Costs While Ensuring Consumers Get the Right Care at the Right Time

An Early Look at Results of Covered California's Work to Improve Health Care by Promoting Better Quality While Reducing Costs

March 2019

About Covered California

Covered California is the state's health insurance marketplace, where Californians can find affordable, high-quality insurance from top insurance companies. Covered California is the only place where individuals who qualify can get financial assistance on a sliding scale to reduce premium costs. Consumers can then compare health insurance plans and choose the plan that works best for their health needs and budget. Depending on their income, some consumers may qualify for the low-cost or no-cost Medi-Cal program.

Covered California is an independent part of the state government whose job is to make the health insurance marketplace work for California's consumers. It is overseen by a five-member board appointed by the governor and the Legislature. For more information about Covered California, please visit www.CoveredCA.com.

INTRODUCTION

The Patient Protection and Affordable Care Act helped millions of people get the health insurance they needed — through guaranteed-issue coverage and financial assistance to help bring it within reach — and it also built on and expands ways to lower costs, improve quality and promote better health.

The Centers for Medicare and Medicaid Services (CMS) has changed payments to both hospitals and physicians, and it has established the Center for Medicare and Medicaid Innovation (CMMI) to test "innovative payment and service delivery models to reduce program expenditures … while preserving or enhancing the quality of care." As of February 2018, the CMMI has launched more than 40 new payment models, involving 200,000 providers and more than 18 million patients.[1]

All marketplaces, both state-based and federally facilitated, are required under the Affordable Care Act to do a minimum of activities related to improving quality by implementing a quality-improvement strategy. Covered California aims to go beyond those requirements.

Since its inception, Covered California has set forth standards and requirements for quality improvement and delivery system reform in its Qualified Health Plan (QHP) Issuer Model Contract[2] to address the underlying costs of health care and promote better quality. Under the requirements — which exceed those set by the Affordable Care Act — participating plans are required to work toward improving health outcomes and patient safety, preventing hospital readmissions and reducing medical errors and health disparities.

Covered California is currently revising its quality improvement and delivery system reform standards and requirements and has organized the strategies to support these expectations into two areas and 13 distinct domains. The "Right Care/Accountability" area includes eight domains that relate directly to Covered California's commitment to ensuring that those who have coverage today are getting the right care, in the right setting and at the best price possible. The "Delivery System Improvement" area includes five value-enhancing strategies that are aimed at promoting near- and long-term delivery system reform through concepts of alignment, payment, measurement and evaluation. (See Table 1: Covered California's Contractual Requirement Domains to Lower Costs and Improve Quality.)

[1] Kaiser Family Foundation. "'What is CMMI?' and 11 other FAQs about the CMS Innovation Center." Feb. 27, 2018. https://www.kff.org/medicare/fact-sheet/what-is-cmmi-and-11-other-faqs-about-the-cms-innovation-center/.

[2] Covered California. "Qualified Health Plan Issuer Contract Through 2017-2019 for the Individual Market." https://hbex.coveredca.com/insurance-companies/PDFs/QHP-Model-Contract-2017-2019-Amended-for-2017-and-2018.pdf. Specific standards and strategies found in Attachment 7, starting on page 133.

Table 1. Covered California's Contractual Requirement Domains to Lower Costs and Improve Quality

Right Care/Accountability Strategies	Delivery System Improvement Strategies
Chronic Care, General Care and Access	Networks Based on Value
Hospital Care	Promotion of Effective Primary Care
Major/Complex Care	Promotion of Integrated Health Care Models and Accountable Care Organizations
Mental/Behavioral Health and Substance Abuse Disorder Treatment	Alternate Sites of Delivery Care
Preventive Services	Consumer and Patient Engagement
Health Equity: Disparities in Health Care	Population-Based and Community Health Promotion Beyond Enrolled Population
Pharmacy Utilization Management	

The proposed revisions to the contracts would take effect in the 2021 plan year.[3]

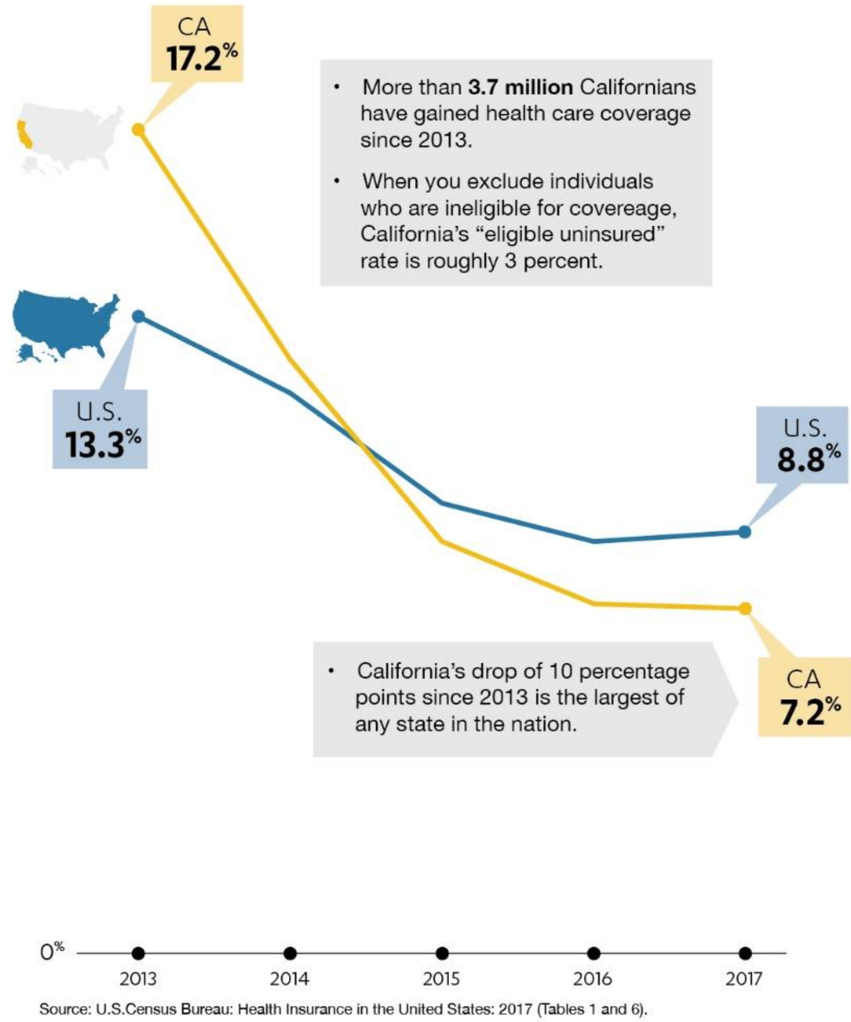
The following report details Covered California's extensive work to implement these important reforms, while identifying what lies ahead in this critical area. For the first time, this report reveals early results of Covered California's efforts.

FIRST STEPS TO ADDRESSING AFFORDABILITY: COVERAGE EXPANSION AND PROMOTING A BETTER RISK MIX

One of the major accomplishments of the Affordable Care Act is that it supported the expansion of states' Medicaid programs and provided tax credits to consumers in the individual market to help bring the cost of coverage within reach. In the individual market, the cost to consumers (in the form of the premiums they are charged) is based on the underlying cost of health care as a whole, as well as the health of a state's consumer pool and other factors.

Covered California has used all of the tools of the Affordable Care Act to build a strong and sustainable individual market that helped drive down health care premiums. The result is a competitive marketplace in which a stable group of carriers vies for consumers based on price and quality. Significant investments in marketing and outreach have led to more than 1 million actively enrolled consumers and one of the lowest risk scores in the nation. As a result, individual market health care premiums in California are about 20 percent lower than the national average.

[3] Covered California. "Refreshing Contractual Expectations Designed to Promote Accountability and Delivery System Improvements." Jan. 17, 2019. https://board.coveredca.com/meetings/2019/01-17%20Meeting/Refreshing-Contractual-Expectations.pdf.



These achievements have helped California lower its uninsured rate from 17.2 percent in 2013 to 7.2 percent in 2017. The 10-point decline is the largest decrease of any state in the nation during that time and reflects 3.7 million Californians gaining health insurance coverage. When you exclude individuals who are ineligible for coverage due to their immigration status, California's eligible uninsured rate is roughly 3 percent.[4]

While having an effective market and increasing the number of insured are significant factors in keeping costs down over the short term, the long-term solution to affordability must address the underlying factors that are driving the increase in health care costs.

A new report by the independent Office of the Actuary at the Centers for Medicare and Medicaid Services (CMS) estimates that national health expenditure growth will average 5.5 percent annually from 2018 to 2027.[5] As a result, health care spending as a share of the gross domestic product in the United States is projected to rise from 17.9 percent in 2017 to 19.4 percent by 2027.

Covered California is working on both short-term and long-term solutions to affordability, and this report shows the early results of those efforts.

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[4] U.S. Census Bureau. "Health Insurance Coverage in the United States: 2017." https://www.census.gov/content/dam/Census/library/publications/2018/demo/p60-264.pdf.

[5] CMS. "CMS Office of the Actuary Releases 2018-2027 Projections of National Health Expenditures." https://www.cms.gov/newsroom/press-releases/cms-office-actuary-releases-2018-2027-projections-national-health-expenditures.

COVERED CALIFORNIA'S EFFORTS PROMOTE DELIVERY SYSTEM REFORM AND ASSURE ENROLLEES RECEIVE QUALITY CARE

To ensure the best value and outcomes for the more than 2 million enrollees in the individual market, Covered California seeks to address the "triple aim" through its 11 health plans. The triple aim is a health care framework shared by many purchasers and providers that aims to ensure patients get high-quality care, keep consumers healthy and have them get healthier, and reduce overall costs.

Covered California holds itself accountable for improving the performance of California's health system through the quality and delivery system reform standards in its contracts with health plans. As a purchaser for a diverse enrollee population, Covered California has expanded on its triple aim accountability efforts to include health equity and reductions of disparities in health care to ensure improved health for all Californians.

With its purpose firmly rooted in an expanded triple aim framework, Covered California aims to address the challenges in our current health care system by:

- Requiring providers to meet quality standards without exception, to provide safe and high-quality care for all.
- Reducing disparities in health outcomes among various racial and ethnic groups.
- Adopting payment strategies that support quality performance.
- Adopting proven models of primary care and integrated, coordinated delivery models.
- Providing tools to help consumers make informed choices while selecting providers.

Covered California is providing a glimpse of early results of the quality-improvement efforts during the past three years. The results are collected from carriers and based on the most recent available data, with most results coming from 2017. The initial analysis shows that health plans working with their networks of providers and have made steady improvement in quality. Consumers are getting the quality care that they need at the right time. We are laying the groundwork to reduce health disparities and promote health equity, and consumers are being given tools to better engage with the health care system.

Ensuring Patients Receive Quality Care at the Right Time

Enrollees in Health Plans Through Covered California Get High-Quality Care, and It Is Getting Better

Covered California puts consumers first, with a focus on making sure they receive quality care at the right time, particularly those with chronic conditions. Overall, the best current national measure to assess health plans is the global quality-rating system (QRS) score, which is a summary of 42 different measures that track quality care. The QRS scores show how Covered California's health insurance companies compare on helping members get the right medical care and on member-reported experiences of care and service. The results are displayed prominently during the consumer's enrollment process and on our website, www.CoveredCA.com.[6]

Covered California actively uses these ratings, along with the underlying specific measures, to review how our plans are performing. Initial indications are that Californians served in the individual market are getting good care and that care is getting better. Plans are required to report data on getting the right care (HEDIS metrics) and member-reported experiences of care and service (CAHPS metrics) to the Centers for Medicare and Medicaid Services to develop the QRS scores.

Covered California has reported quality-rating system results since 2014 and uses this data to conduct clinical reviews with its plans, to set targets for improvement and to hold plans accountable. In 2016, six of the products from Covered California's plans earned a rating of one or two stars, while only two products received four or five stars. By 2018, all 14 of the individual products from Covered California's 11 health plan issuers earned a rank of three stars or better, with five products earning four or five stars, giving us confidence that consumers are getting the right care at the right time. (See Table 2: Global Quality Rating by Reportable Products for the California Individual Market.)

Table 2. Global Quality Rating by Reportable Products for the California Individual Market

QRS Year	★	★★	★★★	★★★★	★★★★★	No. of Products with No Global Rating*
2018	0	0	6	3	2	3
2017	0	2	6	1	1	4
2016	0	6	2	1	1	4

* There is no global rating if a newer product that is ineligible for reporting, or has insufficient sample sizes to report results, for at least two of the three summary indicator categories.

Covered California's plans have shown steady improvement in a subset of critical categories. The following four tables illustrate how Covered California's efforts have led to concrete results in specific situations.

[6] Covered California. https://www.coveredca.com/individuals-and-families/quality-ratings/.

Controlling Diabetes

The latest data from the Centers for Disease Control and Prevention (CDC) shows that "more than 1 in 3 Americans has prediabetes, and about 30 million Americans currently have diabetes — with the number of adults diagnosed with diabetes tripling in the past 20 years."[7]

Diabetes — which is marked by high blood glucose (blood sugar) due to the body's inability to make or use insulin — can lead to heart disease, stroke, hypertension, blindness, kidney disease, diseases of the nervous system, amputations and even premature death. The average level of blood sugar is tracked through a hemoglobin A1c test, or HbA1c test, and the target HbA1c level for people with diabetes is 8 percent or lower.

Covered California's early results show that its plans are doing well compared to the national average, with its best-performing plan scoring higher than the 90th percentile when compared to national marketplace plans. Even more importantly, its lowest-performing plan dramatically improved from 2016 to 2018 (see Table 3: HbA1c < 8 Percent HEDIS Measure).

Table 3. HbA1c < 8 Percent HEDIS Measure

	2016	2017	2018
US 90th Percentile for National Marketplace Plans	0.67	0.67	0.69
US 50th Percentile for National Marketplace Plans	0.56	0.57	0.59
Covered California Weighted Average	0.59	0.60	0.63
Covered California Best-Performing Plan	0.75	0.70	0.73
Covered California Lowest-Performing Plan	0.38	0.47	0.52

Furthermore, Covered California plans also continued to show progress in proper diabetes management, which is essential to controlling blood sugar, reducing risks for complications and prolonging life.

The early results found that Covered California's plans had a higher rate of diabetes medication adherence than the national average, with its best-performing plan scoring higher than the 90th percentile when compared to national marketplace plans and a 20 percent improvement among the lowest-performing plan (see Table 4: Diabetes Medication Adherence HEDIS Measure).

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[7] Centers for Disease Control. "Newest Prediabetes Awareness Campaign by Nation's Medical Authorities Spreads the Words: 1 in 3 Americans Has Prediabetes, Learn Your Risk." Nov. 14, 2018. https://www.cdc.gov/media/releases/2018/p1114-new-prediabetes-campaign.html.

Table 4. Diabetes Medication Adherence HEDIS Measure			
	2016	2017	2018
US 90th Percentile for National Marketplace Plans	0.79	0.79	0.80
US 50th Percentile for National Marketplace Plans	0.68	0.69	0.71
Covered California Weighted Average	0.66	0.69	0.72
Covered California Best-Performing Plan	0.77	0.80	0.87
Covered California Lowest-Performing Plan	0.51	0.50	0.61

Controlling High Blood Pressure (Hypertension)

High blood pressure increases the risk of heart disease and stroke, which are the leading causes of death in the United States. The latest data from the CDC shows that hypertension affects nearly one-third of adults in the United States, approximately 75 million people, and in roughly half of those adults, the disease is uncontrolled.[8] Controlling high blood pressure is an important step in preventing heart attacks, stroke and kidney disease, and in reducing the risk of developing other serious conditions.

Again, Covered California's early results show that its plans have a higher rate of controlling high blood pressure, performing better than the national average, with its best-performing plan scoring higher than the 90th percentile when compared to national marketplace plans (see Table 5: Controlling High Blood Pressure HEDIS Measure).

Table 5. Controlling High Blood Pressure HEDIS Measure			
	2016	2017	2018
US 90th Percentile for National Marketplace Plans	0.76	0.76	0.77
US 50th Percentile for National Marketplace Plans	0.58	0.59	0.61
Covered California Weighted Average	0.66	0.63	0.66
Covered California Best-Performing Plan	0.85	0.86	0.82
Covered California Lowest-Performing Plan	0.49	0.43	0.43

Screening for Cancer and Other Conditions

Covered California plans are also improving when it comes to conducting screenings and making early diagnosis of potentially deadly diseases. There are 15 measures classified under the "prevention" domain of the QRS to help people avoid or identify conditions for early intervention.

[8] Centers for Disease Control and Prevention. "A Public Health Approach to Detect and Control Hypertension." Nov. 18, 2016. https://www.cdc.gov/mmwr/volumes/65/wr/mm6545a3.htm.

One of those is recommended screenings for colorectal cancer. According to the American Cancer Society, when skin cancers are excluded, colorectal cancer is the third most common cancer diagnosed in men and women in the United States.[9]

Many adults between the ages of 50 and 75 years old do not get the recommended screenings, when doctors can detect polyps before they become cancerous, or detect colorectal cancer in its early stages when treatment is most effective. Treating colorectal cancer in its earliest stage can lead to a 90 percent survival rate after five years.

The early results found that, on average, Covered California's plans had improved to the national average, with its best-performing plan scoring higher than the 90th percentile when compared to national marketplace plans (see Table 6: Colorectal Cancer Screening HEDIS Measure).

Table 6. Colorectal Cancer Screening HEDIS Measure

	2016	2017	2018
US 90th Percentile for National Marketplace Plans	–	0.67	0.68
US 50th Percentile for National Marketplace Plans	–	0.52	0.54
Covered California Weighted Average	0.48	0.49	0.53
Covered California Best-Performing Plan	0.82	0.80	0.78
Covered California Lowest-Performing Plan	0.28	0.35	0.34

Source: Quality-rating system reporting for all national marketplace plans. Weighted average based on enrollment in products eligible for a QRS score in the individual market.

The concrete examples above are specific measures for people with particular conditions. It is important to note that there could be several explanations for the improvements seen among Covered California plans. In addition to holding them to account, the increase in the rate of insured means that people who were previously uninsured are now getting the care they need to control their chronic conditions. Nevertheless, improving care for people with chronic conditions by making sure they get the right care at the right time can greatly improve their lives while reducing health care costs.

Helping Consumers Navigate the Health Care System by Matching Them With a Primary Care Clinician

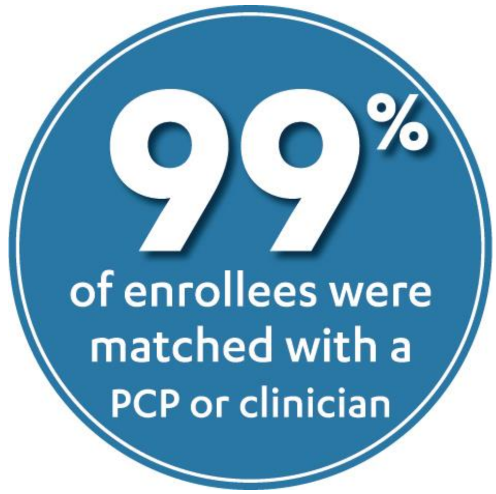
The health care system in America can be complicated, fragmented and costly. In the past, most people who enrolled in health maintenance organization (HMO) plans were required to identify a specific doctor to serve as their primary care physician (PCP). However, this requirement has not typically extended to people who enrolled in preferred provider organization (PPO) plans, meaning that many consumers in

[9] American Cancer Society. "Key Statistics for Colorectal Cancer." https://www.cancer.org/cancer/colon-rectal-cancer/about/key-statistics.html.

California and across the nation were on their own, without the help of a clinician to guide them.

In January 2017, Covered California became the first purchaser to require that all of its consumers, in both PPOs and HMOs, be matched to a primary care physician or other primary care clinician, such as a nurse practitioner.

The purpose of the requirement was to bring the PCP match to the PPO environment and give consumers a single point of contact who would help them navigate their health care system. A primary care physician can provide continuity and address most health care needs, helps consumers select the proper specialist, coordinates their care with other providers and ensures they understand their treatment options. While having a PCP is important, people enrolled in PPO plans can still choose to navigate the health care system on their own and do not need permission from their PCP to seek treatment or a referral to see a specialist.



Within less than a year, virtually all of Covered California's enrollees, 99 percent, had either selected or been matched with a PCP, which was nearly a 30 percentage point increase from the 2016 baseline rate of 70 percent. Covered California believes this PCP match will ultimately help people get better access to care in a timelier manner. Covered California is currently working with its plans and examining the data to understand the patient experience and clinical and financial effects of this program.

Promoting Effective Care Coordination and Integration

Promoting Enrollment in Accountable Care Organizations (ACOs)

Covered California also pursues higher quality and lower costs by promoting the adoption and expansion of integrated, coordinated and accountable systems of care. The exchange adopted a modified version of the CalPERS definition of integrated health care models, also known as accountable care organizations (ACO), and required plans to provide details on existing or planned integrated systems of care, explain how these systems of care compare to other ACO models and increase the number of enrollees cared for in ACOs over time.

Evidence compiled by the Integrated Healthcare Association in their "Cost and Quality Atlas"[10] found that integrated models, which usually operate under capitation, perform better on both cost and quality management than providers in open fee for service models.

[10] Integrated Healthcare Association. "California Regional Health Care Cost & Quality Atlas." October 2018. https://www.iha.org/sites/default/files/resources/fs_atlas.pdf

In 2017, 55 percent of Covered California enrollees were cared for in ACO-like arrangements, which represents a 9-point change from 2015. Two plans, Kaiser Permanente and Sharp HealthCare, already meet the definition of an ACO because they are already integrated delivery systems.[11] After excluding Kaiser Permanente and Sharp HealthCare, 25 percent of Covered California enrollees were cared for in an ACO, representing a 4-point change from 2015 (see Table 7: Percentage of Covered California Enrollee in ACO-like Arrangements).

Table 7. Percentage of Covered California Enrollees in ACO-like Arrangements

	2015	2017
All Enrollment	**46%**	**55%**
Fully Integrated Delivery Systems (Kaiser Permanente and Sharp HealthCare)	*100%*	*100%*
All Other	*21%*	*25%*

Promoting Enrollment in Patient Centered Medical Homes (PCMHs)

In addition to promoting increased enrollment in ACOs, Covered California sought to provide better quality and lower costs to consumers by requiring its health plan issuers to promote effective primary care. Plans are required to have an increasing portion of enrollees who obtain their care in a patient-centered medical home (PCMH) model that utilizes a patient-centered, accessible, team-based approach to care delivery, enrollee engagement and data-driven improvement, as well as integration of care management and community resources for patients with complex conditions.

Plans are required to use formal recognition programs to assess which providers are PCMHs and describe a payment strategy that creates a business case for primary care physicians to adopt accessible, data-driven, team-based care with accountability for meeting the goals of improving quality, lowering costs and improving outcomes.

The percentage of people cared for by PCMH-recognized practices, outside of the Kaiser Permanente system, increased from 3 percent to 6 percent between 2016 and 2017 (see Table 8: Percentage of Covered California Enrollees Cared for in a Patient-Centered Medical Home). Covered California is looking at whether the definition of a PCMH or other issues are affecting the number of enrollees seeking care in this model. It is also looking at the overlap and relationship between ACO and PCMH models that seek to promote care coordination, effective primary care and integration through different but often complementary strategies.

[11] In Covered California, Kaiser Permanente and Sharp HealthCare are fully integrated delivery system while other health plans base their ACO model on existing provider organizations, such as integrated medical groups and hospitals.

Table 8. Percentage of Covered California Enrollees Cared for in a Patient-Centered Medical Home		
	2016	2017
All Enrollment	**25%**	**32%**
Kaiser Permanente	*100%*	*100%*
Non-Kaiser Permanente	*3%*	*6%*

Increasing Access to Telehealth Services

Coordinated, integrated and accessible care can also be achieved by increasing access to telehealth services. Prior to the Affordable Care Act, patients often had endure long waits or face lengthy travel times to access quality care, particularly in rural areas.

Advancements in technology, such as video conferencing and telehealth, help assure that consumers get access to the care they need. In addition to reducing wait times and providing quality care, a 2017 study of the University of California Davis Health System's Telemedicine Program found that these "virtual visits" also "saved upwards of 11,000 patients a total of 9 years in time and $2.8 million in travel costs."[12]

Covered California required its plans to report the extent to which they support and use technology to assist in providing higher quality, accessible, patient-centered care to enrollees.

In the 2017 coverage year, 10 of Covered California's 11 plans — that covered 99 percent of enrollees — offered telehealth services. In addition, six of the 10 offered telehealth visits at the same cost of a primary care visit or less, while four offered telehealth visits at no cost share. Covered California is assessing the effectiveness of this program.

Improving Hospital Patient Safety

There have been several efforts over the years to improve patient safety, to revise hospital payments and reward quality care. Covered California is working to not only align its efforts with some of those, such as CMS initiatives, but is also working with plans to increase the number of hospitals that take advantage of collaborative programs to improve quality and safety at their facilities.

Infections acquired during a hospital stay are a leading cause of injury and death in hospitals and can be extremely costly because they create complications that extend the length of the hospitalization. Among these complications are five hospital-acquired infections (catheter-associated urinary tract infection, or CAUTI; central line-associated

[12] Value in Health. "Impact of a University-Based Outpatient Telemedicine Program on Time Savings, Travel Costs and Environmental Pollutants." April 2017. https://www.valueinhealthjournal.com/article/S1098-3015(17)30083-9/fulltext.

blood stream infections, or CLABSI; methicillin resistant staph, or MRSA; clostridium difficile bacterial infection, or C. diff; and surgical site infection of the colon surgery, or SSI Colon). All of these infections are linked to avoidable harm and hospital deaths.

Health care-acquired infections are reported as a Standardized Infection Ratio (SIR), a risk-adjusted measure managed nationally that compares observed versus expected number of events per year. A score of 1.0 means a hospital has an expected rate of infections. Below 1.0 is better and above is worse. When Covered California first adopted its quality standards and requirements, hospital performance on these ranged from zero (meaning the hospital had eliminated the complication) to nearly five times the risk-adjusted expected rate.

Covered California requires plans to:

- Encourage hospitals to take advantage of free coaching programs to adopt best practices that result in lower infection rates.
- Adopt payment strategies tied to quality, as noted previously.
- Either exclude hospitals that have not achieved or made significant improvements toward the expected rate or explain why they must keep the hospital in their network.

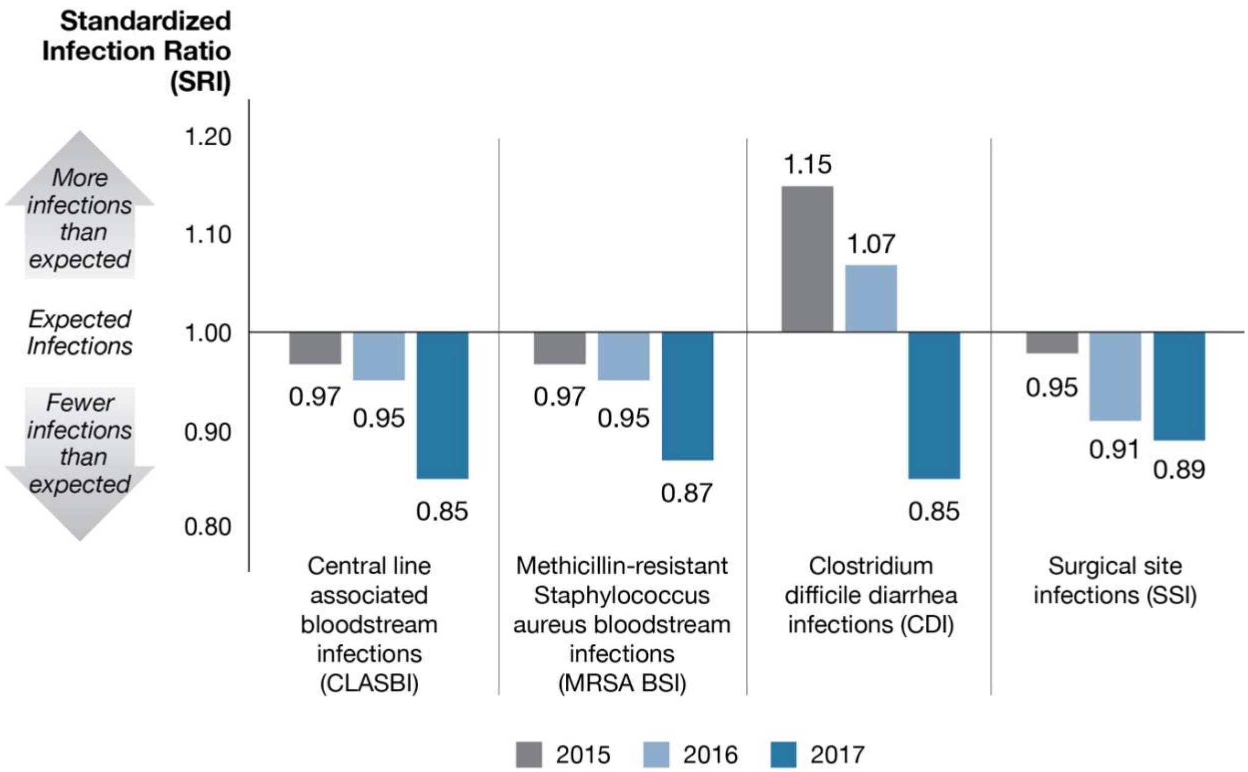
By reviewing annual public data on each health plan issuer’s hospital network performance on the incidence of health care-associated infections (HAI), Covered California and its health plans identified hospitals with higher-than-average HAI rates to be sure those hospitals were participating in statewide hospital-improvement collaboratives.

These hospitals often had relationships with multiple Covered California-contracted health plans, underscoring the potential for widespread patient safety improvement for both the exchange population and all Californians. By sharing hospital performance relative to other network hospitals on key HAI and patient-safety measures, health plans and hospitals identified targets for improvement and worked with established collaborative programs on quality improvement efforts, resulting in increased hospital participation in collaboratives and in HAI rates overall.

Covered California requires plans to make a percentage of reimbursement based on quality: 2 percent by the end of 2019, increasing by 2 percent every two years to 6 percent by the end of 2023. Covered California gives plans the freedom to identify which areas to focus on, but the efforts must include reducing hospital-acquired infection rates and lowering the number of unnecessary cesarean sections (C-sections) for low-risk pregnancies.

As of 2018, virtually every hospital in California has joined collaborative efforts to improve safety performance, and the California Department of Public Health reports significant reduction in complication rates. Californians are safer when they need hospital care (see Figure 1: Health Care-Associated Infection Incidence in California Hospitals, 2015-2017).

Figure 1: Health Care-Associated Infection Incidence in California Hospitals, 2015-2017



Improving Maternity Care

The Centers for Disease Control and Prevention (CDC) states that the number of C-sections in the United States rose 60 percent between 1996 and 2009.[13] While many of these surgeries are the safest choice for mother and child, many of the operations are medically unnecessary.

The California Maternal Quality Care Collaborative (CMQCC) states that the increase in C-sections did not coincide with demonstrable improved outcomes for moms or babies,

[13] National Vital Statistics Report. "Trends in Low-risk Cesarean Delivery in the United States, 1990-2013." Nov. 5, 2014. https://www.cdc.gov/nchs/data/nvsr/nvsr63/nvsr63_06.pdf.

and that the overuse of this procedure — particularly for low-risk, first-time mothers — has "significant social, economic and health costs." These include:

- Higher rates of maternal complications including mortality and longer recovery times.
- Higher rates of NICU admissions.
- Increased barriers to the mother-infant breastfeeding relationship.

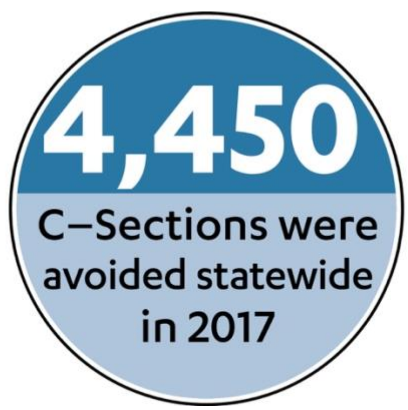
In addition, CDC data shows that once a woman has her first C-section, it greatly increases the odds that she will have another one. Only 12.8 percent of women in 2017 were able to have a successful vaginal birth after cesarean section (VBAC).[14]

At hospitals in California, the rate of C-sections for low-risk deliveries in 2016 varied from 12 to 70 percent for women who are having their first baby, have carried their babies to full term, did not have twins, and the baby's head was down.

Covered California joined the Department of Health Care Services, CalPERS and the Pacific Business Group on Health in adopting the national Healthy People 2020 target of 23.9 percent for C-sections for such low-risk births, and it has required that plans:

- Encourage hospitals to take advantage of free coaching programs to adopt best practices that result in only medically necessary C-sections.
- Adopt payment strategies that end the practice of paying more for C-sections than for natural deliveries.
- Track the performance of all hospitals in their networks.
- Either exclude hospitals that have not achieved or made significant improvements toward the target rate or explain why they must keep the hospital in their network.

Due to these combined efforts by purchasers in coordination with contracted plans, almost all hospitals in the state are engaged in collaborative improvement efforts. An honor roll sponsored by the state's purchasers has been established and announced by the state Secretary of Health and Human Services, and nearly 4,500 fewer unnecessary C-sections were performed for low-risk pregnancies in 2017. The majority of hospitals have now achieved or exceeded the target rate while improvement continues.



[14] National Vital Statistics Report. "Births: Final Data for 2017." Nov. 7, 2018. https://www.cdc.gov/nchs/data/nvsr/nvsr67/nvsr67_08-508.pdf.

The overall improvement in hospital performance in reducing avoidable infections and in maternity care demonstrates the value of aligned requirements among purchasers and plans in setting priorities for delivery system reform to raise quality and lower costs.

Understanding and Addressing Health Disparities

Covered California's mission statement includes "reducing health disparities through an innovative, competitive marketplace that empowers consumers to choose the health plan and providers that give them the best value." Decades of health and social science research demonstrate that individuals will experience different clinical outcomes, not only based on access and quality of care, but also based on the conditions in which they are born, live and work, known as the social determinants of health.

Covered California aims to narrow these disparities in care through its health disparities and health equity agenda reflected in its contracted requirements of its qualified health plan issuers. The initiative is centered on four objectives, which are related to addressing health disparities and community health:

- *Identifying the race or ethnicity of all enrollees through self-identification or imputed methodology*.
  To achieve high self-identification rates across all qualified health plan issuers, Covered California set a goal for all plans to achieve identification of at least 80 percent of all Covered California membership by 2019, and encouraged use of various data collection methods beyond the enrollment application to identify membership.

  In 2017, nine of 11 plans have seen increases in the self-identification rate, with six meeting the target a year early and three exceeding 95 percent self-identification. Plans have attributed the increased identification rates to improved data collection and incorporation of best practices for asking members for race or ethnicity information.

- *Collecting data on disease control and management measures for diabetes, hypertension, asthma and depression.*
  While Covered California compares self-identification rates across health plans for purposes of sharing best practices and assessing progress toward the 2019 target, it has pursued a different strategy for narrowing health care disparities: focusing on each issuer's unique population, demonstrated health care disparities and unique strategies for improving quality.

- *Conducting population-health improvement activities and interventions to narrow observed disparities in care.*
  Covered California requires plans to submit data by race or ethnicity on 14 measures of disease control and management for four conditions: diabetes, asthma, hypertension and depression. Plans submit data for all lines of business, excluding Medicare. This work helps "track, trend and improve" care across race or ethnicity groups.

Three years of baseline data have informed potential areas of focus for each plan's disparity-reduction intervention. Covered California is working with its health plan issuers to analyze early condition-specific data and to address challenges related to data quality, small denominators and data interpretation. Despite data challenges, Covered California is working with plans to develop improvement plans in 2019 with outcomes of these interventions expected in 2020.

- *Promoting community health initiatives that foster better health, healthier environments, and the promotion of healthy behaviors.*
  Plans report on the initiatives, programs and projects that specifically address health disparities and efforts to improve community health apart from the health delivery system. Plan involvement in external-facing activities is used by Covered California to identify potential disparity-reduction opportunities.

Achieving Value in Drug Spend

The increased cost of prescription medication continues to make headlines in California and across the nation. The recent CMS report on national health expenditures projected that prescription drug spending would grow by 5.6 percent for 2018-27[15] because of faster utilization growth.

Part of Covered California's work involves achieving value in prescription drug spend by requiring plans to report annually on 1) how they currently consider value in formulary selection, 2) whether independent value assessment methodologies are used (and which ones are used), 3) if and how construction of formularies are based on total cost of care, 4) if and how off-label use is monitored, and 5) the extent of decision support provided to prescribers and members.

The most recent data shows that seven out of 11 plans, which covered 86 percent of Covered California enrollees in 2017, had a process for analyzing drug efficacy in the context of total cost care and outcomes and that they actively use those results.

In addition, all Covered California plans have a systematic, evidence-based approach for monitoring the off-label use of pharmaceuticals.

Covered California is also actively participating in a public collaborative, in response to Gov. Gavin Newsom's recent executive order[16] to work with other public agencies (including Medi-Cal, the Department of Corrections and Rehabilitation and others). Together, they will strengthen the state's bargaining power when it comes to negotiating drug prices and use that bargaining power for the benefit of all Californians.

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[15] CMS. "CMS Office of the Actuary Releases 2018-2027 Projections of National Health Expenditures." https://www.cms.gov/newsroom/press-releases/cms-office-actuary-releases-2018-2027-projections-national-health-expenditures.

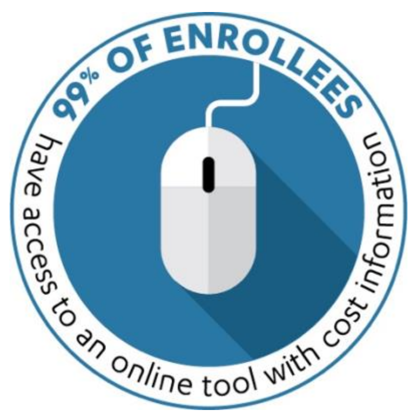
[16] Gov. Gavin Newsom. "In His First Act as Governor, Gavin Newsom Takes on Cost of Prescription Drugs & Fights for Health Care for All." Jan. 7, 2019. https://www.gov.ca.gov/2019/01/07/first-acts-as-governor/.

Consumer Support Tools

Covered California's patient-centered benefit designs allow consumers to compare health plans on costs and quality. In addition to the quality-rating system scores described earlier, Covered California's QHP contract also lists six consumer-decision support tools where plans are either reporting activities or working toward performance goals to improve appropriateness of care delivery. They include: 1) provider cost and quality transparency, 2) access to personal health information, 3) shared decision-making 4) reducing overuse of services 5) improving provider directory accuracy through a statewide provider directory and 6) consumer incentive programs and value pricing.

- **Consumer Decision Tools**

  Plans with more than 100,000 members are required to have online tools that enable members to look up in real time provider-specific cost shares of common elective inpatient, outpatient and ambulatory surgery services and prescription drugs, and accumulations toward deductibles and maximum out of pockets (MOOPs). Plans with fewer than 100,000 members in Covered California business lines can provide this information to members through another method such as a call center.

  The most recent data shows that nine of Covered California's 11 plans, covering 99 percent of enrollees in 2017, provide consumers with an online tool with cost information, including four plans with fewer than 100,000 enrollees.

  Smaller plans have also confirmed that members can obtain all cost-related information, including provider-specific cost shares and real-time accumulations to deductibles and maximum out-of-pocket balances, through their call center. Not all plans have integrated quality information into the display of each individual provider; however, those that do not either link to independent quality sites, such as California's Office of the Patient Advocate (OPA), Cal Hospital Compare, or Leapfrog, or have agreed to add links.

  While providing this information for consumers is important, the utilization rate is very low at this time and Covered California is working with plans to investigate ways to make the information more accessible and meaningful to consumers as well as determine whether this transparency has an effect on value.

- **Member Portal Tools**
  Covered California also requires its plans to report on enrollee access to personal health information and the tools offered through their member portals.

  All plans offer a comprehensive online member portal with ability to make premium payments, search for a provider, select or change their PCP and manage prescription drugs.

  In addition, seven of Covered California's 11 plans — covering 86 percent of enrollees in 2017 — offer access to personal health information through their member portal.

Conclusion

While Covered California's initial efforts show steady improvement, the positive start only represents the beginning of the journey. Covered California's process of revising and improving its quality improvement and delivery system reform standards and requirements is anchored in understanding the best evidence available nationally and how Covered California can best align its efforts with other purchasers.

In doing so, Covered California's efforts should be informed by a clear picture of the potential impacts, as well as performance benchmarks and efforts of major national and California purchasers. To inform Covered California's efforts, we are engaging health plans, providers, advocates and other stakeholders as we propose revisions to contractual terms that take effect in plan year 2021.

Covered California intends to share summary findings and seek initial feedback from stakeholders in early 2019. Drafting, public review and discussion of the new model contract will take place throughout summer and early fall of 2019, with an anticipated completion date of November 2019.

United States House of Representatives
Committee on Energy and Commerce Subcommittee on Health
"Hearing on Strengthening Our Health Care System: Legislation to Lower Consumer Costs and Expand Access"
March 6, 2019

Written Testimony Submitted By:
Peter V. Lee
Executive Director
Covered California

Good morning Chairwoman Eshoo, Ranking Member Burgess, and distinguished members of the Subcommittee on Health. My name is Peter V. Lee and I serve as the Executive Director of Covered California – California's state-based health insurance marketplace for the individual and small group markets. I am honored to participate in today's hearing. The information and perspectives I will provide are based on six years of experience operating a robust and successful state-based marketplace as well as over twenty years working to make sure the health care better meets the needs of America's consumers. I hope to help inform your deliberations on the measures before you in committee today.

Remarkable Progress Has Been Made Under the Affordable Care Act – But Federal Policy Actions Are Having Significant Negative Impacts on Millions of Consumers in States Across the Nation

Our nation has made historic progress under the Affordable Care Act with millions of Americans across the country gaining access to coverage they can count on through the expansion of Medicaid and health insurance marketplaces since 2014. As a result, rates of uninsured have dramatically decreased and the promise of better access to health care and financial security has been realized by millions of American consumers.

In our state, Covered California has steadily worked to leverage its role in the market to maintain and improve affordability of coverage, promote competition and choice for consumers, and foster improvements in quality and delivery system reform. We have served over 3.5 million California consumers since opening our doors in 2014, by maintaining a very competitive market with 11 contracted health insurance carriers that actively compete based on price and service, developed patient-centered benefit designs that promote value and access to care, and fostered one of the healthiest risk pools in the nation. California's rate of uninsured has been reduced from 17.2 percent in 2013 to an historic low of 7.2 percent in 2017 by using the tools provided under the

Affordable Care Act, including establishing Covered California and the expansion of Medi-Cal, California's Medicaid program. When you count only those currently eligible for coverage — not including individuals who are ineligible for coverage due to their immigration status — California's eligible uninsured rate is roughly 3 percent.

Covered California has also used all of the tools of the Affordable Care Act to build a strong and sustainable individual market that helps keep health care premiums as low as possible. Covered California's 11 contracted qualified health plans (QHPs) vie for consumers based on price and quality. Our significant investments in marketing and outreach have led to strong, steady enrollment and one of the healthiest risk scores in the nation. As a result, individual market health care premiums in California are estimated to be about 20 percent lower than the national average with Covered California's five-year average rate increase below eight percent.

Despite this remarkable progress, we know that there is more work to be done – not only in California, but across the nation. Affordability remains a paramount issue for consumers, especially middle-class Americans who do not qualify for federal financial assistance and must bear the full weight of premiums on their own. These challenges are exacerbated by recent federal policy actions – including the federal elimination of the individual mandate penalty, promotion of short-term, limited duration insurance, and the reduction in marketing and outreach by the federally facilitated marketplace (FFM) – which have chipped away at the integrity of the Affordable Care Act in much of the nation.

These federal actions have contributed to an ongoing decline of enrollment in the FFM. From 2016 to 2018, states served by the FFM experienced a 39 percent decline in new enrollments, decreasing from 4 million to 2.5 million. For the 2019 plan year, the FFM experienced a 16 percent decrease in the number of new enrollees, on top of the 39 percent decrease from the prior years. In contrast, California saw a very modest 9 percent drop in new enrollment between between 2016 to 2018. However, despite maintaining a competitive market, steady enrollment, and a healthy risk mix, California is feeling the effects of these federal policy changes. Earlier this month, Covered California released its "2019 Open Enrollment Early Observations and Analysis," demonstrating that the federal removal of the individual mandate penalty appears to have had a substantial impact in California which experienced a 23.7 percent decrease in new enrollment for the 2019 benefit year.

Additionally, today, Covered California, the Massachusetts Health Connector, and the Washington Health Benefit Exchange released a joint analysis entitled "Exploring the Impact of State and Federal Actions on Enrollment in the Individual Market: A Comparison of the Federal Marketplace and California, Massachusetts, and Washington." This report highlights the stark difference between the experiences of consumers who live in states that have been committed to using the tools of the Affordable Care Act and those who are now relying on the FFM. Since 2014, the cumulative premium increase that consumers in states served by the FFM have risen by 85 percent; while in our three states the increase has been less than half of that increase. Not only does this mean that the federal government is paying literally tens of billions more in premium support through Advanced Premium Tax Credits than they would have if they'd kept increases to the level of our states — which we estimate to be roughly $35 billion dollars over the past five years — but the biggest impacts are felt by millions of middle class Americans who get no financial help to pay for coverage and have been priced out of coverage due to these federal policies.

The analysis demonstrates the critical role that the federal mandate penalty plays in promoting stability and reducing costs. California and Washington – both of which have used state-specific solutions to build health insurance exchanges that work and maintain very good risk mixes — saw their new enrollment drop significantly in 2019. Conversely, Massachusetts, which has maintained the state-level mandate penalty that they enacted in 2006 and leaned in to expand outreach and promotion for 2019, actually saw increases of over 30 percent in new enrollment for the 2019 benefit year.

In light of the challenges before us, we stand at a time of opportunity. While the Affordable Care Act has provided a staunch framework that has has helped millions of Americans gain access to health coverage and care, American consumers stand to gain from policy efforts to build on the law as it stands today. In his first act as California's governor, Governor Gavin Newsom sent a letter to Congressional leadership that outlined the ways that the Affordable Care Act can and should be improved. States like California, Washington, Massachusetts and many others are working to preserve the gains made and mitigate the impacts of recent federal policy actions in ways that aim to help consumers retain access to affordable, quality coverage.

While Covered California does not take positions on legislation, we do seek to inform the policy discussions with analysis and a real-world perspective informed by our five years of operation. It is in this context that I appreciate the opportunity to provide these comments and welcome a hearing that is looking ahead at how to build on a law that is working well AND needs to be improved.

Woven throughout this testimony are examples of the work states like ours are doing to promote stability and affordability in our marketplaces that can serve as a roadmap for federal policy in both the short- and long-term. In this vein, the legislative proposals before the committee today appear to reflect an effort to build on the Affordable Care Act. Reinsurance, the Navigator program, and the work of state-based marketplaces have each played a vital role in the successful implementation of the Affordable Care Act. I am pleased to provide comment on the policies at the heart of each of these proposals.

A Federal Reinsurance Program Can Effectively Help Stabilize Markets and Lower Premiums for Consumers

One of the most effective ways to help stabilize individual markets throughout the nation is to provide adequate federal funding through reinsurance. By covering a portion of medical costs for enrollees who experience extremely high medical claims, a reinsurance program lowers plan costs thus lowering premiums for all plans sold in the individual market. As a result, reinsurance can have a profound effect on the affordability of coverage, particularly for middle class Americans who do not now receive federal financial premium assistance because they are above the "cliff" at 400 percent of poverty level and who stand to directly benefit from lowered gross premiums. Additionally, reinsurance gives carriers additional pricing certainty which can help foster carrier participation and more competition in the market.

The Affordable Care Act included a temporary federal Transitional Reinsurance Program for the individual market in years 2014-2016. By providing funding to carriers to offset high cost claims prevalent in a sicker risk mix, the federal reinsurance program fostered carrier participation in the early years of the Affordable Care Act and reduced premiums by more than 10 percent per year (with state and regional variance in the amount of premium reduction experienced). However, the federal Transitional Reinsurance Program expired at the end of the 2016 plan year resulting in higher rates for 2017 in California and other states across the nation. For example, in California the expiration of the federal reinsurance program resulted in a one-time rate increase of approximately 4 to 6 percent as carriers priced for the loss of federal reinsurance funding.

In the absence of a federal reinsurance program, seven states have implemented state-based reinsurance programs to stabilize premium increases in their individual markets using the federal Section 1332 "state innovation" waiver process. Through the 1332 waiver process, states finance the reinsurance program using state funds, with some of the state funding then offset by federal "pass-through" funding based on federal savings generated by premium reductions achieved through reinsurance.

While state-based reinsurance programs may provide a potential means for some states to stabilize markets and reduce premiums, they are absolutely not a viable strategy for many states. State-based reinsurance programs require a significant financial investment by states, and the amount of federal pass-through funding made available to offset that state investment can vary greatly. In February 2019, State Value Health Strategies released a report entitled "State Reinsurance Programs and 1332 Waivers: Considerations for States," which highlights the significant variance in the amounts of federal pass-through funding received by each of the states with federally approved 1332 waivers. The percentage of the state-based reinsurance program covered by federal pass-through funds ranges from a low of 31 percent in Minnesota to a high of 100 percent in Alaska.

While each state is unique in terms of its own market dynamics and ability to invest state funds into a state-based reinsurance program, not having clear and predictable sense of how much federal pass-through funding may be available can put states at financial risk of having to support a significant proportion of the program with state funds. As such, state-based reinsurance programs at best only provide for a patchwork of premium relief across states and full reliance upon state-based reinsurance does not present either a comprehensive, sustainable or equitable solution to affordability and stability issues throughout the nation.

Fostering and encouraging state-based solutions is vital and states that want to pursue a 1332 waiver for state-based insurance should have that option. However, the reinstitution of a federal reinsurance program would be available to all states, regardless of whether they have the funding or other capability to support a state-based program. This would ensure that all Americans can benefit from the premium reductions and market stability resulting from reinsurance.

Implementing a new federal reinsurance program with sufficient federal funding could greatly reduce premiums in the individual market, both on- and off-exchange. For a specified nominal amount of funding such as $10 billion for 2020, the net cost to the federal government would likely be only about $3 billion since premium reductions due to reinsurance would reduce federal expenditures on premium subsidies by approximately 70 percent of the reinsurance spend. Additionally, because the federal mechanism for calculating reinsurance payments (referred to as the “EDGE server”) remains in place and could likely be “turned on” for reinsurance in a matter of months.

A federal reinsurance program makes sense for the individual market. With recent federal policy changes such as the removal of the individual mandate penalty, a 90 percent reduction in marketing and outreach by the FFM, and the promotion of short-term, limited duration insurance and association health plans, the risk mix of the individual market has deteriorated, contributing to higher premiums, especially for the middle class.

In addition, consideration of federal reinsurance for the individual market is warranted because the individual market is unlike that for employer-sponsored insurance (ESI) for either large or small employers. In contrast to the ESI market, many consumers in the individual market may have some income but are unable to work full-time due to some chronic condition. Based on risk adjustment data published by the Centers for Medicare and Medicaid Services for 2015 through 2017, it appears that enrollees in the individual market are approximately 19 percent higher risk than enrollees in the small group market, and the risk difference increased over the three-year period. This is evidence that a longer-term reinsurance program for the individual market is needed to keep premiums more affordable for consumers who do not have ESI and who do not qualify for other government programs.

Federal policymakers are in a position to help stabilize markets across the country by adopting a federal reinsurance program. Federal reinsurance has been the subject of bipartisan efforts to stabilize markets, and has been proven to be an effective tool to keep coverage affordable and foster carrier participation, and thus competition. The legislation before the committee today, H.R. 1425, would provide, starting in 2020, $10 billion annually to states to either establish a state reinsurance program or provide financial assistance to reduce out-of-pocket costs for individuals buying coverage through the exchange. It also would establish a federal reinsurance program in states that do not apply for federal funding, thus offering a federal reinsurance fallback. While Covered California does not promote or take positions on legislation, as a matter of policy, this proposed legislation appears to provide states with the flexibility and choice to leverage federal funds in a way that would best serve their consumers in the most cost-effective way.

While H.R. 1425 would not require a Section 1332 Waiver for implementation by states, I would like to add, however, that to the general extent funding to states is based on the use of the Section 1332 Waivers, there are structural improvements that could be made to that waiver process to truly foster state innovation and allow states to meet their consumers' needs in alignment with the goals of the Affordable Care Act. Under current law, the structure of the waiver requires "budget neutrality" for the federal government over a 10-year period – meaning that total funding under a waiver cannot exceed total funding projected to be spent in the absence of a waiver. This limits the potential for innovation under the waiver. Changes to budget neutrality requirements under Section 1332 that would allow states to use per-member federal costs as a basis for waiver funding would mean that rather than having coverage expansions count "against" state efforts that lower the per-person costs of subsidies as they currently do under the existing budget neutrality construct, budget neutrality would be calculated on a per enrollee basis, not total spending. Given that the work in our state through Covered California has resulted in lower per-member costs to the federal government, and thus significant federal savings, making a change such as this would enable states like California to better innovate and enact policies that would meet the goals of the Affordable Care Act to expand coverage in a cost-effective way.

State-Based Exchanges are Proving Grounds for Marketplaces Done Right

Today, the Committee will deliberate on H.R. 1385 which would provide states with $200 million in federal funds to establish state-based marketplaces. Given that Covered California is a well-established state-based marketplace, this proposal would not impact our state. However, I would like to take this opportunity to highlight the valuable and innovative role that state-based marketplaces can play in helping reduce the rate of uninsured, fostering competition, maintaining a healthy risk mix, helping make premiums more affordable, and driving improvements in quality and delivery system reform.

I'll begin with an oft-stated adage that bears repeating: "all health care is local." State-based marketplaces have the advantage of knowing and understanding their markets and consumers in ways that can optimize performance and lead to good outcomes with regard to enrollment, affordability, and risk mix. Covered California, as well as many other state-based marketplaces, have leveraged the tools of the Affordable Care Act to build strong and sustainable individual markets that have helped drive down health care premiums. In California alone, the result is a competitive marketplace in which a stable group of carriers vie for consumers based on price and quality. Covered California's significant investments in marketing and outreach — which equate to about 1.1 percent of the on-exchange premium and is funded out of our assessment on health plans — have led to more than one million actively enrolled consumers and one of the lowest risk scores in the nation. As a result, individual market health care premiums in California are about 20 percent lower than the national average.

In addition to California, other state-based marketplaces have set models for how successful exchanges work. State-based exchanges have lower risk scores on average than the FFM. [1] As outlined in our comparative analysis of California, Massachusetts and Washington exchanges to the FFM, each of our three states has used state-specific solutions to build health insurance exchanges that work, including:

- Active outreach and marketing.
- State policies that ensure a stable and competitive individual marketplace.
- To varying extents, playing active roles in the certification of QHPs to ensure quality and affordable products.
- Having common patient-centered benefit designs and improved choice architecture to simplify the purchase experience and have consumers focus on price and quality.

The result has been that these three states have been successful at restraining growth in the average benchmark premium, holding average annual increases to less than 7 percent since opening in 2014. During the same period, the FFM average benchmark premiums have grown at an average rate of over 13 percent.[2] In 2019, average benchmark premiums in the FFM are now 85 percent higher than they were in 2014, while the weighted average increase across the three states was 39 percent. Had the FFM experienced the lower premium growth seen in California, Massachusetts, and Washington, the federal government could have seen saved as much as $14 billion in 2018, or cumulative savings of approximately $35 billion, based on reduced expenditures on federal premium subsidies. Additionally, lowered premiums through the FFM could have provided direct savings to millions of Americans who do not receive any subsidies making them less likely to have been priced out of coverage.

Recent changes to federal policy appear to have impacted new enrollment in our three State-based marketplaces. While the FFM has seen new enrollments drop considerably from 2016 to 2018 – a 40 percent drop from 4.0 million to 2.5 million – our marketplaces held steady given the state-based efforts that have driven new enrollment and kept markets stable despite changing policies at the federal level. However, for the 2019 open enrollment, it appears that the loss of the individual mandate penalty has been a significant driver of lower numbers of new enrollment for California and Washington. Both states with healthy risk mixes - saw their new sign-ups drop off significantly, 24 percent and and 50 percent, respectively. The FFM also experienced a 16 percent decline on top of the 40 percent cumulative decline from 2016 to 2018. In contrast, Massachusetts saw a 31 percent *increase* in the number of new sign-ups. A major distinction between Massachusetts and California, Washington, and the FFM is that it had in place since 2006 its own state individual mandate penalty and also adds

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[1] Health Affairs (July 2018). National vs. California Comparison: Detailed Data Help Explain the Risk Differences Which Drive Covered California's Success.
https://www.healthaffairs.org/do/10.1377/hblog20180710.459445/full/

[2] Analysis of enrollment weighted average benchmark premiums reported by Kaiser Family Foundation (2014-2019): https://www.kff.org/health-reform/state-indicator/marketplace-average-benchmark-premiums/

additional states subsidies for enrollees. The state of Massachusetts invested more in outreach and marketing for the 2019 plan year and — building on a "culture of coverage" where residents know they need to get coverage — residents of the state are the winners.

In California, Governor Newsom and the California State Legislature are actively considering taking action to protect the Affordable Care Act from erosion by federal action by proposing to implement a state-level individual mandate penalty. At the same time, they are also showing notable leadership by proposing additional subsidies to low- and middle-income Californians – including groundbreaking proposals to provide financial assistance to individuals with household incomes up to 600 percent of the federal poverty level. If enacted, this policy would make California the first in the nation to address the subsidy "cliff" by providing financial help to those members of the all-too-often forgotten middle class who currently bear the full cost of coverage all on their own.

Covered California has helped inform these state policy efforts by developing policy options that can improve affordability and expand upon the progress we have made in our state. On February 1, 2019, Covered California released a report entitled, "Options to Improve Affordability in California's Individual Health Insurance Market," which outlined modeling and analysis of the impacts of various state-based policies to improve affordability including a state individual mandate penalty, premium and cost-sharing subsidies, and reinsurance. I will note that while California and other states are charting a path forward with these efforts, in many instances these types of policies are better done at the federal level — as reflected in Governor Newsom's letter to Congress. When we completed this report for the Governor and California's legislature, we also sent it via a letter to Congressional leadership sharing our work with the hope that it may serve as a roadmap for federal policymakers to the extent Congress presses forward on health care policy in both the short- and long-term for the benefit of all Americans.

Finally, in light of your consideration of the policy merits of H.R. 1385, I'd like to take this opportunity to share some of the core elements specific to Covered California that serve as examples of a marketplace done right:

- ***Curating a competitive marketplace that promotes affordability and value for consumers***
  Covered California actively negotiates with its contracted QHPs in an effort to keep premiums affordable, ensure access to care by consumers, and promote competition among carriers that fosters choice and value for consumers. Covered California's patient-centered benefit designs, which are designed to encourage access to care – including access to outpatient services outside of deductibles – promote enrollment and retention, and result in Covered California QHPs competing on price, provider networks, and service, all to the benefit of consumers.

- ***Advancing improvements in quality and delivery system reform***
  Since its inception, Covered California has set forth standards and requirements for quality improvement and delivery system reform in its contracts with its qualified health plans with the goal of lowering costs and making sure consumers

get the right care, at the right time and in the right setting. These requirements, which exceed those set by the Affordable Care Act, aim to address underlying costs of health care and promote better quality. For example, our qualified health plans are required to work toward improving health outcomes and patient safety, prevent hospital readmissions and reduce medical errors and health disparities. Covered California is currently in the process of revising its quality improvement and delivery system requirements for QHPs. We recently issued a report entitled, "Covered California's Efforts to Lower Costs While Ensuring Consumers Get the Right Care at the Right Time," which provides an early look at the results of Covered California's work to improve care and promote better quality while reducing costs. I would be happy to provide a copy to the committee which could help inform congressional discussions about how to address rising costs of health care and delivery system reform.

- ***Investing in marketing and outreach***
  While the federal government has significantly reduced its marketing investments, Covered California has continuously made major investments in marketing and outreach leading to steady enrollment, one of the healthiest risk mixes in the country, and lower premiums. In its landmark report, "Marketing Matters: Lessons from California to Promote Stability and Lower Costs in National and State Individual Insurance Markets," Covered California outlines that selling health insurance is uniquely challenging and that while sick people are motivated to buy health insurance, healthier people need to be reminded, nudged and encouraged. Marketing is necessary to overcome innate biases that discourage consumers from purchasing something that does not provide immediate returns. A recent analysis, "National vs. California Comparison: Detailed Data Help Explain the Risk Differences Which Drive Covered California's Success," cites Covered California's high marketing and outreach spending and efforts as being associated with its better risk scores and a contributing factor to its success in stabilizing the individual market both on- and off-exchange.

While there are many opportunities for the FFM to use existing evidence and itself implement these policies, there is evidence indicating that state-based exchanges perform well when they leverage tools and resources in innovative ways to reach and serve consumers. The state-based marketplaces that are in existence today benefited from receiving federal "establishment funds" to help start up in the early years of ACA implementation. Federal establishment funds expired, and today no state-based marketplace receives federal funds in order to operate. However, it is not clear that states would have made the early investments required to create the new state-based marketplaces that have taken shape over the past eight years, had it not been for early federal support.

Many states may be very interested in receiving federal support to inform their decisions about whether or not to establish their own state-based marketplaces that would serve in the best interest of their residents and leverage their own innovations to provide affordable and sustainable options for health care. In addition, the bill gives states until 2024 to implement a self-sustaining state-based marketplace — essentially allowing them the opportunity to build from lessons learned from other states. To the extent that the federal government can continue to foster the laboratory of the states through state-based marketplaces, providing states with support that gives them the latitude to develop and establish their own state-based marketplace has the potential of going a long way in boosting consumer enrollment in the health insurance marketplace.

Navigator Funding and Program Requirements

As the committee deliberates H.R. 1386 which would fund the Navigator program for the FFM $100 million per year, among other provisions, I would refer back to California's experience which shows that a stable individual insurance market does not just happen on its own – investments in marketing, outreach, and enrollment assistance play a vital role in maintaining enrollment and attracting healthy risk which in turn can lower premiums, encourage carrier participation, and foster stable markets. Under the Affordable Care Act, Navigator programs provide outreach, education, and enrollment assistance to consumers eligible for marketplace coverage and are funded by marketplaces. Navigator grantees play an important role in the constellation of service channels facilitating marketplace enrollment, particularly among traditionally "underserved" populations.

In 2017, CMS reduced funding for Navigator programs serving states in the FFM by 43 percent, from $63 million awarded in 2016 to $36.1 million for 2017. On a state-by-state basis, the funding reduction ranged from 0 percent to 96 percent from the amounts Navigator grantees were expecting for the 2017-18 program year.[3] CMS also reduced all other marketing expenditures by 90 percent, from $100 million in advertising in 2017 to $10 million for 2018. On September 12, 2018, CMS released funding awards for Navigators serving consumers in the FFM which reduced funding to $10 million. Compared to 2016, federal Navigator funding for the 2018-19 program year reflects an 84 percent reduction. The number of Navigator grantees serving the FFM states was 104 in 2016 compared to 40 for the 2018-19 year.

In California, we have a Navigator program that complements and supplements the work of over 12,000 certified licensed agents. Our competitive grant program for Navigators has selected organizations rooted in communities throughout the state serving distinct and diverse populations, many of which require one-on-one assistance delivered in culturally and linguistically appropriate ways. As such, Covered California's investments in the Navigator program have generally held steady between 2016 to today. In 2016, funding for the Navigator program in California was $7.1 million. For 2018-19, Covered California allocates approximately $6.5 million (reflecting approximately 0.08 percent of the premium dollar) to 102 grantees (42 lead Navigator entities and 60 subcontractors). In 2018, approximately 2.5 percent of Covered California enrollees, roughly 40,000 consumers, were enrolled in Covered California through Navigators, with about 3.5 percent (about 60,000) being enrolled through our uncompensated but supported Certified Application Entities.

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[3] Kaiser Family Foundation. September 2018. *Data Note: Further Reductions for Navigator Funding in Marketplace States.* https://www.kff.org/health-reform/issue-brief/data-note-further-reductions-in-navigator-funding-for-federal-marketplace-states/

Navigators are part of a comprehensive investment by marketplaces and others in consumer acquisition. In addition to Navigator programs, Covered California makes significant investments in marketing and advertising; digital advertising and engagement; earned media, quality customer service through our Service Centers; support for licensed and certified agents and brokers; patient-centered benefit designs that provide value; and many efforts to provide a positive consumer experience. In addition, Covered California's QHPs make investments to attract and retain enrollment through competitive pricing, marketing, agent commissions and others.

As the committee evaluates the goals and merits of increased Navigator funding, it should consider the valuable role Navigators play in providing outreach, education and enrollment assistance to consumers in need. The committee should also consider how the Navigator program fits with within the comprehensive efforts across marketplaces, agents and brokers, carriers, and others promoting coverage and providing enrollment assistance as it determines the level of federal funds for the program.

Additionally, the proposed legislation would impose new requirements related to Navigators, both those serving the FFM states as well as state-based marketplaces. One such proposed provision would prohibit the U.S. Department of Health and Human Services (HHS) from taking into account a Navigator entity's capacity to provide information related to association health plans or short-term, limited duration insurance in awarding grants. In California, a new law[4] taking effect this year bans the sale of short-term, limited duration insurance in the state, so our Navigator grantees would not be allowed to enroll individuals into such plans. However, with federal policies promoting the sale of short-term, limited duration insurance and association health plans as cheaper alternatives to the comprehensive coverage consumers can purchase through the marketplace, this provision appears to be timely and relevant to others states throughout the nation.

Short-term, limited duration insurance does not need to comply with the consumer protections of the Affordable Care Act, allowing these policies to deny coverage based on pre-existing conditions or other factors. Additionally, contrary to the comprehensive coverage guaranteed to be issued under the Affordable Care Act, this type of insurance generally covers a limited set of services and can include annual and benefit limits. The promotion of this type of coverage can not only leave consumers who purchase it vulnerable to health and financial risk when they need care, it can also have negative impacts to individual markets where they are sold. These products lead to the siphoning of healthy individuals out of the marketplace as they may take the risk of buying cheaper coverage with limited benefits. This will leave sicker enrollees who need the protection of comprehensive coverage in the marketplace, which creates adverse selection and can drive up premiums for everyone.

While it is unclear to what degree Navigator entities would promote short-term, limited duration insurance or association health plans given their general commitment to the

[4] Senate Bill 910 (Hernandez, Chapter 687, Statutes of 2018), commencing January 1, 2019, prohibits a health insurer from issuing, selling, renewing, or offering a short-term limited duration health insurance policy, as defined, for health care coverage in California.
http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201720180SB910

goals of the Affordable Care Act, this issue merits consideration as you deliberate on this legislation.

Conclusion

I will close my testimony by stating that, as a nation, we are at a pivotal time in health care. This subcommittee and all members of Congress will be faced with challenging decisions that will have real and significant impacts on the lives of Americans throughout the country. Having served as the only Executive Director for Covered California, I have been witness to both the remarkable achievements made thus far, as well as challenges overcome as our state-based marketplace moved from being start-up to now being a robust, financially solid, successful exchange serving millions. Despite some of the contentions around the passage of the Affordable Care Act, it is fair to say that the Affordable Care Act is the most significant health care-related legislation since the establishment of Medicare and Medicaid in 1965. Like Medicare, the Affordable Care Act was not perfect upon enactment. Also like Medicare — which has been revised many times — it can and should be reviewed, revised and improved. To the extent that federal policy discussions can shift toward building on the progress of the Affordable Care Act, we are hopeful that the work of Covered California and other state-based marketplaces can serve as a roadmap for the nation.

Again, I would like to thank the committee for inviting me to testify on this set of timely and relevant proposals. I am honored to represent Covered California, and always aim to help inform the health policy dialogue at both state and federal levels. To that end, I encourage you to use Covered California as a resource, and do not hesitate to reach out to us if we may provide you with any information or lessons learned that can assist you as you consider health care proposals that come before you in Congress.

Peter V. Lee
Executive Director
Covered California

Exploring the Impact of State and Federal Actions on Enrollment in the Individual Market: A Comparison of the Federal Marketplace and California, Massachusetts and Washington

Exploring the Impact of State and Federal Actions on Enrollment in the Individual Market

The sixth open-enrollment period under the Patient Protection and Affordable Care Act for plan year 2019 recently concluded. This open-enrollment period was the first since the launch of the Affordable Care Act in which the individual coverage mandate penalty was set to zero by federal action. The 2019 open-enrollment period also marked the third year in which the federal government continued a strategy of dramatically reducing its support and efforts to encourage enrollment in the states served by the federally facilitated marketplace (FFM).

The analysis in this report reflects a joint effort on behalf of three state-based marketplaces (SBMs) — California, Massachusetts and Washington — to better understand how their experiences differ from that of states served by the FFM and seeks to inform policy-makers by conducting early analysis of their enrollment experience.

This analysis focuses on two key dimensions of the performance of the individual markets over the past five years:

- **Change in premium**: Premium increases are critical indicators of individual markets' performance because of the direct relationship between premium increases and cost to the federal government, and more importantly, impacts on unsubsidized individuals who bear the full costs of these increases.
- **Change in new enrollment**: New enrollment (and not renewals or "total" enrollment) is the focus of this analysis because it is a better "leading" indicator of the impact of efforts to keep the individual market healthy and to lower costs, *and* because for 2019 the renewal figures do not reflect paid renewals, which may drop significantly with the removal of the penalty.

The analysis concludes with issues that warrant further investigation. The appendices include background information on states' activities and references.

State Solutions to Promote Enrollment in the Individual Market

California, Massachusetts and Washington are all state-based marketplaces that have used state-specific solutions to build health insurance exchanges that work. These strategies have included:

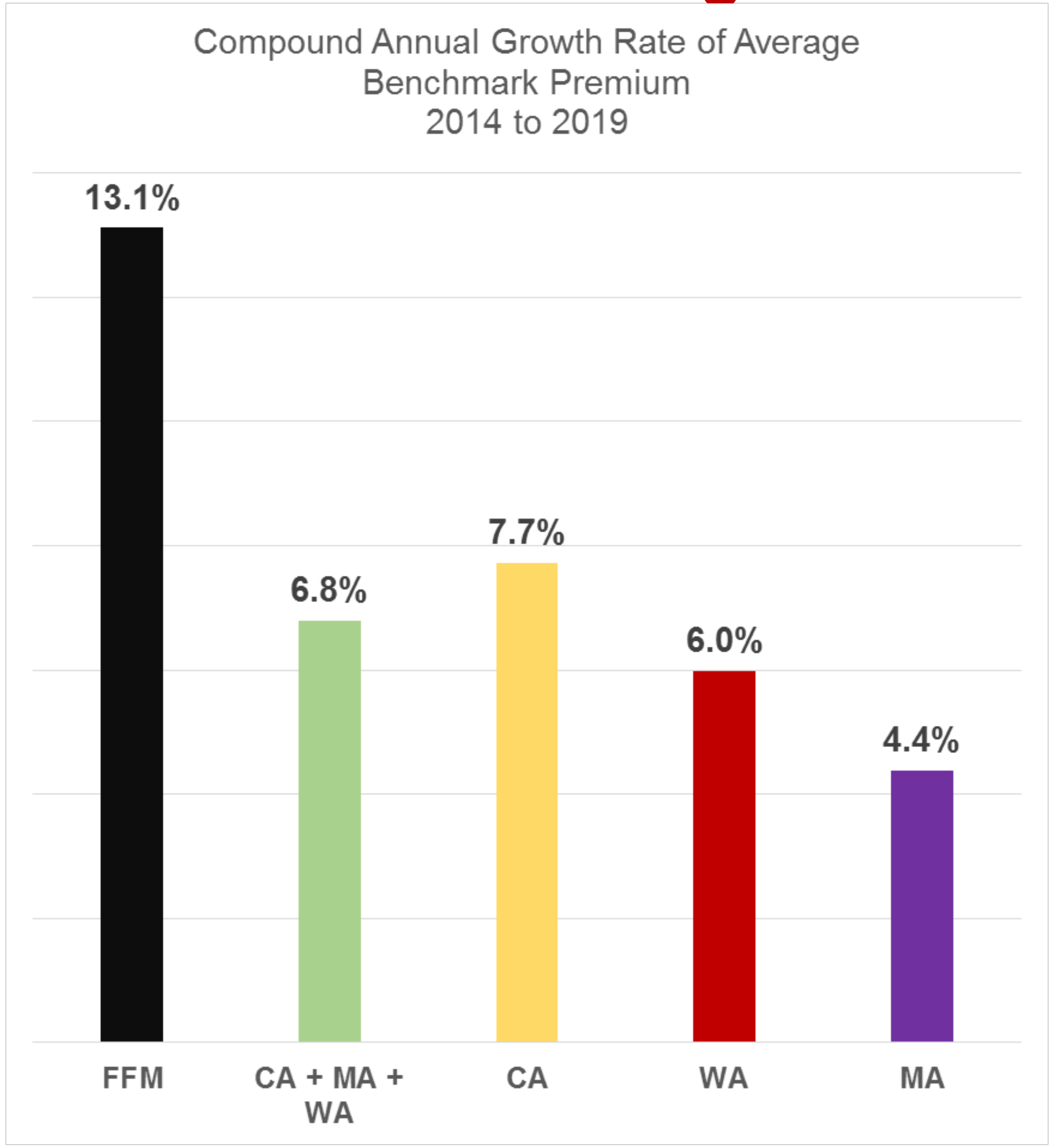
- Active outreach and marketing.
- State policies that ensure a stable and competitive individual marketplace.
- To varying extents, playing active roles in the certification of qualified health plans (QHPs) to ensure quality and affordable products and having common patient-centered benefit designs and improved choice architecture to simplify the purchase experience and have consumers focus on price and quality.
- Expanding their Medicaid programs through the Affordable Care Act and coordinating with state Medicaid agencies.

Examples of these activities and references to research on these states' efforts are included in the appendices.

From 2014 to 2019, Premiums in the FFM Have Grown at a Much Higher Rate Than Premiums in California, Massachusetts and Washington Have

Together, Massachusetts, Washington and California have been very successful at restraining growth in the average benchmark premium, holding average annual increases to less than 7 percent since the marketplaces opened in 2014.

During the same period, FFM average benchmark premiums have grown at an average rate of over 13 percent.



Analysis of enrollment weighted average benchmark premiums reported by Kaiser Family Foundation (2014-19): https://www.kff.org/health-reform/state-indicator/marketplace-average-benchmark-premiums/. FFM includes SBM-FP states.

The Cumulative Premium Increase in FFM States Has Been More Than Twice as Much as That of California, Massachusetts and Washington

As of 2019, average benchmark premiums in the FFM are now 85 percent higher than they were in 2014. The weighted average increase of the three states was 39 percent.

Had the FFM experienced the lower growth seen in California, Massachusetts and Washington, the estimated savings to the federal government from lower premium payments for those receiving Advanced Premium Tax Credits could have been as much as $14 billion in 2018, or a cumulative savings of roughly $35 billion. However, it is likely that some federal costs would have risen with increased enrollment.

More direct savings would have been realized by the millions of Americans who do not receive subsidies: They would have both paid far less in FFM states and would have been less likely to have been priced out of coverage.

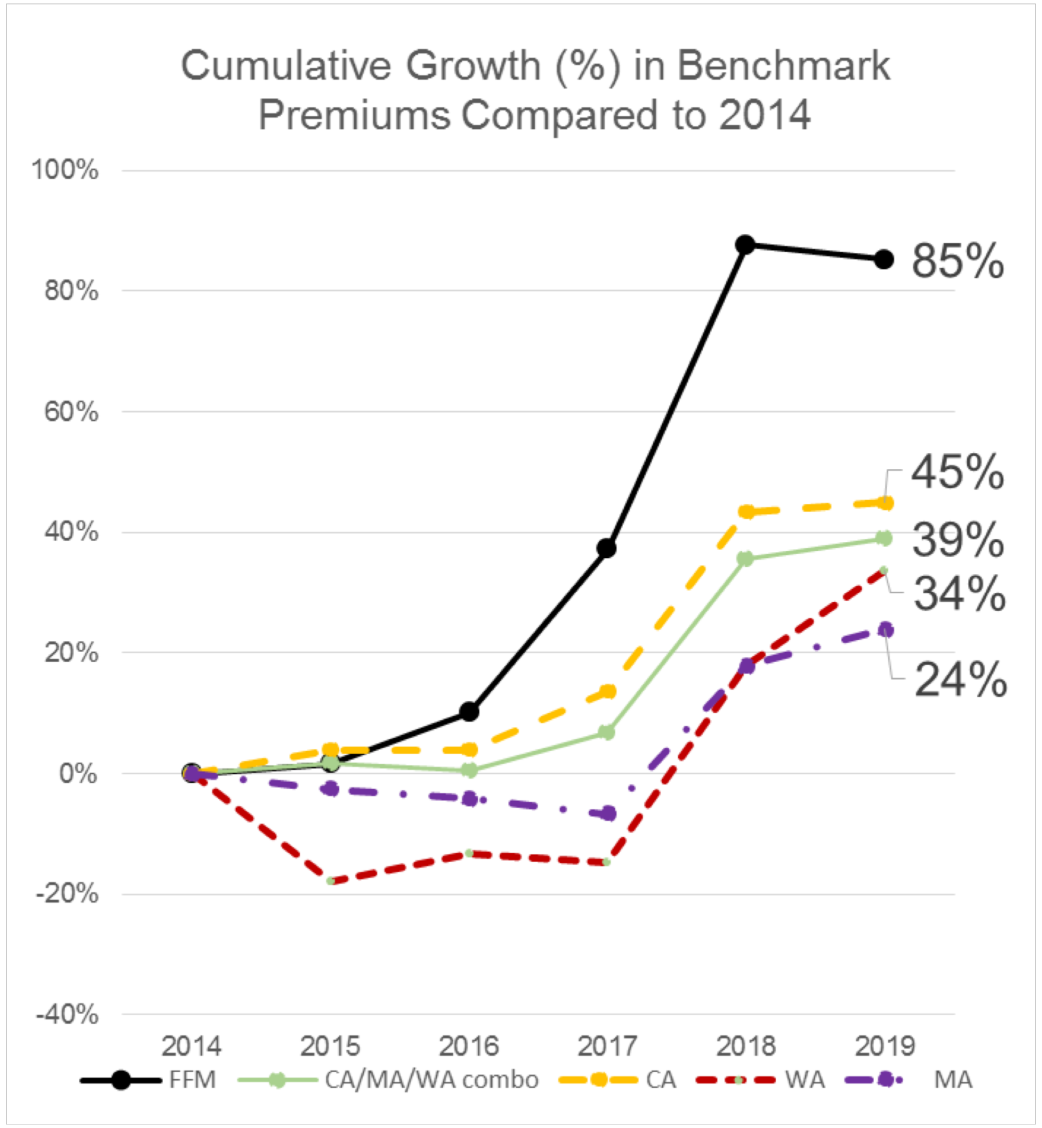
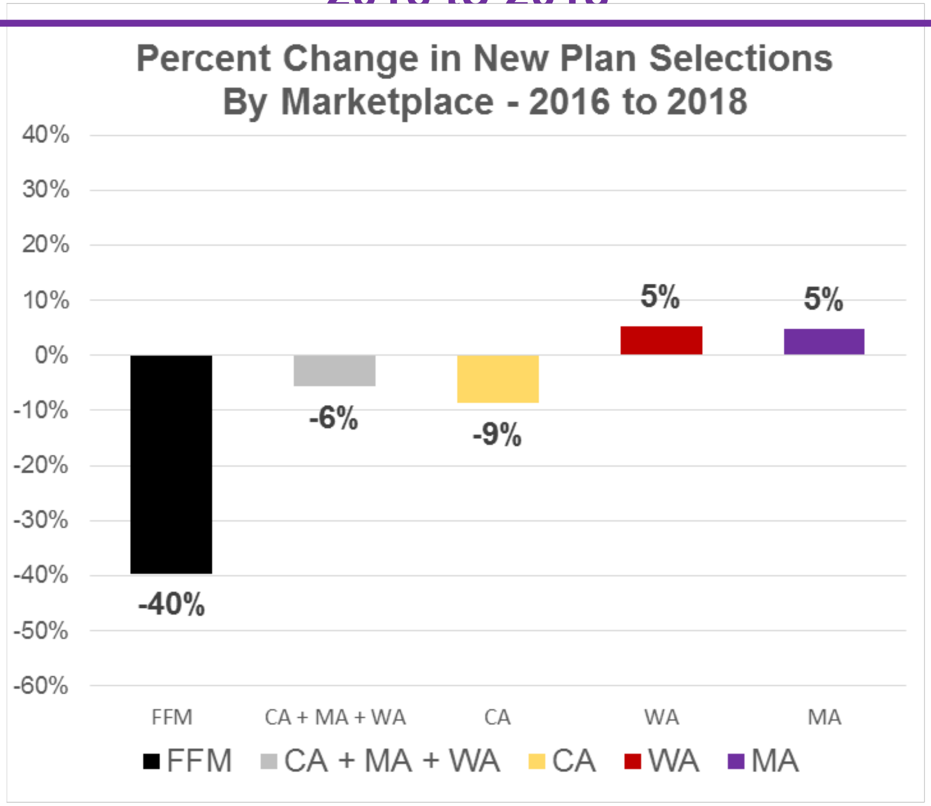


Chart shows analysis of enrollment weighted average benchmark premiums reported by Kaiser Family Foundation (2014-2019): https://www.kff.org/health-reform/state-indicator/marketplace-average-benchmark-premiums/. Estimates of cost savings use benchmark premium data. FFM includes SBM-FP states.

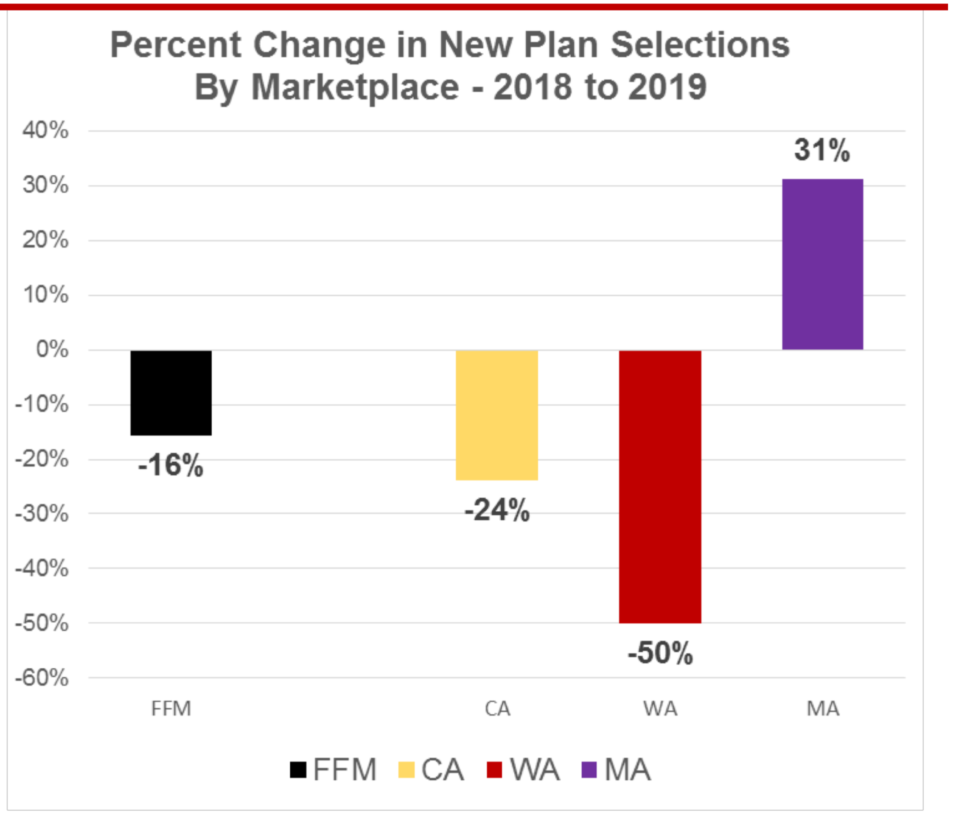
New Sign-Ups During Open Enrollment for 2019: Penalty and State Subsidies Appear to Drive Major Differences

2016 to 2018



- From 2016 to 2018, the FFM saw its level of new enrollments in open enrollment drop considerably — from 4.0 million to 2.5 million, a drop of 40 percent.
- By contrast, California, Washington and Massachusetts had relatively steady numbers of new sign-ups during open enrollment, from 547,000 to 516,000 in 2018, a drop of 6 percent.

FOR 2019



- For 2019, the 16 percent decline in the FFM ***was on top of a 40 percent cumulative decline*** from 2016 to 2018.
- California and Washington — both states with very good risk mixes — saw their new sign-ups drop off significantly.
- Washington saw lower enrollment, particularly among unsubsidized consumers, due to affordability concerns.
- Massachusetts, which still has a state mandate and adds additional state subsidies for enrollees, saw substantial increases in new enrollment.

Analysis of CMS/ASPE reported plan selections in public use files (https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/Marketplace-Products/index.html) and using 2019 releases from CMS (https://www.cms.gov/newsroom/fact-sheets/final-weekly-enrollment-snapshot-2019-enrollment-period), along with state data from CA, MA and WA. FFM includes SBM-FP states. Kentucky excluded due to shift from SBM to SBM-FP between 2016 and 2017 plan year.

Need for Additional Research: Outstanding Major Questions

These initial observations are not conclusory analysis. Many factors influence the outcomes on premiums and enrollment reviewed here, including changes in regional market conditions for the cost of health care, labor market dynamics and other state-specific dynamics. As discussed in the Covered California 2019 Open Enrollment Early Observations and Analysis, additional analysis is needed to better understand why enrollment changes over time and between states. The following are some of the areas of investigation that are not within the scope of this analysis (and most are areas for which data is not yet available):

1. ***Off-exchange Impacts:*** What has the enrollment change been in the off-exchange market, where no financial assistance is helping consumers reduce their premiums?

2. ***Effectuated Enrollment:*** How have retention rates among renewing consumers (*after* payment of new year's premium) been affected?

3. ***Risk Mix:*** Does a lower level of new enrollment translate into a worse risk mix, suggesting large premium increases are on the horizon?

4. ***Public Charge:*** What impact could the proposed shift in the federal application of the "public charge" have had on enrollment in immigrant communities?

5. ***End Date for Open-Enrollment Period:*** How does shortening or altering the open-enrollment period affect enrollment? (The FFM closes open enrollment on Dec.15. For the three states in this analysis, open enrollment closed on Dec. 28 (Washington), Jan. 15 (California), and Jan. 23 (Massachusetts).

6. ***Other State-Specific Considerations****:* Expansion of Medicaid, marketing spend, availability and enrollment of alternative plans (short-term and limited-duration plans).

APPENDIX

Plan Selections From 2019 in Context

SUMMARY OF ENROLLMENT TRENDS BY MARKETPLACE

HIGHLIGHTING PLAN SELECTION CHANGES BETWEEN 2016->2018 and 2018->2019

Category	Marketplace Type	2016 Count	2017 Count	2018 Count	Cumulative % Change (2016 -> 2018)	2019 Count	% Change (2018->2019)	Cumulative % Change (2016 -> 2019)
New Plan Selections	FFM	4,025,637	2,932,321	2,432,833	-39.6%	2,051,270	-15.7%	-49.0%
	Massachusetts	47,360	65,274	49,620	4.8%	65,119	31.2%	37.5%
	Washington	74,545	91,494	78,475	5.3%	39,237	-50.0%	-47.4%
	California	425,484	368,368	388,344	-8.7%	295,980	-23.8%	-30.4%
Renewals	FFM	5,600,345	6,188,329	6,221,240	11.1%	6,275,724	0.9%	12.1%
	Massachusetts	166,523	201,390	217,640	30.7%	236,760	8.8%	42.2%
	Washington	126,146	134,100	164,752	30.6%	183,399	11.3%	45.4%
	Covered California	1,149,856	1,188,308	1,133,180	-1.5%	1,217,903	7.5%	5.9%
Total	FFM	9,625,982	9,120,650	8,654,073	-10.1%	8,326,994	-3.8%	-13.5%
	Massachusetts	213,883	266,664	267,260	25.0%	301,879	13.0%	41.1%
	Washington	200,691	225,594	243,227	21.2%	222,636	-8.5%	10.9%
	Covered California	1,575,340	1,556,676	1,521,524	-3.4%	1,513,883	-0.5%	-3.9%

Analysis of CMS/ASPE reported plan selections in public use files (https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/Marketplace-Products/index.html) and using 2019 releases from CMS (https://www.cms.gov/newsroom/fact-sheets/final-weekly-enrollment-snapshot-2019-enrollment-period), along with state data from CA, MA, and WA. FFM includes SBM-FP states. Kentucky excluded due to shift from SBM to SBM-FP between 2016 and 2017 plan year.

Massachusetts's Expanded Activities for 2019 Open Enrollment Appears to Have Been a Key Driver in Growth in New Enrollment

- Massachusetts Health Connector staff used state-level data to identify uninsured communities and populations. This analysis helped to refresh and tailor open enrollment outreach to the current landscape of uninsurance and real-time needs in the market.

- Open enrollment for 2019 (OE19) outreach included very clear, simple messaging through the enrollment period (unlike last year, when new Silver-tier loading dynamics caused disruption).

- There was an overall increase in community engagement activities, paid media and earned media:

Type of Outreach	OE18	OE19	% Change
Pre-OE tour events	9 events	14 events	56%
Total earned medial placements and interviews	116 placements	154 placements	33%
Paid radio spots	2,096 radio spots	3,549 radio spots	69%
Paid TV spots	723 TV spots	1,164 TV spots	61%

- This was the Health Connector's third year working with a marketing and communications firm that was charged with "creating a culture of coverage" in underinsured communities through tailored, data-driven outreach. New member gains in OE19 may be the result of that long-term commitment and the resulting consistency in messaging.

- Massachusetts also launched a comprehensive #StayCovered campaign to educate the state population about its continuing individual mandate and about the importance of "shopping smart" for comprehensive health coverage that meets state standards.

Driving Enrollment Through Targeted Outreach in Washington State

Washington Healthplanfinder has had success in partnering with community organizations to enroll targeted groups.

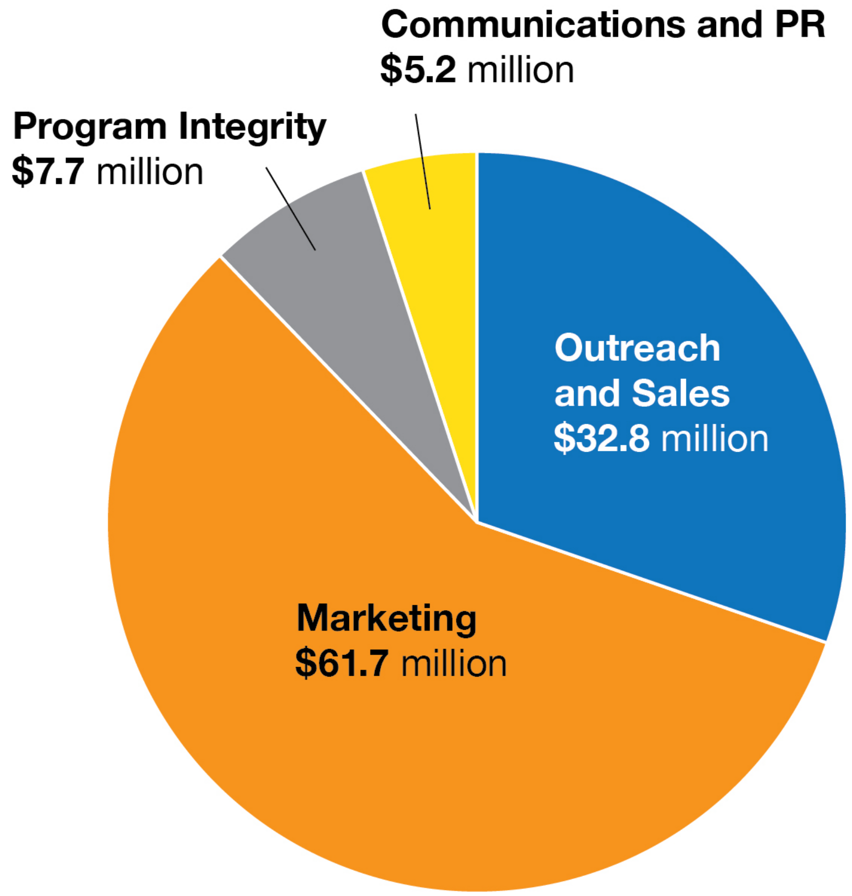
- Community fairs, festivals, and events.
- Health fairs and immunization clinics.
- Schools (K-12, higher ed., alternative).
- WorkSource adult and youth programs.
- Libraries.
- Jails and drug courts.
- Low-income housing complexes.
- Farms and orchards.
- Shelters.
- Food banks.
- Farmers markets.
- Faith-based organizations.
- WIC and other social services offices.
- Project Homeless.
- English and foreign language radio and TV spots.
- Mobile medical outreach.
- Native navigators (Russian, Ethiopian, COFA Islander).
- WorkSource youth programs.
- Fiestas Patrias.
- Kitsap Public Health Alerts.
- Methadone clinics.
- Hockey league.
- Stonewall Youth (LGBTQ).
- Back-to-school events.
- Salvation Army.
- Small businesses.

Outreach in California: Outreach and Marketing Matter in California to Achieve a Healthier Risk Mix and Lower Premiums

Outreach and marketing efforts reflect a range of evidence-based activities, including paid advertising and marketing, funding a community navigator program, supporting certified agents and promotion through earned media.

The $107.4 million spend is about one-third of Covered California's budget and reflects about 1.1 percent of on-exchange premium revenue.

Covered California's 2018-19 Outreach and Marketing Investments $107M (out of total $340M budget)



References

For examples of marketing, enrollment and other state-based strategies pursued by California, Massachusetts and Washington, and an early analysis of 2019 open-enrollment results, see:

- Gasteier, et al. (2018). "Why Massachusetts Stands Out In Marketplace Premium Affordability." Health Affairs Blog (Sept. 4, 2018): https://www.healthaffairs.org/do/10.1377/hblog20180903.191590/full/.
- Washington Health Benefit Exchange (2019). "1 in 4 Washington: Benefits of the ACA in Washington State." https://1in4wa.com.
- Covered California (2017). "Marketing Matters." https://hbex.coveredca.com/data-research/library/coveredca_marketing_matters_9-17.pdf.
- Bingham, et al. (2018). "National vs. California Comparison: Detailed Data Help Explain The Risk Differences Which Drive Covered California's Success." Health Affairs Blog (July 11, 2018): https://www.healthaffairs.org/do/10.1377/hblog20180710.459445/full/.
- Covered California (2019). "Covered California 2019 Open Enrollment Early Observations and Analysis." https://hbex.coveredca.com/data-research/library/CoveredCA_2019_Open_Enrollment_Early_Analysis.pdf.

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E&C SUBCOMMITTEE ON HEALTH: LEGISLATION TO LOWER CONSUMER COSTS AND EXPAND ACCESS

EXECUTIVE SUMMARY

Members of the House Energy & Commerce Subcommittee on Health convened a hearing to discuss three bills intended to lower costs and improve access: H.R. 1425, the State Health Care Premium Reduction Act; H.R. 1386, the Expand Navigators Resources for Outreach, Learning and Longevity (ENROLL) Act; and H.R. 1385, the State Allowance for a Variety of Exchanges (SAVE) Act. Witnesses Peter Lee of Covered California and Ms. Audrey Morse Gasteier of Massachusetts Health Connector provided insight as to how successful state-based health insurance exchanges are organized and administered. Mr. J.P. Wieske from Wisconsin advocated for more innovative ways for patients to enroll in the health system through privatization and technology. Members were supportive of state reinsurance flexibility to lower premiums; however, Members were split on the effectiveness of patient navigators and the sustainability of state-based insurance markets.

OPENING STATEMENTS

Subcommittee Chairwoman Anna Eshoo (D-CA) began her opening statement by expressing support for the three proposed bills and restated Democrats' commitment to lower costs for Americans. She asserted that the proposed bills bring down the cost of health insurance by allowing funding and flexibility to improve the individual market and increase choices, and added that reinsurance can be useful to account for those with preexisting conditions and to lower costs for middle class Americans.

In his opening statement, **Ranking Member Michael Burgess (R-TX)** expressed his disappointment in the lack of bipartisanship on these bills, especially on the topic of reinsurance. He stated that Republicans are supportive of reinsurance and state stability funds as cost reduction programs, but feels the current bill is too restrictive. Instead Ranking Member Burgess prefers the flexibility afforded in his own bill, in H.R. 1510. With regard to the patient navigator program, he felt that current data demonstrated minimal effectiveness. The Ranking Member felt similarly pessimistic about state-based exchanges and their long-term sustainability.

Full Committee Chairman Frank Pallone (D-NJ) supported the proposed legislation's ability to reduce cost and improve access in his opening statement. Chairman Pallone explained how "access" includes consumer access to important information to make the right decisions and how critical the navigators program is to this aspect. He said that the SAVE Act would allow states with Republican Governors the ability to tailor their market places to the states' needs. Chairman Pallone concluded that state reinsurance programs have been able to effectively lower premiums and a federal law could build upon this success.

WITNESS TESTIMONY

Mr. Peter Lee, Executive Director of Covered California, testified that recent federal policy actions have had negative impacts, but that California aims to use all of the tools of the ACA to improve access and affordability. He provided findings from a recent report that demonstrated that state-based market premium increases are half that of federal market premium increases. Mr. Lee asserted that reinsurance can help middle-class Americans who do not qualify for subsidies by lowering premiums and stabilizing the market. Finally, he noted that California has a robust patient navigator program that, coupled with outreach, has allowed California to maintain robust enrollment and keep premiums down.

In his testimony, **Mr. J.P. Wieske, Vice President of State Affairs at the Council for Affordable Health Coverage**, stressed that while the ACA provides many useful tools, it has also created new problems. He suggested that other mechanisms – such as smart phone apps – be utilized to enroll patients, rather than inefficient navigators. Mr. Wieske did support the use of reinsurance, but highlighted that it does not reduce costs directly, and suggested other tools should be used for cost reduction.

Ms. Audrey Morse Gasteier, Chief of Policy at Massachusetts Health Connector, testified that Massachusetts has enjoyed success in their state-based exchange due in part to the benefit of time, and hopes to share best practices. She boasted that Massachusetts has nearly universal coverage at 97 percent, and the lowest average premiums. Ms. Gasteier provided that the keys to success have been the connector care program that provides additional subsidies and Massachusetts' navigator and outreach program that ensures a robust market and increases coverage. She concluded that Massachusetts' state-based exchange is critical to the success of the program because it allows for flexibility.

MEMBER DISCUSSION

HR 1425 – State Health Care Premium Reduction Act

Several members asked the witnesses how federal reinsurance would be best carried out compared to existing state-run Section 1332 waivers that allow reinsurance. **Rep. Fred Upton (R-MI)** questioned how states can have more flexibility with regard to reinsurance. Mr. Wieske stated that flexibility is key as "one size does not fit all" and a state option with a federal fallback would be best. **Rep. Kurt Schrader (D-OR)** asked what limitations states could face when designing their own reinsurance programs. Mr. Lee provided that states must choose where to allocate the funds. For instance, he said that if the funds go to straight reinsurance, states could reduce premiums by 7 percent. Alternatively, states can target the population at 400-600 percent of the federal poverty level to lower premiums for those without subsidies.

HR 1386 – Expand Navigators Resources for Outreach, Learning and Longevity (ENROLL) Act

A majority of member discussion was centered around the patient navigators program and the benefit or lack of benefit it provides to the individual market place. **Rep. Doris Matsui (D-CA)** asked Ms. Gasteier how Massachusetts has achieved greater enrollment through the use of data. Ms. Gasteier responded that data is used to identify populations who are most likely to be uninsured and then navigators are strategically placed to target these populations. Rep. Matsui continued that California has premiums 20 percent lower than the national average and asked Mr. Lee how this was achieved. Mr. Lee credited their navigator and outreach program that keeps their risk pool large and premiums stable.

Rep. Kathy Castor (D-FL) highlighted how cuts to the navigator program had a negative impact on rural areas in Florida, which impacted affordability statewide. Ms. Gasteier agreed that the market performs better when coverage can be widespread. Mr. Lee added that navigators are useful in areas to which insurance agents do not have access. **Rep. Tony Cardenas (D-CA)** asked Mr. Lee to explain how the California navigator program functioned. Mr Lee explained that navigators are used to fill the gaps that insurance agents do not fill, such as Spanish speaking communities. He continued that individuals who use navigators make better decisions and are often healthier than individuals who enroll online.

Republican representatives were not as supportive of the use of navigators. **Rep. H. Morgan Griffith (R-VA)** stated that the navigator program received $62 million in funding, but enrolled less than 1 percent of the total enrollees in the federal market place. Rep. Griffith then asked Mr. Wieske why the program should receive more funding if it is not effective. Mr. Wieske provided that insurance agents have proven more effective in enrolling patients than navigators in Wisconsin, but this could vary from state to state. He added that Wisconsin experienced problems with people posing as navigators. **Rep. Larry Bucshon (R-IN)** offered that his state of Indiana spent approximately $1 million to enroll 606 enrollees and asked Mr. Wieske if there should be a cap on navigator funding per enrollee or a penalty for not meeting enrollment goals. Mr. Wieske responded that navigators are typically required to spend their funding as soon as it is received but some sort of penalty could be imposed.

HR 1385 – State Allowance for a Variety of Exchanges Act (SAVE)

Rep. Brett Guthrie (R-KY) recounted the history of awards for state-based insurance markets, and how many states were unable to create their own, even with unlimited funding. Rep. Guthrie asked Mr. Gieske what barriers Wisconsin faced in creating their market. Mr. Gieske responded that Wisconsin ultimately retuned their award because of lack of flexibility attached the grant and that the cost per person to create the system would be too high. **Rep. Earl Carter (R-GA)** cited how half of the 12 state-based exchanges received grades of either D or F and asked why. Mr. Gieske replied that improvements are often costly and difficult.

How Affordable are 2019 ACA Premiums for Middle-Income People?

Rachel Fehr, Cynthia Cox , Larry Levitt , and Gary Claxton

Published: Mar 05, 2019

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ISSUE BRIEF

The majority of enrollees who purchase health coverage through Affordable Care Act (ACA) exchanges receive premium tax credits to help them afford their monthly premiums. To a large extent, subsidized enrollees are shielded from premium increases because their subsidies rise along with premiums. On the other hand, middle-income people with incomes above 400% of the Federal Poverty Line ("FPL", equal to $48,560 for an individual and $100,400 for a family of four in 2019) are not eligible for subsidies and may struggle to afford ACA-compliant plans.

Marketplace enrollment among subsidized enrollees rose from 8.7 million in 2015 to 9.2 million in 2018. However, premiums increased significantly, and the number of unsubsidized enrollees in ACA-compliant plans has fallen over this same period from 6.4 million to 3.9 million. Unlike subsidized enrollees, those with incomes over 400% of poverty have to bear the full cost of premium increases if they buy an ACA-compliant plan.[1]

While premiums for ACA Marketplace plans are holding steady or falling slightly on average in 2019, whether ACA plan premiums are actually affordable for an individual depends on where they live, how old they are, and how much money they make. We analyzed 2019 premiums data to show how affordable the lowest-cost ACA Marketplace plan is in each county, by age and income, with a focus on middle-class people whose incomes are too high to qualify for subsidies.

This brief finds that affordability challenges are particularly acute for older adults with incomes just above the premium subsidy cutoff (400% of poverty), particularly in rural areas where premiums are highest.

Figure 1

Most unsubsidized enrollees who enroll in ACA-compliant plans do so outside of the Marketplace. This brief only includes premiums for plans that are available on the Marketplace, but bronze premiums for people who are not eligible for subsidies are generally similar whether an enrollee buys through the Marketplace or not. (In all but 14 counties, the lowest-cost plan available is a bronze plan.)

The interactive map shows a substantial decline in affordability between a $45,000 income (which would put an individual at 371% of the poverty level and make them eligible for subsidies) and $50,000 (412% of poverty and therefore not eligible for subsidies). This phenomenon is referred to as the “subsidy cliff” because subsidy eligibility ends sharply at 400% of poverty without a phase-out, even if premiums represent a substantial share of income for those above 400% of poverty.

In 21% of counties, a 40-year-old making $50,000 would have to pay more than 10% of their income for the lowest-cost plan in the Marketplace. However, because premiums are lower in urban areas than in rural areas, just 8% of Marketplace enrollees are in a county where that would be the case. In 25% of non-metropolitan counties (weighted by enrollment), a 40-year-old making $50,000 would spend more than 10% of their income on premiums for the cheapest plan available, compared with only 5% of people in metropolitan counties.[2]

Rhode Island has the lowest average premiums for middle-class people ineligible for subsidies in 2019: a 40-year-old making $50,000 would pay about 5% of their income in premiums for the cheapest plan, on average. Wyoming has the highest average premiums for unsubsidized people: a 40-year-old making $50,000 would pay about 14% of their income in premiums for the cheapest plan, on average, with Nebraska and West Virginia in a close second and third place.

Figure 2 presents an interactive chart showing how much the national average premiums for a low-cost plan vary as a share of income at different income levels for people at various ages. (Figure 3 presents similar results as a static chart.) On average across the U.S., a 40-year-old making $45,000 would pay $227 a month (6% of their income) for a subsidized bronze exchange plan, whereas the same person making $50,000 would pay $340 a month (8% of their income) for the same plan without a subsidy. Because the ACA allows premiums for older adults to be three times those for younger enrollees, middle-class older people with unsubsidized coverage are the most likely to face affordability challenges. For example, a 27-year-old making $50,000 would pay 7% of their income in premiums for the average lowest-cost plan nationally, whereas a 60-year-old making the same income would pay 17% of their income in premiums. Even at an income of $70,000 (577% of the poverty level), a 60-year-old would have to pay 12% of income for a low-cost plan on average.

Figure 2: Average Lowest-Cost Plan Premium (by Income, Age, and Metal Level, 2019)

For older people living in very high-premium counties, the affordability gap is much more stark; in the 28 Nebraska counties with the highest premiums, a 60-year-old making $45,000 would pay nothing in monthly premiums and the same person making $50,000 would pay $1,314 (32% of income) for the lowest-cost plan.

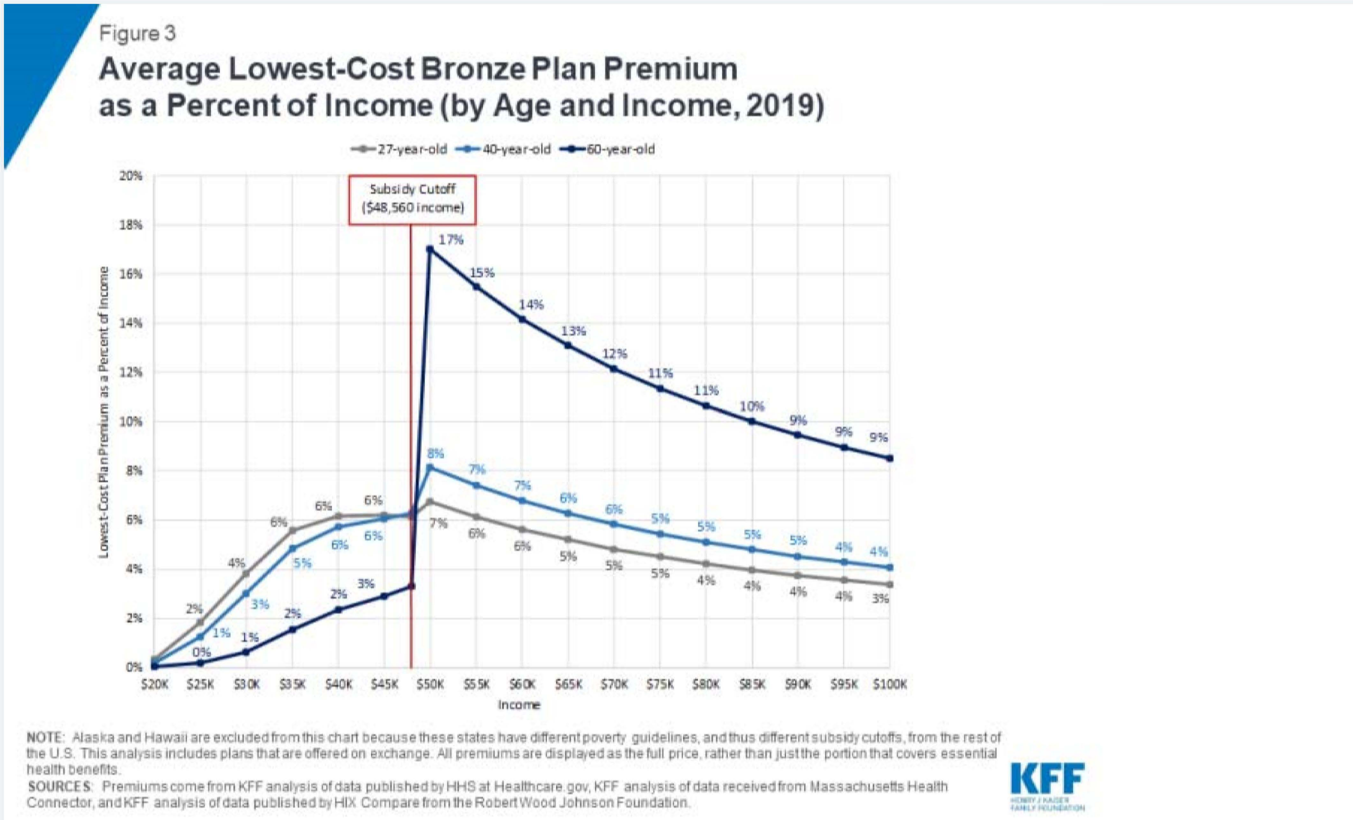

Figure 3: Average Lowest-Cost Bronze Plan Premium as a Percent of Income (by Age and Income, 2019)

The premiums in this analysis are for the lowest-cost plan available in each county, but these low-cost bronze plans come with higher deductibles, copayments, or coinsurance than plans at higher metal tiers with higher monthly premiums. The average deductible for bronze plans in 2019 is $6,258, compared to $4,375 for silver plans (for people who do not receive cost-sharing subsidies because their incomes are above 250% FPL). While some services, including preventative care and often a few physician visits, are covered before enrollees reach their deductible, sicker enrollees may be better off choosing a silver or gold plan even if that means they spend a larger proportion of their income on premiums.

Discussion

After several years of rising ACA plan premiums, premiums are falling in many parts of the country for 2019. Despite this trend, premiums for even the cheapest exchange plans are still out of reach for many middle class people who are not eligible for ACA subsidies, particularly those who are older or live in high-premium areas. Several policy options have been proposed to address affordability for people buying their own coverage without a subsidy, such as expanding more loosely regulated short-term plans, creating state-based reinsurance programs, extending subsidies beyond 400% of poverty, and expanding eligibility for Medicaid or Medicare.

The Trump administration recently made changes to short-term, limited duration plans, with the goal of creating a more affordable option for people who are not eligible for subsidies. Short-term plans generally have significantly lower premiums than ACA-compliant coverage, in large part because these plans can exclude people with pre-existing conditions and may not cover certain services. Thus, while short-term plans come with lower premiums, these plans are generally not an option for people who have pre-existing conditions or expect to need high-cost services (e.g. for pregnancy, prescription drugs, or mental health care). Additionally, these plans will disproportionately attract healthy individuals away from ACA-compliant coverage, thus having an upward effect on premiums in the ACA-compliant individual market and possibly making unsubsidized coverage less affordable for people with pre-existing conditions.

The ACA established a temporary reinsurance program from 2014 to 2016 with the goal of making premiums more affordable during the early years of new market reforms. Reinsurance covers a portion of the health care expenses for high-cost patients, allowing insurers to reduce premiums.

Seven states (Alaska, Maine, Maryland, Minnesota, New Jersey, Oregon, and Wisconsin) have since created their own reinsurance programs, and initial evidence indicates that these programs have been successful in reducing individual market premiums, although the details of these plans vary widely between states. How much a reinsurance program can reduce premiums depends on the level of funding dedicated to it. Reinsurance reduces premiums somewhat for all enrollees ineligible for premium subsidies. However, this reduction in prices will not be enough to make plans affordable for all unsubsidized middle class people, particularly those facing the highest premiums as a share of income. For example, the cheapest plan in Natrona County, Wyoming costs $1,237 a month for an unsubsidized 60-year-old (25% of income for someone making $60,000). If the implementation of a reinsurance plan reduced all premiums by 10%, the cheapest plan would cost $1,113 (22% of income), which is still too expensive for many people to afford.

Expanding premium tax credits to enrollees over 400% of poverty would provide more significant assistance to those newly eligible for subsidies. For example, California Governor Newsom recently proposed expanding premium tax credits to incomes between 400 and 600% of poverty (incomes up to $72,840 for an individual).

Avoiding a subsidy cliff altogether would cost taxpayers more. One federal bill introduced in the House last year would extend premium subsidies to enrollees in all income brackets, and increase the amount of subsidies across the board. On average nationally, tax credits would need to extend to nearly 800% FPL to bring 2019 bronze premium payments down to 10% of income for a single 64-year-old, or just over 1,100% FPL to accomplish the same for silver premiums. In the 28 Nebraska counties with the most expensive 2019 premiums in the U.S., tax credits would need to extend beyond 1,400% FPL to bring bronze premium payments down to 10% of income for a single 64-year-old, or over 2,000% FPL to accomplish the same for silver premiums. In the case of an older couple living in a high-premium county, subsidies would need to extend beyond 3,000% FPL (a $500,000 income), for 2019 silver premiums to cost less than 10% of their income.

In late 2018, the Trump administration released new guidance and the Centers for Medicare and Medicaid Services (CMS) issued a discussion paper on Section 1332 waivers established by the ACA. This new guidance may prompt states to apply subsidies to ACA non-compliant plans or experiment with different subsidy structures, such as tax credits based on age and not income. One of the CMS waiver concepts describes extending subsidies to higher-income residents to address the “subsidy cliff.” Under a budget neutral waiver, however, increasing subsidy resources for one population group would necessitate reducing subsidy dollars available to other groups. Currently, ACA subsidies are structured so that lower-income enrollees pay a smaller percentage of their income (2% premium cap for those 100-133% of poverty) than higher-income enrollees (10% for those 300-400% of poverty), and they receive the bulk of subsidies. Additionally, as noted above, subsidies would need to extend well beyond 400% FPL to do away with the subsidy cliff altogether.

A number of recent congressional proposals would provide lower premium options to middle-class people buying their own coverage by expanding access to public programs like Medicare and Medicaid. For example, one bill would allow people age 50 and over to buy into Medicare, potentially lowering premiums through reduced prices paid to health care providers and curtailing administrative costs and profits. Another bill would allow states to set up programs that allow people to buy into the Medicaid program, capping premiums at 9.5% of income.

So far, while there seems to be a consensus that individual market premiums are out of reach for some middle-class people ineligible for ACA subsidies, there is little consensus around what to do about it.

Op-Ed

Joint recommendations of Brookings and AEI scholars to reduce health care costs

Henry J. Aaron, Loren Adler, Joseph Antos, James Capretta, Matthew Fiedler, Paul B. Ginsburg, Benedic Ippolito, and Alice M. Rivlin Friday, March 1, 2019

Editor's Note:

This analysis is part of the USC-Brookings Schaeffer Initiative for Health Policy, which is a partnership between the Center for Health Policy at Brookings and the University of Southern California Schaeffer Center for Health Policy & Economics. The Initiative aims to inform the national health care debate with rigorous, evidence-based analysis leading to practical recommendations using the collaborative strengths of USC and Brookings.

The Senate Committee on Health, Education, Labor, and Pensions recently requested recommendations from health policy experts at the American Enterprise Institute (AEI) and the Brookings Institution regarding policies that could reduce health care costs. A group of AEI and Brookings fellows jointly proposed recommendations aimed at four main goals: improving incentives in private insurance, removing state regulatory barriers to provider market competition, improving incentives in the Medicare program, and promoting competition in the pharmaceutical market.

Read the experts' letter to the Committee and the full list of recommendations.

March 1, 2019

The Honorable Lamar Alexander
Chairman
Committee on Health, Education, Labor and Pensions, U.S. Senate
Washington, DC 20510

Dear Chairman Alexander,

In response to your request this past December, health policy experts at the American Enterprise Institute and the Brookings Institution have worked together to compile a list of policy options that would slow the rate of increase of health care costs and could gain bipartisan support.

The attachment to this letter includes several policy proposals that have broad consensus among our group of health policy scholars—a group which includes experts with a wide variety of political perspectives. (These recommendations are supported by the individual signatories on this letter; the organizations with which they are affiliated do not take institutional positions on public policies.) Among the recommended policies are some requiring explicit Congressional approval, as well as some for which Congress could recommend action by federal agencies or the states. We believe these proposals would meaningfully slow cost growth.

We thank you for the opportunity to provide input on this important topic, and we look forward to working with you and your colleagues to address this challenge in the current Congress.

Sincerely,

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CC:
The Honorable Charles Grassley
Chairman
Committee on Finance, U.S. Senate
Washington, DC 20510

The Honorable Patty Murray
Ranking Member
Committee on Health, Education, Labor and Pensions, U.S. Senate
Washington, DC 20510

The Honorable Ron Wyden
Ranking Member
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Attachment: Recommendations to Reduce Health Care Costs

High and rising health care costs have profound implications for household budgets, employers, and taxpayers alike. State and Federal governments alone spend over a trillion dollars per year on health care,[1] straining budgets and consuming resources that could be directed towards other worthwhile purposes. Premiums – which now average nearly $20,000 for family health coverage and $7,000 for single coverage – consume large portions of their total compensation, reducing what workers take home in cash wages.[2] These realities make controlling health care costs a pressing priority.

The Senate Committee on Health, Education, Labor, and Pensions has recently heard from several witnesses who emphasized that much of current spending reflects inefficiencies in our current health care market. This past December, you followed up on what was presented in those hearings by soliciting recommendations from health policy experts at the American Enterprise Institute and the Brookings Institution for policies that would begin to address this difficult problem.

We believe that many policies have potential to make the market for medical care more efficient through a combination of pro-competitive reforms and the use of regulation. Many such policies are relatively well-understood but have not been pursued for a variety of reasons, including stakeholder opposition.

What follows are cost-reducing policy proposals that are broadly supported by our group of health policy scholars—a group which includes experts holding a variety of political perspectives. Some of these proposals would require explicit Congressional approval while others could be implemented by federal agencies through administrative action but which might be advanced by an explicit endorsement by Congress. We also include policies that states are best positioned to pursue. We believe these proposals would meaningfully slow the growth of health care costs.

Improving Incentives for Cost-Effective Private Insurance

Over 150 million Americans obtain health insurance through an employer. As noted above, the high and rising cost of health insurance has contributed to the slow growth of take-home pay. Those costs are driven in part by government policies. In this section we highlight ways policymakers could stimulate competitive forces to reduce the costs of these policies.

Limit the tax exclusion of employer-sponsored insurance

The exclusion of premiums for employment-based health insurance from income and payroll taxes reduced federal revenues by about $300 billion in 2018.[3] By lowering the net price of health insurance, the tax exclusion promotes the purchase of more generous coverage than if health insurance were taxed like cash compensation. Limiting the exclusion would increase federal revenue, encourage the purchase of lower-cost health insurance, and slow the growth of health spending.

The most direct approach would cap the amount of employer and employee health insurance payments that can be excluded from the employee's taxable income. Capping, rather than

[1] National Health Expenditure Accounts, 2017.
[2] Kaiser Family Foundation Employer Health Benefits Survey, 2018.
[3] Congressional Budget Office, Federal Subsidies for Health Insurance Coverage for People Under Age 65: 2018-2028.

eliminating, the exclusion would maintain incentives for employers to continue offering coverage to their employees. It would also encourage employers to seek lower-cost plan options, but would not drive employers to offer only low-cost plans.

The Affordable Care Act (ACA) adopted a different approach to limiting the tax preferences for employer coverage. It imposed an excise tax (the "Cadillac" tax) on employer-sponsored health insurance with premiums exceeding certain thresholds. The tax was set to take effect in 2018, but Congress delayed implementation until 2022, when it will be levied on employer-sponsored plans with premiums exceeding $9,800 for individual coverage and $28,300 for family coverage. The amount of the tax is 40 percent of the excess of premiums over those thresholds.[4]

We urge Congress either to allow the Cadillac tax to take effect or to legislate a cap on the tax exclusion, so that premiums above the cap would be treated as income to covered workers. CBO estimates that setting the cap to the 75th percentile will reduce the 10-year deficit by $256 billion and will slightly narrow insurance coverage, with fewer than 500,000 people becoming uninsured.[5]

A second strategy would modify provisions of the Cadillac tax. Congress should consider allowing for variations in health insurance costs that reflect local market conditions and setting an inflation index that reduces the chance that plans that are not unduly generous would be taxed. These and other policies could make the Cadillac tax more sustainable in the future.

Further delays, or repealing the tax outright without a substitute that limits the tax exclusion, would leave in place the current incentives that increase spending rather than value in health care.

Limit the tax exclusion of employer-sponsored insurance

We recommend that Congress pass legislation capping the tax exclusion for employer-sponsored insurance at the 75th percentile of premiums. If this is not feasible, we recommend that Congress allow the Cadillac tax to take effect.

Ensure effective anti-trust enforcement

Many segments of the health care market are becoming increasingly consolidated. While some consolidation offers the potential of greater efficiency, too much consolidation can lead to higher prices and lower quality.

Legislation enacted more than a century ago recognized these dangers and authorized review of horizontal mergers between businesses that provide similar services and are actual or potential competitors. But funding constraints lead antitrust agencies to make tough choices about which mergers to challenge and discourages venturing into newer, but potentially more difficult areas, such as vertical mergers.

For example, the Federal Trade Commission has yet to challenge a hospital acquisition of a physician practice on vertical grounds, despite growing evidence that consolidation of this kind tends to lead to higher prices and less competition in other areas of the market. More funding for

[4] Fiedler, Matthew. 2018. "How to interpret the Cadillac tax rate: A technical note." USC-Brookings Schaeffer on Health blog. https://www.brookings.edu/blog/usc-brookings-schaeffer-on-health-policy/2018/02/01/how-to-interpret-the-cadillac-tax-rate-a-technical-note/.
[5] Congressional Budget Office, Options for Reducing the Deficit: 2019 to 2028.

antitrust enforcement could have a large return in lower prices paid by consumers and employers, which in turn would increase federal revenues through the tax exclusion. The Congress should provide substantial increases in funding for the Federal Trade Commission and the Department of Justice Antitrust Division.

Indeed, some believe that the way antitrust cases are handled today, with requirements for substantial quantitative evidence, may preclude opportunities to consider newer types of vertical combinations where there is little experience to analyze. For example, insurers and pharmacy benefits managers tend not to be competitors, but with all of the PBMs having been acquired by insurers, entry into both of those industries may now be impossible Bringing expert judgment on these issues to bear might require amendments to the original laws.

Some states have shielded hospital systems from federal antitrust scrutiny with the promise of state oversight through Certificates of Public Advantage (COPA). But experience shows that states rarely have the resources (or the will) to make sure that the merged entity does not abuse its new market power. States should not pursue this tool.

Fostering a competitive environment goes beyond challenging inappropriate mergers. Providers or insurers often pursue anti-competitive practices. For example, anti-tiering and anti-steering clauses in contracts between providers and insurers tend to extend provider dominance. "Most favored nation" clauses tend to extend the dominance of insurers. Some states, such as Massachusetts and Michigan, have passed legislation to address these practices. More states should do so. Empowering the FTC to study the insurance industry, enforce antitrust laws in the insurance industry and enforce antitrust laws with respect to nonprofit health care organizations could enable it to work against anticompetitive practices as well.

Ensure effective anti-trust enforcement

We recommend that Congress increase funding for the Federal Trade Commission (FTC) and the Department of Justice Antitrust Division. We also recommend that Congress direct the FTC to study the insurance industry.

Create pathway to encourage development of APCDs

One significant barrier to both public and private sector efforts to reduce health care spending is a lack of detailed and comprehensive data on provision and consumption of health care services, particularly among people enrolled in private insurance. Without high-quality, comprehensive data, it is difficult to obtain an accurate picture of how the health care system is operating today, which in turn makes it challenging to devise strategies to make it work better. In recent years, many states have aimed to address this problem by establishing all-payer claims databases (APCDs), repositories that collect claims records from all public and private payers operating within a state. Sixteen states have established APCDs to date and several more are in the process of implementation.[6]

State efforts to establish APCDs were dealt a significant blow by the Supreme Court's 2016 ruling in *Gobeille v. Liberty Mutual*. In that case, the Court held that the Employee Retirement Income Security Act (ERISA) bars states from requiring self-insured health plans to report to the state's

[6] For a list of state APCD initiatives, see https://www.apcdcouncil.org/state/map.

APCD. This leaves a large gap in states' APCDs as self-insured plans account for around half of all enrollment in private health insurance nationwide.

The federal government should take action to enable state APCDs to collect data for self-insured plans. It has at least two options for doing so. First, the Department of Labor likely has the authority to create a standardized national process that state APCDs could use to collect data from self-insured plans without running afoul of ERISA.[7] Congress could direct the Department to use that authority. Second, Congress could clarify that ERISA was not intended to bar state APCDs from collecting data from self-insured plans and thereby permit states to move ahead without additional federal action.

Create pathway to encourage development of APCDs

We recommend that the Department of Labor use its authority to create a standardized process that state APCDs could use to collect data from self-insured plans or that Congress amend ERISA to allow states to move ahead on their own.

Remove State Regulatory Barriers to Provider Market Competition

State governments have authority to regulate a number of features of local health care markets. Policymakers can, for example, regulate the supply of new health care facilities or conditions of state licensure for health care providers. In this section, we outline pro-competitive policies that Congress should encourage states to pursue.

Repeal any willing provider laws

As of 2014, around half of states had so-called "any willing provider" laws, which generally require insurers to allow any interested provider to join its network on the same terms offered to other in-network providers.[8] Many states also have similar restrictions known as "freedom of choice" laws, which require insurers to pay for care delivered by out-of-network providers. The types of providers included in these laws vary widely from state to state, with some targeting only specific provider categories (e.g., pharmacies) and others targeting a broad swath of health care providers.

Insurers' main source of leverage in negotiations with providers is their ability to exclude providers from their networks, so these restrictions tend to increase the prices insurers pay for health care services.[9,10,11] Those increases in provider prices in turn increase consumers' premiums and out-of-pocket costs.

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7 Ario, Joel. And Kevin McAvey. 2018. "Transparency In Health Care: Where Do We Stand And What Policy Makers Can Do Now." *Health Affairs Blog*. https://www.healthaffairs.org/do/10.1377/hblog20180703.549221/full/; Bagley, Nicholas. 2016. "A Modest Proposal for Fixing Gobeille," 36 *Yale J. On Reg.*: Notice & Comment. http://yalejreg.com/nc/a-modest-proposal-for-fixing-gobeille-by-nicholas-bagley/.

8 For a list of which states had any willing provider laws as of 2014, see http://www.ncsl.org/research/health/any-willing-or-authorized-providers.aspx.

9 Vita, Michael G. 2001. "Regulatory Restrictions on Selective Contracting: An Empirical Analysis of 'Any-Willing-Provider' Regulations." *Journal of Health Economics*. 20(6), 955-966. https://www.ncbi.nlm.nih.gov/pubmed/11758054.

10 Klick, Jonathan and Joshua D. Wright. 2015. "The Effect of Any Willing Provider and Freedom of Choice Laws on Prescription Drug Expenditures." *American Law and Economics Review*. 17(1), 192-213. https://academic.oup.com/aler/article-abstract/17/1/192/212392.

11 Durrance, Christine P. 2009. "The Impact of Pharmacy-Specific Any-Willing-Provider Legislation on Prescription Drug Expenditures." *Atlantic Economic Journal*. 37(4), 409-423.

In light of these negative consequences, states that have these laws should repeal them. Federal policymakers could consider tying the repeal of any willing provider laws to federal funding. States do have a legitimate interest in ensuring that insurance products offer reasonable access to providers, but there are more targeted approaches for achieving that objective. For example, if carefully crafted, network adequacy standards can safeguard access to care without creating the same degree of upward pressure on the prices of health care services.

Repeal any willing provider laws

We recommend that Congress encourage states to repeal any willing provider laws.

Certificate of need reform

Many states enacted laws in the early 1970s to create "certificate of need" programs, which required hospitals and sometimes other facilities to get permission from a state board to pursue major construction projects or equipment purchases. The rationale was that if too many beds were built they would nevertheless be filled and, even if not, cost reimbursement systems would automatically pass the cost of unfilled beds to patients. For a while, the federal government required states to implement CON programs.

However, a lot about the health system has changed since then, including a shift from cost-based to prospective payment and insurers requiring authorization for hospital admissions and major tests and procedures. Research has shown that CON programs do not save money. In fact, they may raise spending by blocking new competitors, such as hospital systems or physicians seeking to set up ambulatory facilities, from entering markets. The Federal Trade Commission and the Department of Justice have urged states to repeal these laws and not enact new ones, based both on empirical evidence from the research literature and the economic argument that market entry (or the threat of it) can make consolidated markets function more like competitive ones.[12]

What should the federal government do to discourage CON laws? Just as it required states to enact CON in the 1970s, it could take steps to make it attractive for states to repeal them. This could include tying elimination of CON laws to federal funding.

Repeal certificate of need laws

We recommend that Congress encourage states to repeal certificate of need laws.

Surprise billing reform

Too often, patients receive surprise medical bills from providers outside their health plan network. This may arise in an emergency situation or when treated by an out-of-network ancillary physician (an anesthesiologist, radiologist, pathologist, or assistant surgeon) at an in-network hospital. Surprise bills can be large. Furthermore, patients are liable for the difference between

https://www.researchgate.net/publication/227451073_The_Impact_of_Pharmacy-Specific_Any-Willing-Provider_Legislation_on_Prescription_Drug_Expenditures.

[12] "Joint Statement of the Federal Trade Commission and the Antitrust Division of the U.S. Department of Justice on Certificate-of-Need Laws and South Carolina House Bill 3250," January 11, 2016.

the health plan's allowed amount for the service(s) and the out-of-network providers' billed charges (or the "balance"), which are much larger than typical contractual payment rates.

An estimated one in five emergency department (ED) visits result in a potential surprise balance bill from an out-of-network physician and roughly one in ten scheduled stays at an in-network hospital involve treatment from an out-of-network provider, most commonly an anesthesiologist.[13] Prevalence appears similar in both the employer and individual markets and across plan types.[14]

The market for emergency and ancillary physician services is skewed because there is no price-volume trade-off in negotiations with health plans as is the case when bargaining with other medical providers. Patients do have some voice in which hospital they go to, but little or none over the individual physicians who treat them in the ED. Similarly, for nonemergency care, insured patients typically take care to select an in-network facility and primary physician, such as a surgeon, but do not select their ancillary physician(s). A similar dynamic exists for hospitalists and ambulance companies.

As a result, ED and ancillary physicians, as well as hospitalists and ambulance companies, have a lucrative out-of-network billing arrangement unavailable to other providers. Not surprisingly, emergency and ancillary physicians tend to have much higher billed charges (also known as "list prices") relative to Medicare payment rates, compared to other specialties.[15] Not only are surprise out-of-network bills harmful to those directly receiving them, but the ability to routinely treat and bill unsuspecting patients on an out-of-network basis allows ED and ancillary physicians to demand higher in-network rates (in order to forgo this option), increasing premiums for everyone. Studies find that emergency medicine physicians and anesthesiologists receive in-network rates, on average, in the range of 300% of Medicare rates, whereas commercial insurer payments to other physicians appear to average roughly 125% of Medicare rates.[16]

The more natural market negotiation for ED and ancillary clinician services is between those specialists and the facility (typically a hospital), for which there is a price-volume trade-off. The most straightforward solution is to require facilities to contract with insurers over a bundle of services that includes any associated ED or ancillary clinician services. Legislatively, accomplishing this would require prohibiting ED and ancillary physicians, as well as hospitalists, from billing independently for their services. Facilities would then negotiate with insurers over payment for these bundled services, and ED and ancillary physicians would negotiate with facilities for payment. Alternatively, a similar outcome could be achieved by limiting out-of-network charges for these provider types to or near the Medicare rate.

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[13] Cooper, Zack and Fiona Scott Morton. 2016. "Out-of-Network Emergency-Physician Bills—An Unwelcome Surprise." *New England Journal of Medicine*. 2016; 375:1915-1918. https://www.nejm.org/doi/full/10.1056/NEJMp1608571; Garmon, Christopher and Benjamin Chartock. 2017. "One in Five Inpatient Emergency Department Cases May Lead to Surprise Bills." *Health Affairs*. 36(1). https://www.healthaffairs.org/doi/10.1377/hlthaff.2016.0970.

[14] Garmon and Chartock, 2017.

[15] Adler, et al. 2019. "State Approaches to Mitigating Surprise Out-of-Network Billing," USC-Brookings Schaeffer Initiative for Health Policy. https://www.brookings.edu/research/state-approaches-to-mitigating-surprise-out-of-network-billing/.

[16] Trish, et al. 2017. "Physician Reimbursement in Medicare Advantage Compared with Traditional Medicare and Commercial Health Insurance." *JAMA Internal Medicine*. 2017; 179(9):1287-1295 https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5710575/; Stead, Stanley W. and Sharon K. Merrick. 2018. "ASA Survey Results for Commercial Fees Paid for Anesthesia Services—2018." *ASA Monitor*. 82:72-79 http://monitor.pubs.asahq.org/article.aspx?articleid=2705479; MedPAC. 2017. "Report to the Congress: Medicare Payment Policy." March 2017. http://medpac.gov/docs/default-source/reports/mar17_entirereport.pdf.

This solution would eliminate surprise out-of-network bills received from treatment at in-network facilities, but would leave unaddressed surprise bills from emergency services at an out-of-network facility and out-of-network ambulances. Addressing these instances would generally require a mechanism for limiting out-of-network charges for emergency department facility fees and ambulance services, combined with a requirement on insurers to hold their enrollees harmless for any costs above their normal in-network cost-sharing amounts. The authors of this letter share an interest in addressing these cases, but have yet to reach a consensus with regards to a preferred policy remedy.

Surprise billing reform

We recommend that Congress prohibit independent physician billing for emergency, ancillary, and hospitalist services. We further recommend that Congress consider options to address surprise billing by out-of-network emergency departments and ambulances.

Improving Incentives within Medicare

Medicare provides insurance for nearly 60 million beneficiaries and now represents roughly 15 percent of total federal spending.[17] Net outlays for the program are projected to rise to $1.26 trillion by 2028.[18] In this section we outline several specific policy options which would reduce program costs and improve efficiency throughout Medicare.

Expand site-neutral payments where clinically feasible:

Historically, Medicare has paid a higher rate for the same service when performed in a hospital outpatient department (HOPD) than in a freestanding physician's office. While this differential may sometimes be clinically justified, it often is not. Some services can be performed as safely at a physician's office as in an HOPD. Providing services in a needlessly costly setting is expensive for both Medicare and patients (through higher coinsurance). The differential also increases the incentive for hospitals to acquire physician practices, which often makes the hospital and physician markets less competitive.

Congress took an important first step in addressing site of service payment differentials as part of the Bipartisan Budget Act of 2015 (BBA) by reducing Medicare payments for services delivered at newly-built off-campus HOPDs to rates intended to approximate those in the physician fee schedule. And recently, the administration took the additional step, through rulemaking, of aligning payment rates for clinic visits at off-campus HOPDs built before the BBA with physician fee schedule rates.

But the move toward site-neutral payment between HOPDs and physician offices remains incomplete. In addition to exempting HOPDs that started construction before November 2, 2015, the BBA (as amended by subsequent provisions) exempts certain sites of care, such as

[17] Cubanski, Juliette and Tricia and Neuman. 2018. "The Facts on Medicare Spending and Financing," *The Kaiser Family Foundation*. Issue Brief. https://www.kff.org/medicare/issue-brief/the-facts-on-medicare-spending-and-financing/.
[18] Congressional Budget Office. 2018. "The Budget and Economic Outlook: 2018 to 2028." https://www.cbo.gov/publication/53651.

freestanding emergency departments, ambulatory surgical centers, and all on-campus HOPDs. The administration addressed the exemption for certain services (clinic visits) at grandfathered off-campus HOPDs, but left the remaining exemptions intact. As a result, much of the unjustified excess spending on services delivered at HOPDs that could be safely provided at physician offices remains.

Moving forward, policymakers should apply site-neutral payment for all services delivered in HOPDs – both off- and on-campus – that can safely be delivered outside of a hospital. The Medicare Payment Advisory Commission (MedPAC) has identified a list of services for which the additional payment for delivery at a HOPD appears unjustified, and a further list of services where only a small differential should exist.[19]

Expand site-neutral payments where clinically feasible

We recommend that Congress eliminate the grandfathering of off-campus HOPDs built before November 2015 from the BBA reforms and apply Medicare site-neutral payments for services delivered at on-campus HOPDs when clinically feasible, in line with MedPAC's recommendations.

Balancing incentives in Medicare Physician Fee Schedule

In all of the enthusiasm for expanding the use of alternative payment models, many lose sight of the fact that most of these models are built on a fee-for-service (FFS) architecture, specifically the Medicare Physician Fee Schedule (MPFS), which is used not only by Medicare, but by most Medicaid programs and private insurers as well.[20,21] The MPFS was created in the late 1980s to address chronic imbalances in payment rates between physicians who spend most of their time providing procedures and those whose time is taken up with patient visits. While the fee schedule led to large relative gains in payments for visits that benefited specialties such as primary care, these gains eroded over time as the process to update the relative values was flawed and CMS devoted insufficient staff resources to refinement of relative values. The upshot has been increasing incentives to provide procedures and growing unattractiveness of primary care and other specialties that rely heavily on visits. The latter is a particular problem for alternative payment, which often involves a larger role for these specialties to coordinate care and manage chronic diseases.

The Medicare Payment Advisory Commission (MedPAC) has periodically urged Congress to take steps to diminish these distortions in relative payment, the most recent of which is included in its June 2018 report. In addition to many technical changes to bring more accurate data into the process of updating relative values, the Commission called for an across-the-board increase for all outpatient evaluation and management services to be funded by cuts in payment for other services. In a February 2019 article in Health Affairs, one of the authors of this letter (Ginsburg) outlined the importance of revising the MPFS as a part of a strategy to further alternative payment

[19] MedPAC. 2014. "Hospital Inpatient and Outpatient Services." Report to the Congress: Medicare Payment Policy. March 2014. http://www.medpac.gov/docs/default-source/reports/mar14_ch03.pdf?sfvrsn=0.
[20] Clemens, Jeffrey and Joshua D. Gottlieb. 2017. "In the Shadow of a Giant: Medicare's Influence on Private Payment Systems." *Journal of Political Economy*, 125(1): 1-39. https://www.researchgate.net/publication/227451073_The_Impact_of_Pharmacy-Specific_Any-Willing-Provider_Legislation_on_Prescription_Drug_Expenditures.
[21] Clemens, Jeffrey and Joshua D. Gottlieb, J., and Timea L. Molnar. 2017. "Do Health Insurers Innovate? Evidence from the Anatomy of Physician Payments." *Journal of Health Economics*, 55C: 153-167. https://www.sciencedirect.com/science/article/abs/pii/S0167629616305628?via%3Dihub.

and called for ending the separation within CMS of the staff that manages the MPFS and the Centers for Medicare and Medicaid Innovation.[22]

> Balancing incentives in Medicare Physician Fee Schedule
>
> **We recommend** that Congress increase Medicare fee schedule rates for evaluation and management services, offset by decreases elsewhere in the fee schedule.

Reforming Medigap cost sharing and Medicare benefit design

Medicare requires beneficiaries to pay part of the cost of their care through deductibles, copayments, and other cost-sharing requirements. These charges are intended to promote cost-consciousness and reduce unnecessary use of services. Beneficiaries are responsible for a separate Part A deductible for each hospitalization, daily copayments for extended stays in hospitals and skilled nursing facilities, an annual Part B deductible, and 20 percent coinsurance under Part B after the deductible is met.

This complex structure exposes beneficiaries in fee-for-service Medicare to unpredictable and potentially catastrophic expenses. About 80 percent of those beneficiaries have additional coverage through commercial Medigap plans, employer-sponsored retiree plans, or Medicaid, which pay for most of the required out-of-pocket costs.[23] Moreover, because Medicare's cost-sharing requirements are complex, they do not always provide a clear incentive to beneficiaries or their providers to select the most cost-effective approach to treatment.

Two policy modifications would improve the effectiveness of cost-sharing in promoting cost-awareness among beneficiaries in fee-for-service Medicare: simplifying the program's cost-sharing rules and restricting Medigap insurance.

Congress could adopt a simplified Medicare cost-sharing structure similar to that of most commercial insurance. Medicare's current requirements would be replaced by a single annual deductible, a uniform coinsurance rate for all spending above the deductible, and an annual out-of-pocket cap on beneficiary liability. This would increase incentives for beneficiaries to use medical services more prudently, but would also protect those with serious illness from high medical costs.

Congress should prohibit Medigap plans from providing full first-dollar coverage, either as a stand-alone policy or in conjunction with simplifying Medicare's benefit design. The Medicare Access and CHIP Reauthorization Act of 2015 ("MACRA") took the first step in this direction. It banned Medigap policies that cover the Part B deductible for Medicare beneficiaries who first become eligible in 2020. However, under that provision, beneficiaries who already have Medigap plans that cover the deductible can maintain that insurance. One option would extend the MACRA provision to all Medigap plans, including those that have been grandfathered in. However, that leaves in place first-dollar coverage for Part A services and the potential for zero cost-sharing

[22] Berenson, Robert and Paul B. Ginsburg. 2019. "Improving the Medicare Physician Fee Schedule: Make it Part of Value-Based Payment." *Health Affairs, 38*(2), 246-252. https://www.healthaffairs.org/doi/10.1377/hlthaff.2018.05411.

[23] Cubanski, Juliette, Anthony Damico, Tricia Neuman, and Gretchen Jacobson. 2018. "Sources of Supplemental Coverage Among Medicare Beneficiaries in 2016." *The Kaiser Family Foundation.* https://www.kff.org/medicare/issue-brief/sources-of-supplemental-coverage-among-medicare-beneficiaries-in-2016/

liability for Parts A and B services above the deductible. A more effective approach would bar all Medigap policies from providing first-dollar coverage for Part A or Part B services, and further restricting Medigap so that it does not pay the full cost-sharing amount until the beneficiary's expenses exceed a specific level.

There are many potential versions of reforms like those described above, some of which would reduce the overall generosity of the Medicare benefit and some of which would not, and our group has not reached consensus on which version should be pursued. Nevertheless, policy changes in this area have received broad support among health policy experts for decades and changes like these could be an important step towards improving the Medicare program. To that end, we applaud Congress' recent efforts to alter Medigap coverage of Part B deductibles while urging them to build on this recent success.

Reforming Medigap cost sharing and Medicare benefit design

We recommend that Congress (1) reform Medicare's benefit design to include a combined deductible for Part A and B services, uniform coinsurance for services above the deductible, and an out-of-pocket maximum to protect beneficiaries from catstrophic costs; and (2) restrict Medigap plans from filling in the Medicare deductible(s) or covering the entirety of patient coinsurance.

Reforming protected classes in Medicare Part D.

The Medicare Part D program uses private insurance plans to cover non-physician administered drugs (i.e. those picked up at a pharmacy). Medicare enrollees can choose among a variety of available plans, thus incentivizing insurers to reduce costs and improve quality. However, competitive forces are severely limited by the program's "protected classes" – the rule requiring participating Part D plans to cover every available drug in six major therapeutic categories.

Completely eliminating this designation would carry the risk that insurers could alter formulary design to discourage sicker, and more expensive, beneficiaries from enrolling. The potential of encouraging this type of "cream skimming" argues against fully eliminating protected classes.

We suggest that Congress support the reforms to the protected class requirements in CMS' Part D Drug Pricing Proposed Rule (CMS-4180-P). Those reforms would maintain the six designated protected classes, but 1) allow insurers to exclude a protected class drug from a formulary if the price of the drug increased beyond a certain threshold; 2) allow the exclusion of a protected class drug from a formulary if the drug represents only a new formulation of an existing drug; and 3) expand the use of prior authorization and step therapy for protected class drugs, including to determine use for protected class indications.

HHS has estimated that this proposal would save the Medicare trust fund roughly $1.2 billion in the next ten years.[24] Thus, this proposal balances savings from additional flexibility, while avoiding undesirable incentives to attract only healthy patients through formulary design.

[24] Centers for Medicare & Medicaid Services, HHS. 2018. "Modernizing Part D and Medicare Advantage To Lower Drug Prices and Reduce Out-of-Pocket Expenses." *83 Fed. Reg. 62152*. https://www.federalregister.gov/documents/2018/11/30/2018-25945/modernizing-part-d-and-medicare-advantage-to-lower-drug-prices-and-reduce-out-of-pocket-expenses.

Reforming protected classes in Medicare Part D

We recommend that Congress support modifications to the Medicare Part D protected class designation. One option is to support CMS' Part D Drug Pricing Proposed Rule (CMS-4180-P) to increase flexibility in Medicare Part D protected classes.

Revising the Medicare Part D reinsurance program

The federal government subsidizes 74.5 percent of the cost of Part D coverage. But the subsidy comes in two forms—a direct subsidy to premiums and through reinsurance. For any beneficiary's spending in the catastrophic range (after the coverage gap), Medicare reinsurance pays for 80 percent of spending. Over time as more very expensive drugs have come into use and prices for brand name drugs have increased, reinsurance has grown from 31.3 percent of basic benefits in 2007 to 72.5 percent.

Between the 80 percent reinsurance and beneficiary coinsurance in this range of 5 percent, insurers are responsible for only 15 percent of drug spending in the catastrophic range. This is on top of diluted incentives for prudent spending in the coverage gap, where pharmaceutical manufacturers are now required to offer a 70 percent discount. The two together have the potential to severely distort insurer incentives. Insurers have little incentive to manage drug use through prior authorization, to secure lower list prices for expensive drugs used by their sickest patients, or to encourage the use of generic drugs or less expensive therapeutic alternative branded drugs.

MedPAC has proposed reducing the reinsurance percentage from 80 percent to 20 percent, while revamping the risk adjustment model used. This would substantially increase incentives on Part D insurers to contain costs, with the government reaping 74.5 percent of the savings and beneficiaries getting the remaining 25.5 percent. [25]

Revising the Medicare Part D reinsurance program

We recommend that Congress adopt MedPAC's proposal to lower federal reinsurance in Medicare Part D to 20 percent.

Remove incentive to prescribe higher cost drugs in Medicare Part B

Currently, the Medicare Part B program pays physician offices and other providers for the drugs and biologics that they infuse or inject into their patients in their offices or outpatient clinics. Medicare pays for these drugs and biologics based on a weighted Average Sales Price (ASP) formula, which is tied to the prices (net of rebates and discounts) charged by manufacturers to all public and private purchasers (with some exceptions). In addition, Medicare pays physicians an additional 6 percent fee to compensate them for administering these drugs for their patients.

[25] MedPAC. 2018. "The Medicare Prescription Drug Program (Part D): Status Report." Report to the Congress: Medicare Payment Policy, Chapter 14. March 2018. http://www.medpac.gov/docs/default-source/reports/mar18_medpac_entirereport_sec_rev_0518.pdf?sfvrsn=0.

The Medicare Payment Advisory Commission (MedPAC) has reported that, for large numbers of Part B-covered drugs and biologics, the ASP is well in excess of the prices paid by the office acquiring the products. In effect, these offices are able to use the sometimes large difference between the prices they pay for these drugs and the amount of reimbursement from Medicare to substantially increase their practice revenue. Further, the 6 percent add-on may encourage practices to use higher-priced products because the payment add-on increases commensurate with increases in the price of the product.

We support MedPAC's recommendation to supplement a reformed ASP formula with a market-based pricing approach, which would be a voluntary option in its initial phase. The market-based option would solicit vendors to negotiate directly with the manufacturers to obtain the lowest prices possible for their products. The vendors would be permitted to use formularies with preferred tiers to increase their pricing leverage. Physicians would be allowed to select from among the competing vendors, and would acquire the products at the prices their selected vendors have secured from the manufacturers. Medicare would reimburse them for this expense, and provide a reasonable administration fee not tied to the price. Physicians would also get to share in whatever savings the vendors are able to produce, which would serve as the incentive for joining the program.

Physicians would have the option to stay in the ASP reimbursement program, but the add-on would need to be reduced. Further, it is important to require universal reporting of price data by all manufacturers selling products covered by Part B, and to assign biologics and their biosimilar competitors to the same billing code to ensure maximum price competition.

Remove incentive to prescribe higher cost drugs in Medicare Part B

We recommend that Congress enact the 2017 MedPAC proposal to reform payment for physician-administered drugs in Medicare Part B.

Reform the low-income subsidy under Part D to encourage greater use of generic drugs

Beneficiaries enrolled in the Medicare Part D low-income subsidy (LIS) face relatively similar copayments for generic and brand drugs ($3.40 for generics and $8.50 for a brands).[26] As a result, there may be less incentive to choose the therapeutically-equivalent generic drug when available, and we have seen notably lower usage of generic drugs among LIS beneficiaries. (However, this difference may stem, at least in part, from greater usage of drugs without generic equivalents available in the LIS population.)[27]

To encourage greater use of generic drugs and reduce program spending, generic copayments should be reduced close to zero and brand copayments should be increased from current levels for LIS beneficiaries. The higher brand copayments would not apply to drugs without a generic equivalent or where therapeutic substitution with the generic is not deemed clinically-

[26] NCOA. 2019. "Part D LIS Eligibility and Benefits Chart." https://www.ncoa.org/wp-content/uploads/part-d-lis-eligibility-and-benefits-chart.pdf.
[27] MedPAC. 2012. "Report to the Congress: Medicare Payment Policy." March 2012, p.xxi. http://www.medpac.gov/docs/default-source/reports/march-2012-report-to-the-congress-medicare-payment-policy.pdf.

appropriate. Some of the savings from this proposal could be used to reduce other costs for low-income Medicare beneficiaries.

Reform the low-income subsidy under Part D to encourage greater use of generic drugs

We recommend increasing the spread between generic and brand drug copayment requirements in the Part D low-income subsidy in order to encourage greater generic drug utilization.

Expand bundled payments through legislation

In recent years, both the Medicare program and private payers have been experimenting with "bundled" payment approaches in which a fixed payment is made for all care associated with an episode of medical care; some bundled payment models also adjust payment based on quality performance. Evidence to date has suggested that such models can, at least in some instances, reduce spending without impairing the quality of care patients receive.[28,29,30,31] This evidence suggests that bundled payments may be more effective for some conditions than others, but provides little evidence that they have done harm in any context.

In light of this evidence, Congress should mandate that Medicare use bundled payments for episodes similar to those included in the Bundled Payment for Care Improvement (BPCI) initiative operated by the Center for Medicare and Medicaid Innovation (CMMI). To ensure that this system of bundled payments creates strong incentives for providers to become more efficient and generates savings for the federal government, the bundle amount should be set at an empirically-justified level and providers should be responsible for any spending in excess of the bundle amount.

Pending Congressional action, the Administration should reverse its 2017 decision to cancel or scale back CMMI demonstrations that were testing bundled payments on a mandatory basis, and it should expand those tests to encompass additional episode types. When the relevant statutory criteria are met, the Administration should use its authority to expand those models throughout the Medicare program.

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[28] Barnett, Michael L., et al. 2019. "Two-Year Evaluation of Mandatory Bundled Payments for Joint Replacement". *New England Journal of Medicine*, *380*(3), 252-262. https://www.nejm.org/doi/full/10.1056/NEJMsa1809010.

[29] Finkelstein, Amy, et al. 2018. "Mandatory Medicare Bundled Payment Program for Lower Extremity Joint Replacement and Discharge to Institutional Postacute Care Interim Analysis for the Frist Year of a 5-Year Randomized Trial.". *JAMA*, *320*(9), 892-900. https://jamanetwork.com/journals/jama/article-abstract/2698927.

[30] Joynt Maddox, Karen E., John Orav, Jie Zheng, and Arnold M. Epstein. 2018. "Evaluation of Medicare's Bundled Payments Initiative for Medical Conditions." *New England Journal of Medicine*, *379*(3), 260-269. https://www.nejm.org/doi/full/10.1056/NEJMsa1801569.

[31] Dummit, Laura, et al. 2018. "CMS Bundled Payments for Care Improvement Initiative Models 2- 4: Year 5 Evaluation & Monitoring Annual Report.." https://downloads.cms.gov/files/cmmi/bpci-models2-4-yr5evalrpt.pdf.

Expand bundled payments through legislation

We recommend that: (1) Congress mandate that Medicare use bundled payments for a set of episodes similar to those included in the Bundled Payment for Care Improvement initiative; and (2) the Administration move forward with testing bundled payments in additional contexts.

Improving the choice environment for Medicare enrollees

Medicare beneficiaries have numerous coverage enrollment options but the process through which they make their coverage decisions doesn't allow for clear cost comparisons. Currently, Medicare beneficiaries are allowed to select between traditional Medicare and Medicare Advantage. Separately, they may select a drug coverage plan, and then also a supplemental insurance plan offered in the private market.

It is not easy for the beneficiaries to see the full cost consequences of the various combinations of these options because they involve separate enrollment processes. To make informed decisions, Medicare should set up an enrollment system that allows the beneficiaries to see what the different combinations of options available to them would mean for their premium and out-of-pocket costs over the following year.

Improving the choice environment for Medicare enrollees

We recommend that Medicare adopt more comprehensive plan-finder tools that give beneficiaries better information on the likely cost of their enrollment options.

Promoting Competition in the Pharmaceutical Market

The Drug Price Competition and Patent Term Restoration Act (or "Hatch-Waxman Act") established a period of exclusivity for novel therapeutics, while substantially lowering barriers to entry once this expired. Over time, drug makers have used strategic behavior to block or delay entry of lower-priced generic drug competitors. We urge lawmakers to re-evaluate the net effect of the full set of tools now available to drug manufacturers for delaying generic entry and pursue reforms to encourage generic competition and lower drug spending. In particular, we outline below a series of specific policy reforms to consider.

Restricting REMS abuse

Manufacturers of dangerous drugs are required by the FDA to develop Risk Evaluation and Mitigation Strategies (REMS). Today, 40 percent of newly approved drugs require a REMS,[32] which can include monitoring protocols or, in stringent cases, restrictions on the distribution of drugs. Branded drug manufacturers have exploited REMS by arguing that safety considerations prevent them from selling their drug to generic manufacturers. This can delay or prevent competitors from creating a generic alternative.

[32] Zelnick Kaufman, Beth. 2016. "Statement of Beth Zelnick Kaufman."Senate Judiciary Subcommittee on Antitrust, Competition, Policy, and Consumer Rights.https://www.judiciary.senate.gov/imo/media/doc/06-21-16%20Zelnick-Kaufman%20Testimony.pdf.

The Creating and Restoring Equal Access to Equivalent Samples (CREATES) Act of 2018 would address this by allowing generic and biosimilar makers to bring civil lawsuits if insufficient quantities of a branded drug are not made available. CBO estimates this bill would reduce the federal budget deficit by $3.8 billion over 10 years and reduce system wide costs by a larger amount.[33]

> Restricting REMS abuse
>
> **We recommend** that Congress pass the CREATES Act of 2018, or similar legislation aimed at reducing delays of generic competitors into drug markets due to insufficient samples of branded products.

Restricting the use of the orphan drug designation

The Orphan Drug Act introduced various additional incentives for drugs treating rare conditions. Over time, however, some these policies have had perverse incentives and boosted drug spending. In part, these unintended effects arose from interactions with the 340B program, which was introduced to provide discounted drugs to hospitals serving large portions of low-income Americans.

Notably, if a drug is granted orphan status for a single indication, it is exempted from the 340B discount drug program for all sales. In addition, drugs may gain successive orphan drug designations on subtypes of a given disease, giving it an orphan drug exclusivity for various subpopulations far beyond the initial 7 years. Both of these activities increase drug spending.
We recommend that orphan drugs only be exempted from the 340B program for the condition(s) for which they have orphan status and that any secondary orphan designations be limited to 6 months of exclusivity each (rather than the current 2 years). Allowing for an additional 6 months of exclusivity would retain an incentive to investigate further uses of an existing drug, while limiting the ability to indefinitely "game the system."

> Restricting the use of the orphan drug designation
>
> **We recommend** that Congress pass legislation which exempts orphan drugs from the 340B program for conditions which initially established their orphan status. We further recommend that secondary orphan designations be granted only 6 months of additional exclusivity.

Reforming the 340B Program

We recognize that the 340B program has grown beyond its initial purpose. Because 340B providers may purchase drugs at large discounts while billing much higher rates to patients and insurers, there is a strong incentive for providers to qualify for the program. Close to half of hospitals now participate.[34] In addition, this ability to inflate mark-ups encourages hospitals to

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[33] Congressional Budget Office. 2018. "Cost Estimate of S. 974 Creating and Restoring Equal Access to Equivalent Samples Act of 2018." https://www.cbo.gov/system/files/2018-09/s974.pdf.
[34] GAO. 2015. "Medicare Part B Drugs: Action Needed to Reduce Financial Incentives to Prescribe 340B Drugs at Participating Hospitals." GAO-15-442: Published: Jun 5, 2015. Publicly Released: Jul 6, 2015. https://www.gao.gov/products/GAO-15-442

employ physicians (particularly oncologists), which diminishes competition in the physician market.

We propose that Congress amend the 340B program to tie discounted drug prices to the status of individual patients, not entire facilities. For example, providers should be granted 340B prices only for drugs administered to Medicaid patients or those without insurance.

Reforming the 340B program
We recommend that the 340B designation be tied to patient status rather than being determined at the facility level.

KFF Health Tracking Poll – February 2019: Prescription Drugs

Ashley Kirzinger (https://www.kff.org/person/ashley-kirzinger/) (https://twitter.com/AshleyKirzinger), **Lunna Lopes**, **Bryan Wu (https://www.kff.org/person/bryan-wu/)**, and

Mollyann Brodie (https://www.kff.org/person/mollyann-brodie/) (https://twitter.com/Mollybrodie)

Published: Mar 01, 2019

Findings

Key Findings:

- With increased attention among policymakers towards prescription drug costs, the February 2019 KFF Health Tracking Poll finds a majority of adults, including seniors, are in favor of many policy options aimed at curbing prescription drug costs. There is majority support – across party identification – for many current policy proposals, including recent Trump administration proposals like international reference pricing and transparency in drug advertisements. Both of these policy proposals are supported by large majorities of Democrats and independents, and a majority of Republicans.

nd allowing the government to negotiate Medicare drug prices

llowing+the+government+to+negotiate+Medicare+drug+prices&url=https%3A%2F%2Fwww.kff.org%2F8c7d090%2F)

- There is also bipartisan support for allowing the federal government to negotiate with drug companies to get a lower price for people with Medicare, which covers 60 million Americans. But attitudes towards this proposal shift after hearing potential arguments about how it might affect some people with Medicare.
- Among those currently taking prescription drugs, one-fourth of adults (24 percent) and seniors (23 percent) say it is *difficult* to afford their prescription drugs including about one in ten (overall and among seniors) saying it is "very difficult." Certain groups are much more likely to report difficulty affording medication, including those who are spending $100 or more a month on their prescriptions (58 percent), those who report being in fair or poor health (49 percent), those who take four or more prescription drugs (35 percent), and those with incomes less than $40,000 annually (35 percent). In addition, three in ten of all adults (29 percent) report not taking their medicines as prescribed at some point in the past year because of the cost and one in ten (8 percent) say their condition got worse as a result of not taking their prescription as recommended.
- While the public sees profits made by pharmaceutical companies as a major factor contributing to the price of prescription drugs (80 percent), a majority (63 percent) also say

profits made by pharmacy benefit managers (PBMs), companies that manage prescription drug benefits for health plans, are a "major factor" contributing to the price of prescription drugs.

- This month's KFF Health Tracking Poll also tracks public opinion on the Affordable Care Act (https://www.kff.org/interactive/kff-health-tracking-poll-the-publics-views-on-the-aca/) and the proposal to expand coverage through a national health plan, known commonly as Medicare-for-all (https://www.kff.org/interactive/tracking-public-opinion-on-national-health-plan) and finds favorability towards both the ACA (50 percent) and Medicare-for-all (57 percent) statistically unchanged since last month.

Public Views Prescription Drug Costs As Unreasonable, Wants More Government Regulation

A majority of Americans (59 percent) believe prescription drugs developed over the past 20 years have generally made the lives of people in the U.S. better – with nearly four in ten saying they have made people's lives "a lot better." Yet, eight in ten (79 percent) say the cost of prescription drugs is "unreasonable."

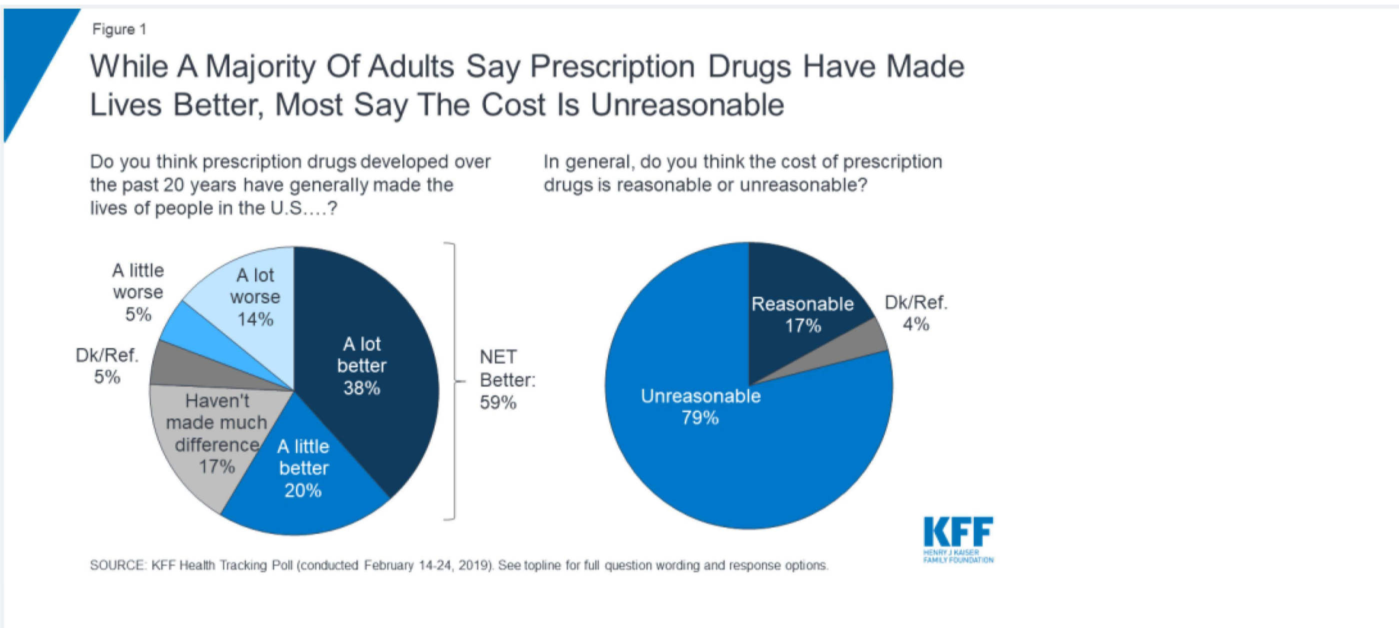

Figure 1: While A Majority Of Adults Say Prescription Drugs Have Made Lives Better, Most Say The Cost Is Unreasonable

The public sees profits made by pharmaceutical companies as a major factor contributing to the price of prescription drugs. At least eight in ten – across party identification – say profits made by pharmaceutical companies are a "major factor" in the price of prescription drugs. This is followed by seven in ten (69 percent) who say the cost of research and development is a "major factor" contributing to the price.

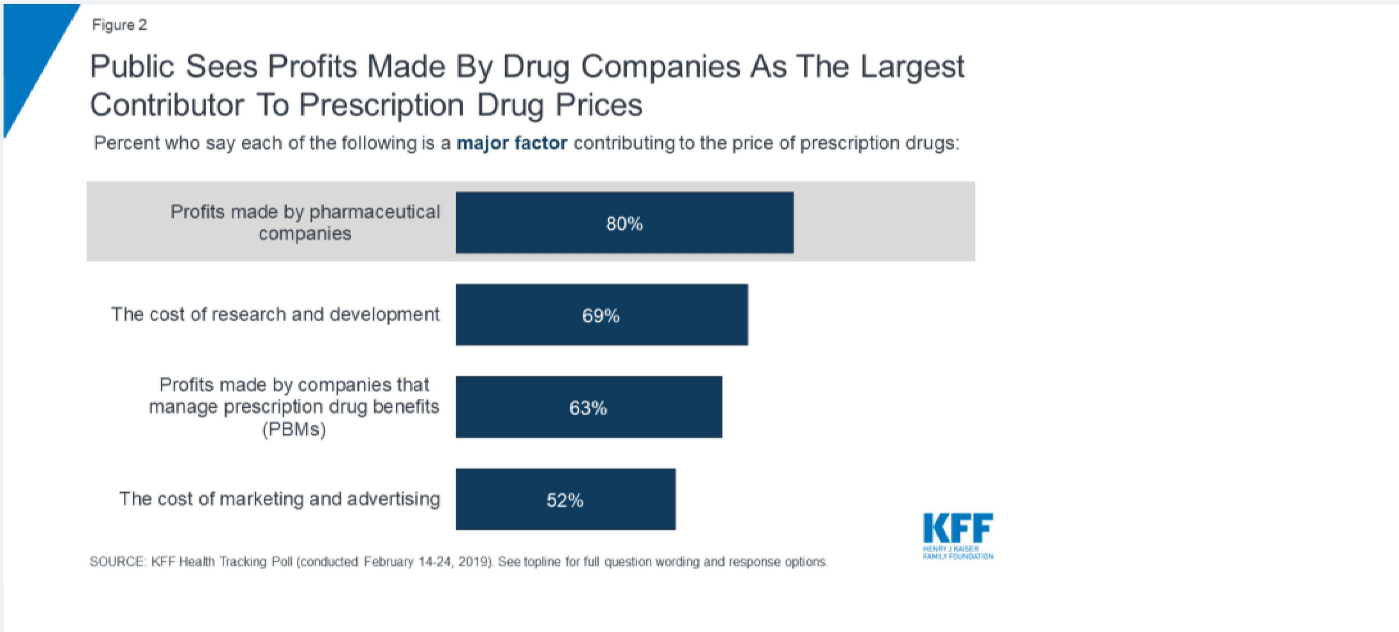

Figure 2: Public Sees Profits Made By Drug Companies As The Largest Contributor To Prescription Drug Prices

The Trump administration proposed a new rule earlier this month affecting pharmacy benefit managers (PBMs), companies that manage prescription drug benefits for health plans. About six in ten (63 percent) of the public say profits made by these companies (PBMs) are a "major factor" contributing to the price of prescription drugs. About half (52 percent) say the cost of marketing and advertising is a major factor in prescription drug prices.

PUBLIC DOES NOT TRUST DRUG COMPANIES TO PRICE THEIR PRODUCTS FAIRLY

Majorities of the public trust pharmaceutical companies (either "a lot" or "somewhat") to be good stewards in terms of developing new effective drugs (71 percent), and offering reliable information to consumers about drug safety and side effects (65 percent) as well as drug efficacy (61 percent). About half trust pharmaceutical companies to inform the public quickly when they learn of a safety concern with their drugs (47 percent) and even fewer trust pharmaceutical companies to price their products fairly (25 percent). This is a significant decrease from 41 percent who said they trusted pharmaceutical companies to price their products fairly back in 2008 (https://www.kff.org/health-costs/poll-finding/usa-todaykaiser-family-foundationharvard-school-of-public/).

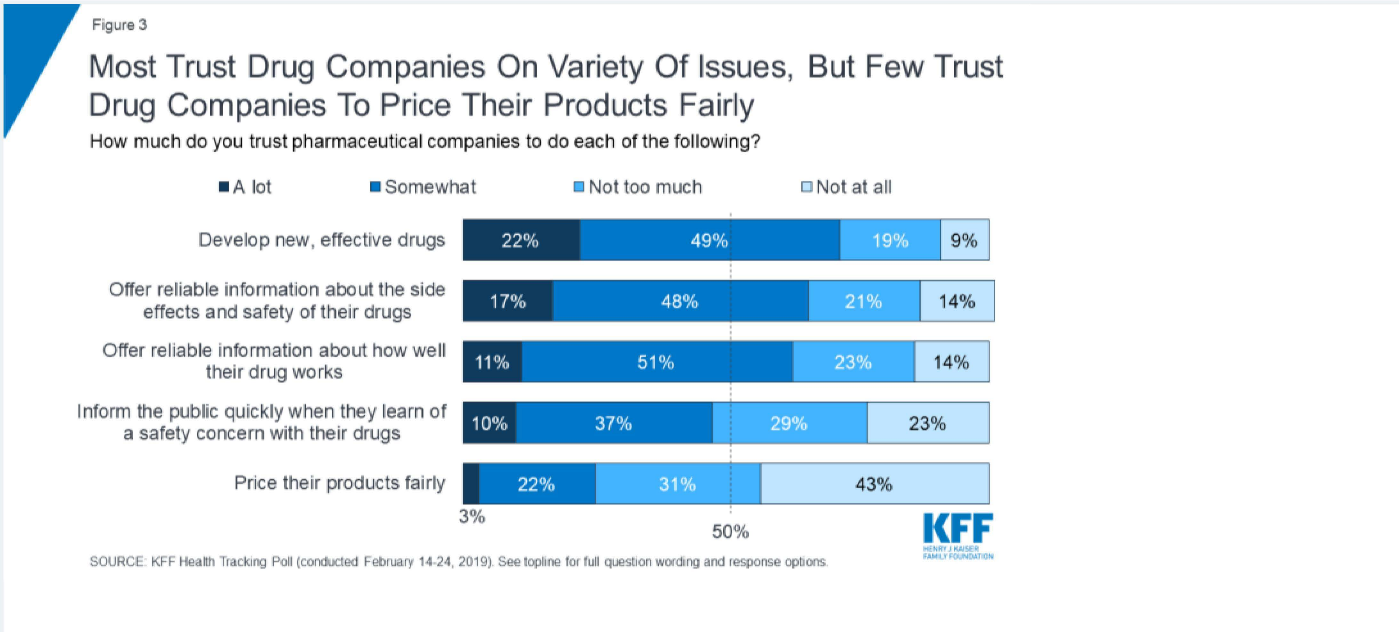

Figure 3: Most Trust Drug Companies On Variety Of Issues, But Few Trust Drug Companies To Price Their Products Fairly

Bipartisan Support for Some Government Regulation on Prescription Drug Prices

Prescription drug costs have been a focus of lawmakers, with hearings held in both the House and Senate, and numerous proposals put forward by the Trump administration and members of Congress. This is consistent with the public's priorities as the January 2019 (https://www.kff.org/health-reform/poll-finding/kff-health-tracking-poll-january-2019/) KFF Health Tracking Poll found lowering prescription drug costs remains a priority for the public with majorities of Democrats, independents, and Republicans saying this was important for Congress to work on.

The majority of the public is in favor of most current policy options aimed at helping keep the cost of prescription drugs down included in this month's survey.

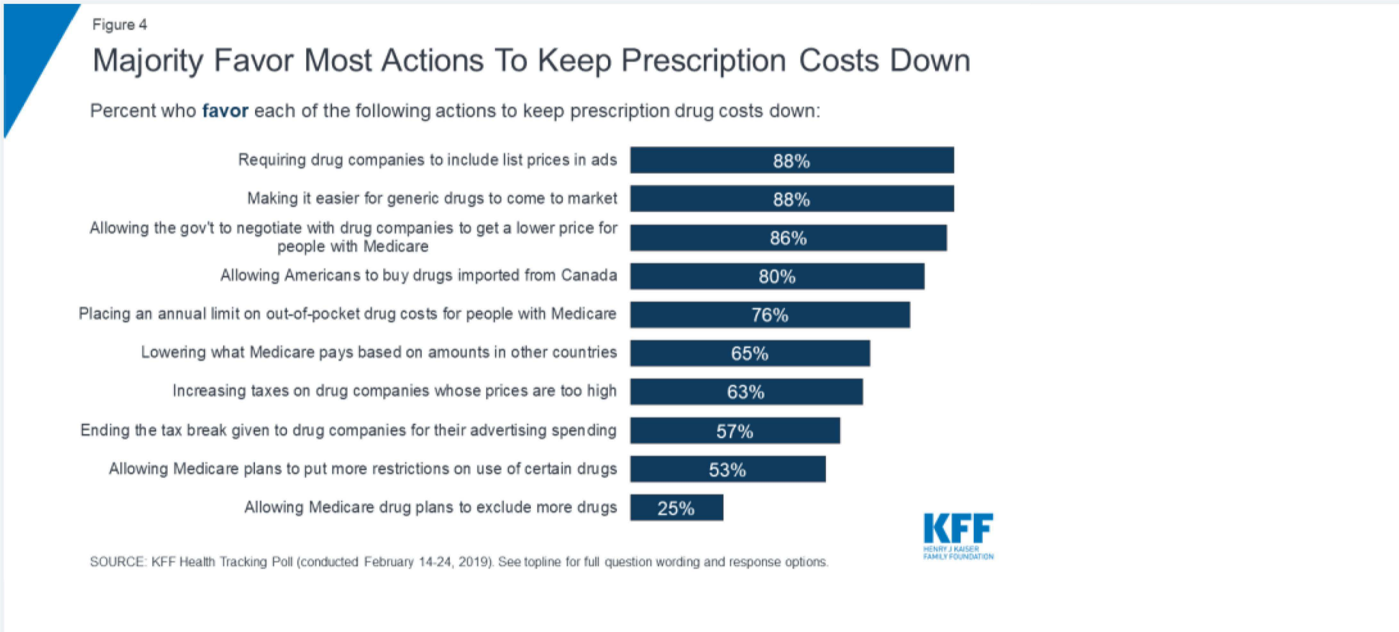

Figure 4: Majority Favor Most Actions To Keep Prescription Costs Down

The vast majority of Americans favor requiring drug companies to include drug list prices in their advertisements (88 percent)[1], making it easier for generic drugs to come to market (88 percent), and allowing the federal government to negotiate with drug companies to get a lower price on medications for people with Medicare (86 percent). All three of these policy proposals are supported by large majorities of Democrats, independents, and Republicans.

Most Americans are aware that people in this country often pay higher prices for prescription drugs than people in other countries such as Canada and Western Europe and a majority favor two proposals aimed at leveling international prices. Eight in ten favor allowing Americans to buy drugs imported from licensed Canadian pharmacies while two-thirds (65 percent) favor lowering what Medicare pays based on amounts paid in other countries where governments more closely control prices. Both of these proposals garner bipartisan support.

Table 1: Favorability Towards Prescription Drug Policy Proposals By Party Identification

Percent who **favor** each of the following actions to keep prescription drug costs down:	Democrats	Independents	Re
Requiring drug companies to include list prices in ads	90%	89%	
Making it easier for generic drugs to come to market	89	88	
Allowing the gov't to negotiate with drug companies to get a lower price for people with Medicare	90	87	
Allowing Americans to buy drugs imported from Canada	78	79	
Placing an annual limit on out-of-pocket drug costs for people with Medicare	80	72	
Lowering what Medicare pays based on amounts in other countries	74	62	
Increasing taxes on drug companies whose prices are too high	73	64	
Ending the tax break given to drug companies for their advertising spending	54	62	
Allowing Medicare plans to put more restrictions on use of certain drugs	59	55	
Allowing Medicare drug plans to exclude more drugs	28	22	

Note: Some items asked of separate half-samples.

Majorities of the public favor placing an annual limit on out-of-pocket prescription drug spending for seniors with Medicare (76 percent). Fewer – but still a slight majority (53 percent) – favor allowing Medicare plans to put more restrictions on the use of certain drugs, like making patients try cheaper alternatives before taking a more expensive drug. Only a quarter favor allowing Medicare plans to exclude more drugs in order to keep prices down, a recent proposal from the Trump Administration.[2]

SENIORS' VIEWS OF PRESCRIPTION DRUG POLICY PROPOSALS

This month's KFF Health Tracking Poll includes a deep dive into the experiences and attitudes of senior adults, 65 and older, who are more likely to report taking prescription medication and have typically had to shop for prescription drug coverage in addition to their Medicare coverage.

Adults, 65 and older, and Prescription Drug Coverage

Prescription drug coverage plays an important role in health care for many adults, 65 and older ("seniors"), and younger beneficiaries with long-term disabilities, and accounts for nearly one-fifth of all Medicare spending. Nearly three-fourths of all Medicare beneficiaries (72 percent) have prescription drug coverage through Medicare Part D, which is administered by both private stand-alone plans and Medicare Advantage drug plans. With an aging population, the February KFF Health Tracking Poll includes an over-sample of adults, 65 and older, in order to better understand how those most directly affected by prescription drug policy view proposed changes.

See more at: 10 Essential Facts About Medicare and Prescription Drug Spending (https://www.kff.org/infographic/10-essential-facts-about-medicare-and-prescription-drug-spending/)

These results do not differ when looking specifically at the opinion of those who would be directly affected by changes to Medicare prescription drug coverage. A majority of seniors also *favor* allowing the federal government to negotiate with drug companies to get lower prices for people with Medicare (82 percent), placing an annual limit on out-of-pocket spending for people with Medicare (68 percent), and lowering what Medicare pays based on amounts paid by other countries where governments more closely control prices (60 percent). Fewer favor allowing Medicare plans to put more restrictions on the use of certain drugs (45 percent) or allowing Medicare plans to exclude more drugs (24 percent).

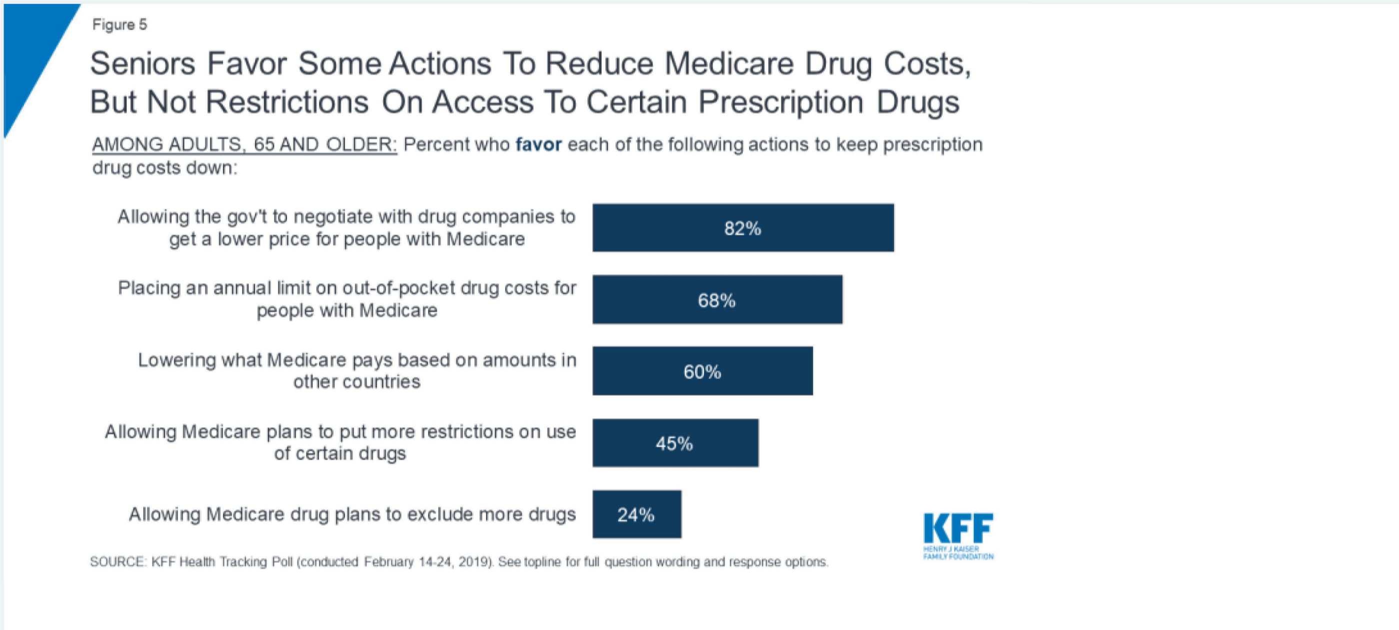

Figure 5: Seniors Favor Some Actions To Reduce Medicare Drug Costs, But Not Restrictions On Access To Certain Prescription Drugs

Public Opinion on Federal Government Negotiating on Medicare Drug Costs

Overall, about four in ten of all adults and seniors are aware the federal government does not currently negotiate with drug companies in order to get lower prices on prescription drugs for people with Medicare. A policy proposal that has been around for years, this idea has gained traction in recent months, with several members of Congress proposing various approaches to allow Medicare to negotiate drug prices. Overall, nearly nine in ten Americans (86 percent) favor allowing this type of negotiation, however, attitudes shift after hearing potential arguments that have been made both in favor and against the proposal. For example, support for Medicare negotiations increases to 91 percent after hearing the argument that this could save seniors money. On the other hand, opposition increases to two-thirds after hearing the opponents' potential arguments that it could lead to less research. It is important to note that these arguments do not include specific details about different approaches to negotiation, including the extent to which they would protect access to needed medications, details which may influence the public's attitudes.

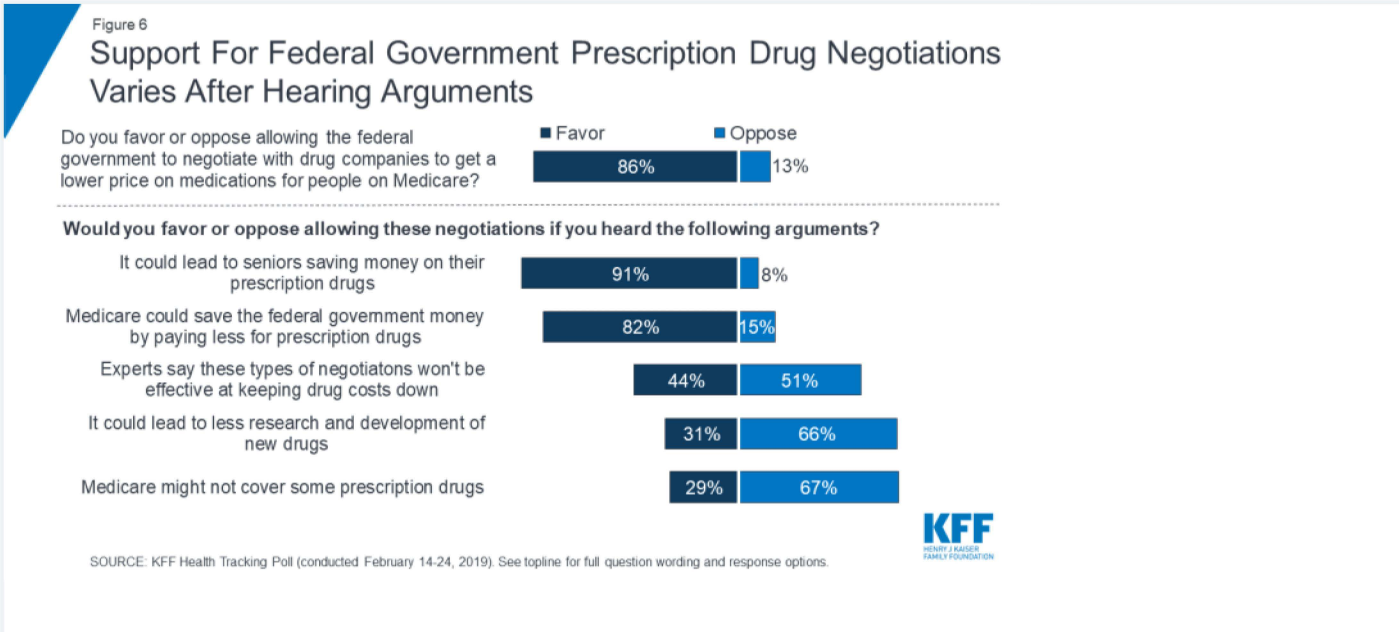

Figure 6: Support For Federal Government Prescription Drug Negotiations Varies After Hearing Arguments

Seniors' opinions on allowing the federal government to negotiate with drug companies to get a lower price on medicines for people with Medicare can drop even lower than the public overall after hearing potential arguments.

Table 2: Seniors' Attitudes Towards Allowing Federal Government Negotiations for Medicare Prescription Drug Prices Significantly After Hearing Arguments Against Such Proposal

Percent of **seniors** who favor or oppose the federal government negotiating with prescription drug companies in order to get a lower price on prescription drugs for people on Medicare after hearing the following:	**Favo**
It could lead to seniors saving money on their prescription drugs	87%
Medicare could save the federal government money by paying less for prescription drugs	75
Experts say these types of negotiations won't be effective at keeping drug costs down	42
It could lead to less research and development of new drugs	30
Medicare might not cover some prescription drugs	22

People's Experiences With Prescription Drug Costs and Plans

In addition to examining public support for proposed legislative changes affecting access and affordability of prescription drugs, this month's poll also tracks people's experiences with prescription drugs and their prescription drug plans.

The issue of prescription drug costs is personal to many Americans with six in ten (62 percent) saying they currently take prescription medicine, including one-fourth (24 percent) who currently take four or more prescription drugs. The share who say they currently take a prescription drug has increased slightly in KFF tracking polls over the past 5 years, which is consistent with other data showing a gradual increase in the share of Americans who take prescription drugs.[3] Nine in ten seniors (89 percent) report currently taking prescription medicine, including more than half (54 percent) who report taking four or more.

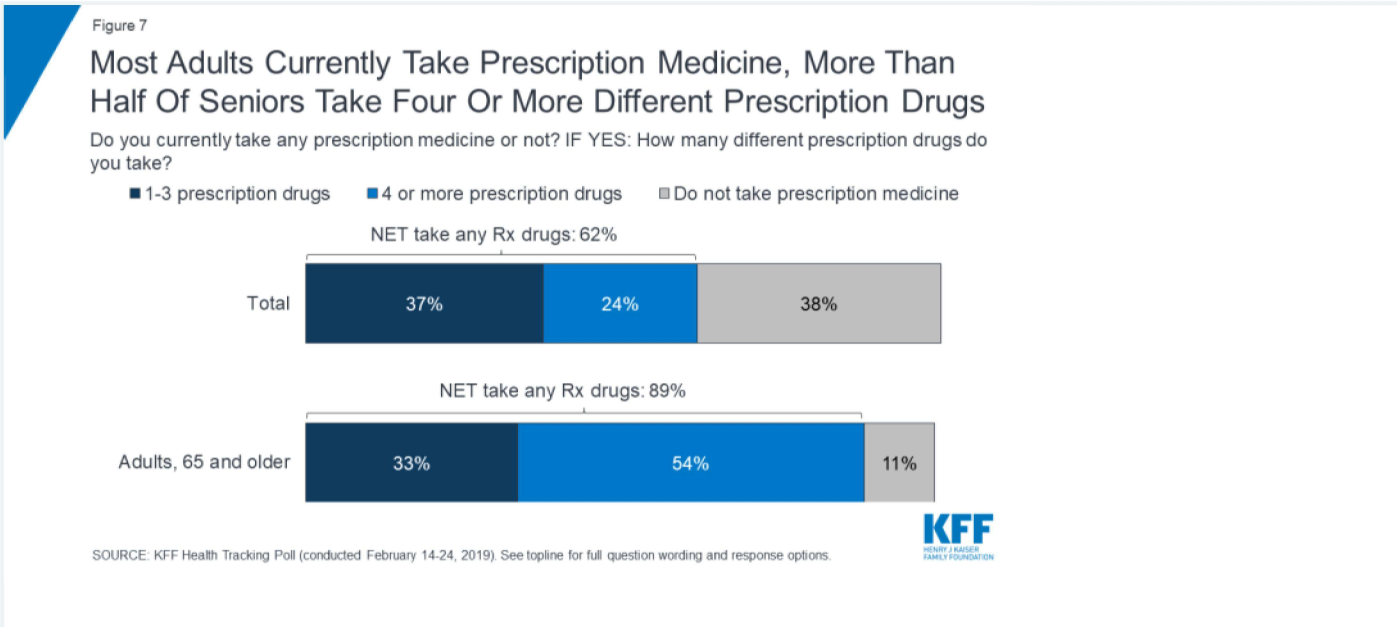

Figure 7: Most Adults Currently Take Prescription Medicine, More Than Half Of Seniors Take Four Or More Different Prescription Drugs

Most people who take prescription drugs report that affording their prescriptions isn't a burden, which could be due to the fact that for most people taking medications, insurance covers much of their costs. Three-fourths report that it is either "very easy" (46 percent) or "somewhat easy" (29 percent) for them to pay the cost of their prescription medicine. In addition, nearly half say they spend less than $25 each month on all of their prescription drugs, including any co-pays or other out-of-pocket expenses.

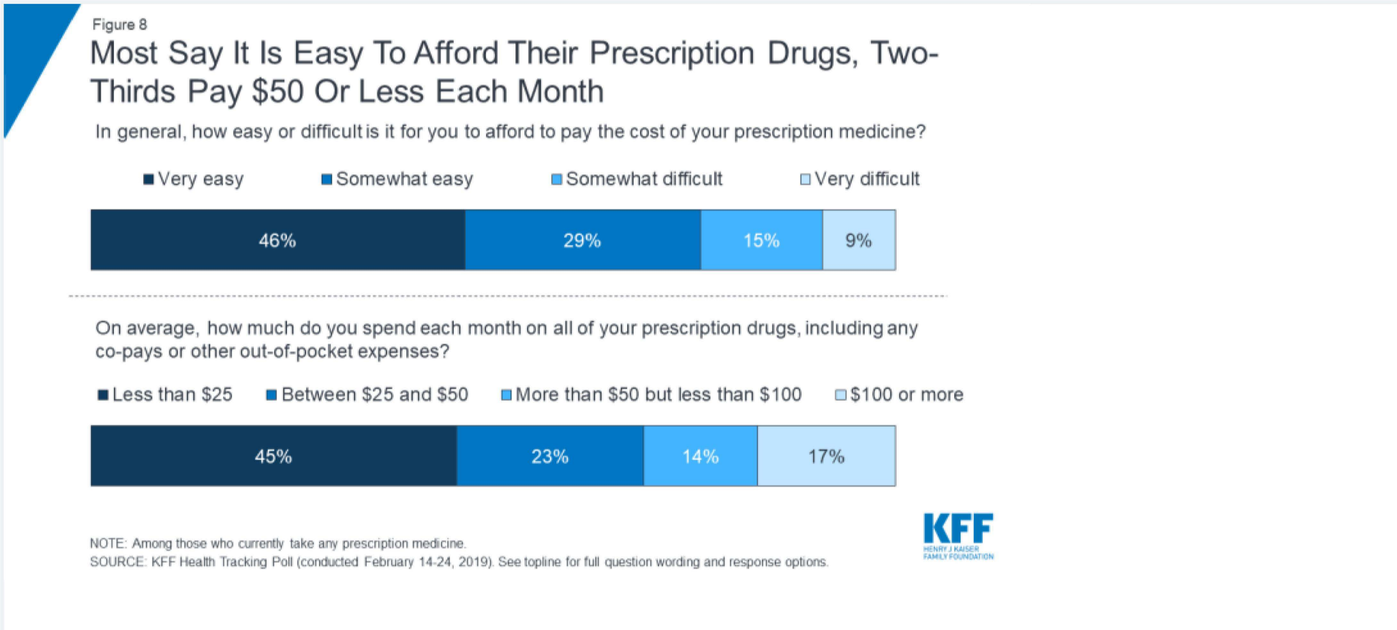

Figure 8: Most Say It Is Easy To Afford Their Prescription Drugs, Two-Thirds Pay $50 Or Less Each Month

Most seniors (75 percent) also say affording their prescription drugs is either “very easy” (42 percent) or “somewhat easy” (33 percent). Even a majority of seniors who are taking four or more prescription drugs say affording their prescriptions is easy. Overall, 16 percent of seniors say they are spending $100 or more a month on their prescriptions.

WHO STRUGGLES WITH PRESCRIPTION DRUG COSTS?

Among those currently taking prescription drugs, about one-fourth (24 percent) and a similar share of seniors (23 percent) say it is *difficult* to afford their prescription drugs, including one in ten saying it is “very difficult.” Three in ten adults ages 50 to 64 report having difficulty affording their prescription medicines (30 percent) compared to about one-fourth of those ages 65 and over with Medicare (23 percent) and one-fifth of those under the age of 50 (21 percent), who take fewer drugs on a regular basis. This group, adults ages 50 to 64, is not yet eligible for Medicare but is more likely to be taking more prescription medicines than other non-Medicare eligible populations.

with low incomes, or taking at least 4 drugs monthly

with+low+incomes%2C+or+taking+at+least+4+drugs+monthly&url=https%3A%2F%2Fwww.kff.org%2F8c7d090%2F)

Certain groups are much more likely to report difficulty affording medication, including those who are spending $100 or more a month on their prescriptions (58 percent), those who report being in fair or poor health (49 percent), those who take four or more prescription drugs (35 percent), and those earning less than $40,000 annually (35 percent).

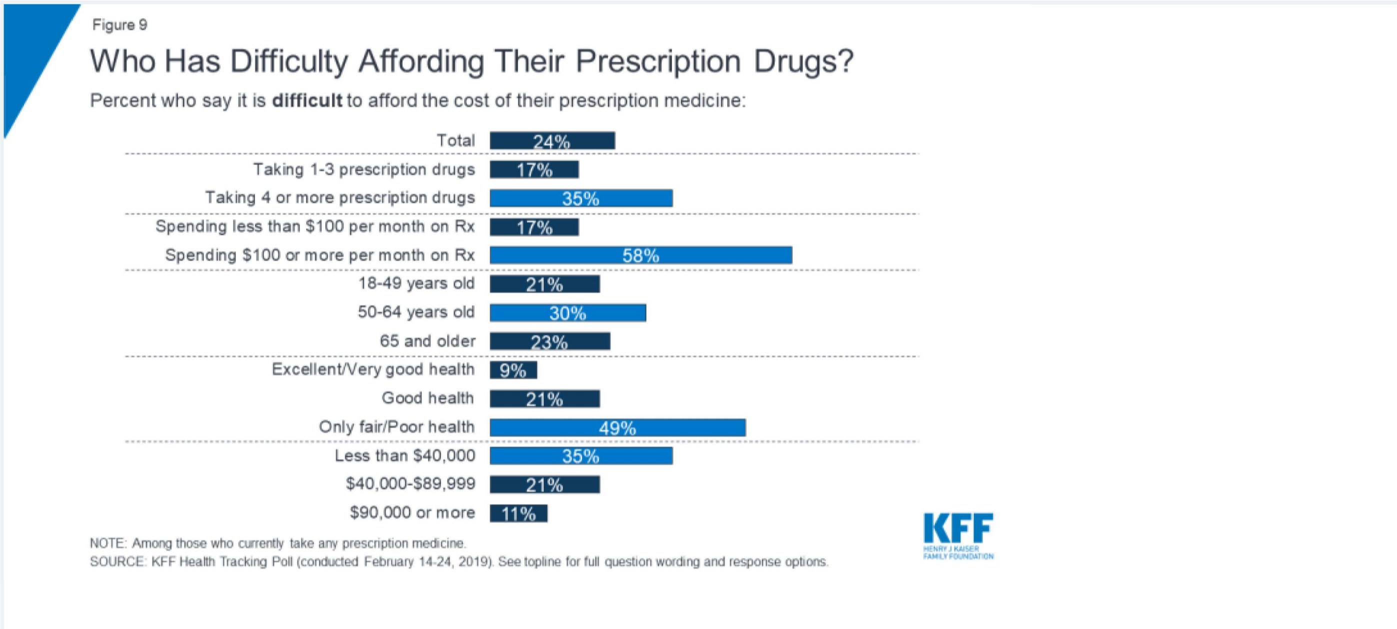

Figure 9: Who Has Difficulty Affording Their Prescription Drugs?

About three in ten of all adults (29 percent) report not taking their medicines as prescribed at some point in the past year because of the cost. This includes about one in five who report that they haven't filled a prescription (19 percent of total) or took an over-the counter drug instead (18 percent of total), and about one in ten who say they have cut pills in half or skipped a dose.

In addition, three in ten (29 percent) of those who report not taking their medicines as prescribed say their condition got worse as a result of not taking their prescription as recommended (eight percent of total).

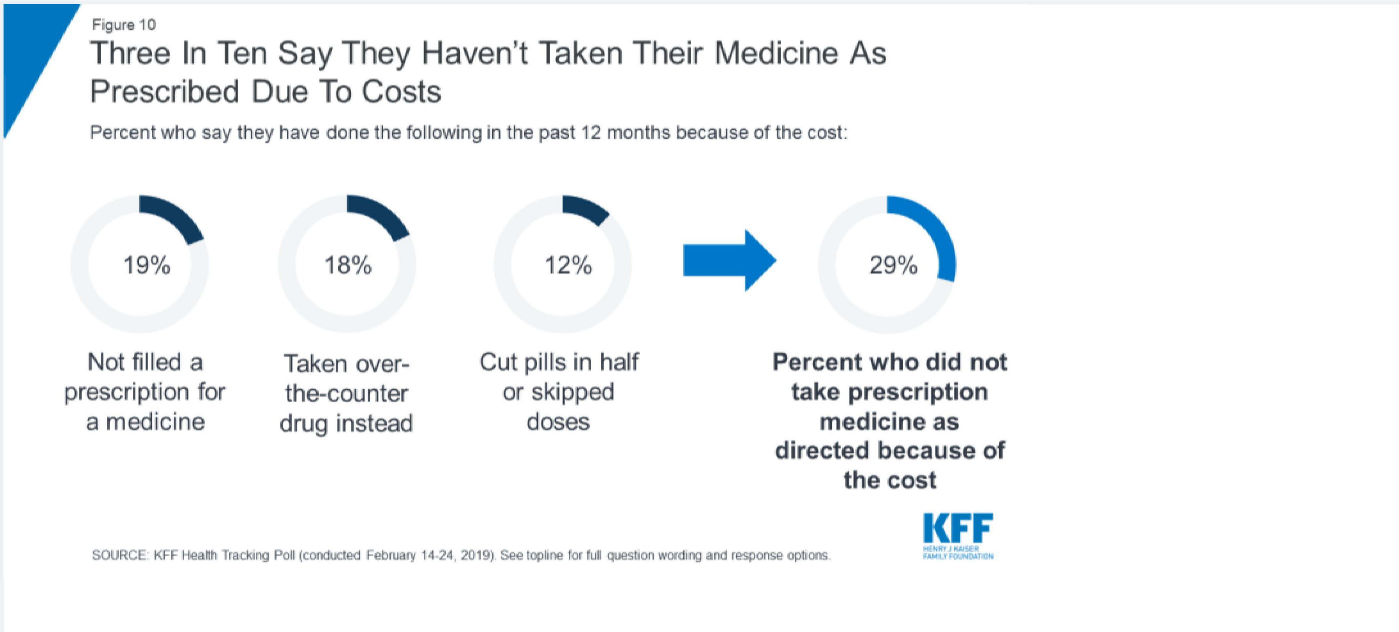

Figure 10: Three In Ten Say They Haven't Taken Their Medicine As Prescribed Due To Costs

Individuals who report difficulty affording their prescription drug costs are more likely than their counterparts to report not taking their medicines as prescribed due to cost (58 percent vs. 17 percent). Among this group, one-quarter (27 percent) say their condition got worse as a result of skimping on medications because of the cost.

Table 3. Six in Ten Of Those Who Report Difficulty Affording Prescription Drugs Report Not Taking Their Medication As Pr

Percent who say they have done the following in the past 12 months because of the cost:	Total	Those Who Report **Difficulty** Affording Their Prescription Drugs	Those Who Report **No Diff** Affording Their Prescription
Not filled a prescription for a medicine	19%	41%	11%
Taken an over-the-counter drug instead	18	29	9
Cut pills in half or skipped a dose	12	35	6
Did any of the above	**29**	**58**	**17**
Condition got worse	**8**	**27**	**5**

Majorities say they usually talk to their doctor and a pharmacist about the safety and potential side effects of a newly prescribed drug (77 percent and 57 percent, respectively) compared to fewer who report usually talking to their doctor or pharmacist about cheaper alternatives (51 percent and 41 percent, respectively). Four in ten (42 percent) report usually talking to their doctor about the cost of a newly prescribed drug.

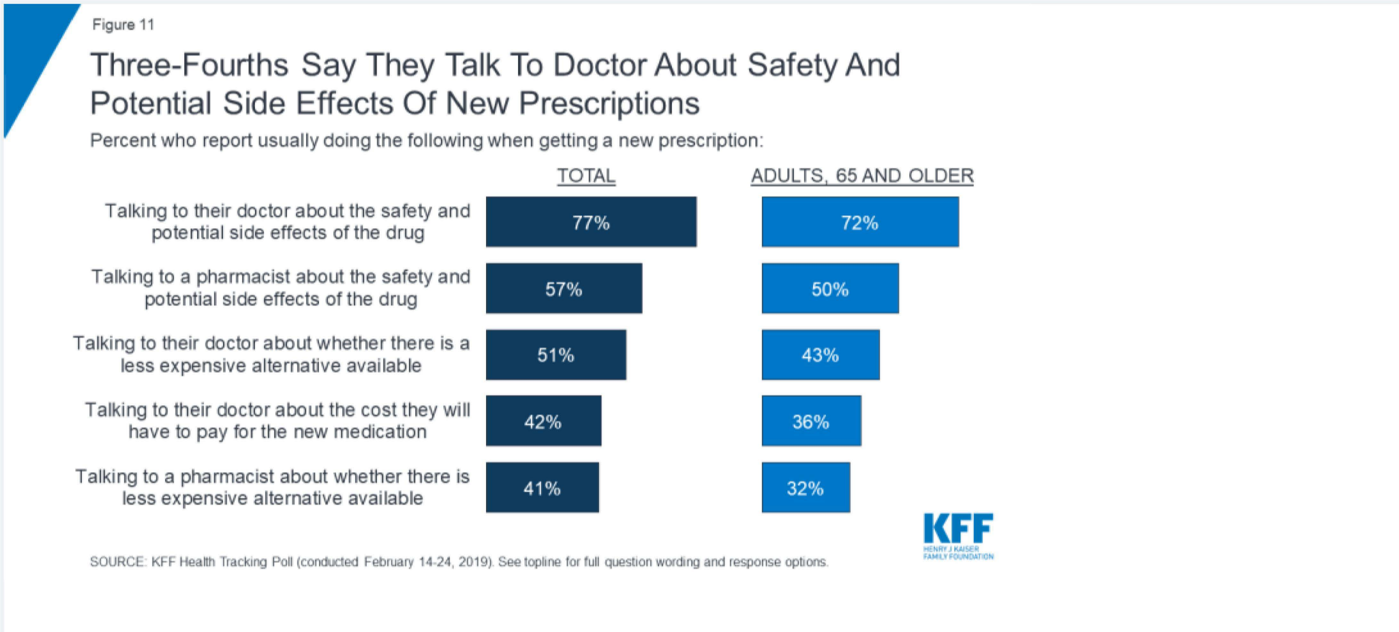

Figure 11: Three-Fourths Say They Talk To Doctor About Safety And Potential Side Effects Of New Prescriptions

A smaller share of seniors report talking to their pharmacist or doctor about the safety, side effects, and cost of their prescription drugs as well as whether there are less expensive alternatives available.

Prescription Drug Plans

More commonly reported than problems affording prescription drugs are issues with prescription drug plans. Nearly half of those with health insurance that helps them pay for their prescription drugs say they experienced at least one of the following problems with their health insurance plan: they were told that their plan wouldn't cover a drug prescribed to them (31 percent); required to try a less expensive drug first (29 percent); or had to wait more than two days to get their prescription filled (25 percent).

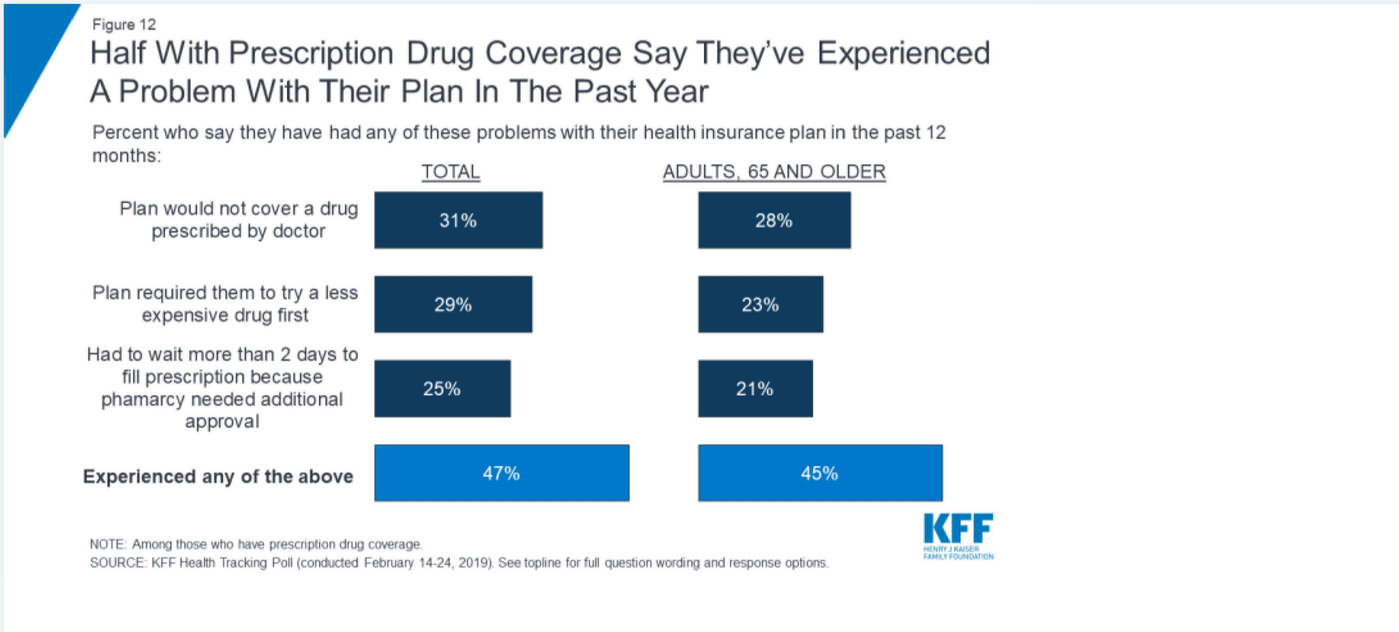

Figure 12: Half With Prescription Drug Coverage Say They've Experienced A Problem With Their Plan In The Past Year

Nearly half (45 percent) of seniors with prescription drug coverage also say they have experienced a problem with their plan with three in ten reporting they have had their plan not cover one of their prescriptions (28 percent). Slightly fewer report having to try a less expensive alternative first (23 percent) or having to wait more than two days to get their prescription filled (21 percent).

When choosing a prescription health drug plan, a larger share of seniors report that it is more important to them to have a lower co-pay at the pharmacy when they get their prescriptions filled (51 percent) than paying a lower premium each month (35 percent). This may be due to the fact that nearly six in ten seniors (55 percent) report taking four or more prescription drugs. Half of seniors (47 percent) report either comparing co-pays (36 percent), premiums (36 percent), or drugs that are covered (28 percent) when choosing their prescription drug plans.

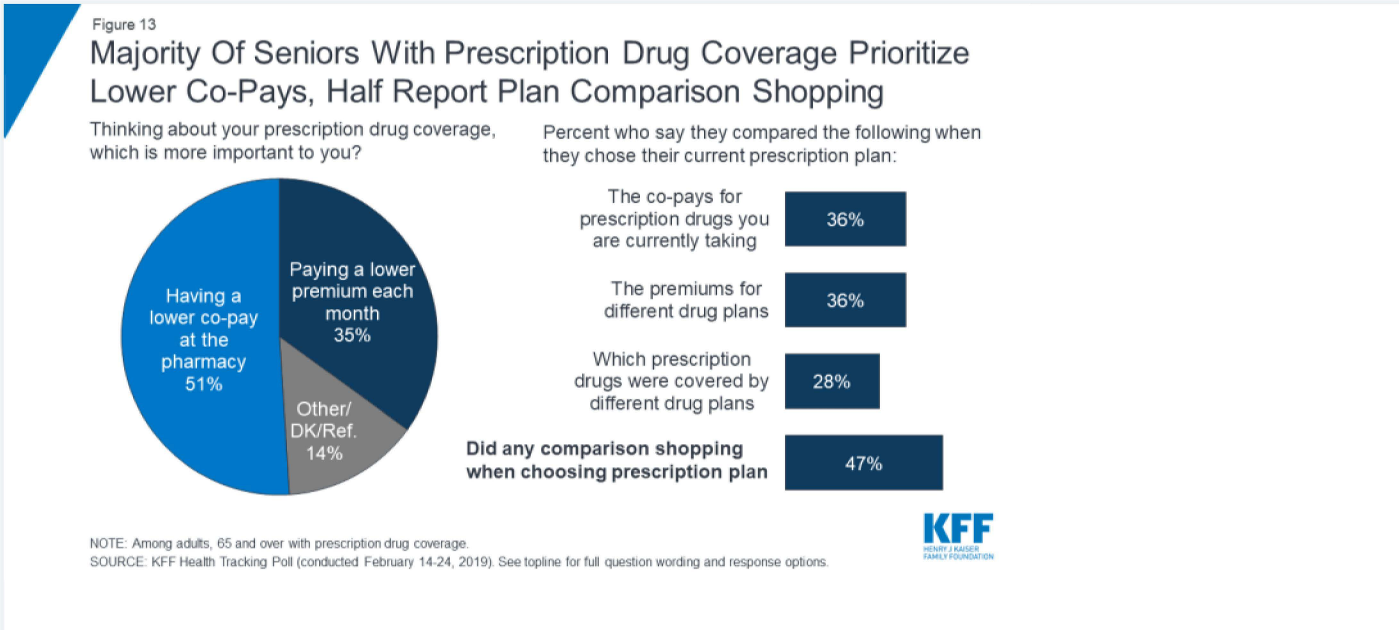

Figure 13: Majority Of Seniors With Prescription Drug Coverage Prioritize Lower Co-Pays, Half Report Plan Comparison Shopping

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Methodology

This *KFF Health Tracking Poll* was designed and analyzed by public opinion researchers at the Kaiser Family Foundation (KFF). The survey was conducted February 14th–24th 2019, among a nationally representative random digit dial telephone sample of 1,440 adults ages 18 and older, living in the United States, including Alaska and Hawaii (note: persons without a telephone could not be included in the random selection process). The sample included 290 respondents reached by calling back respondents that had previously completed an interview on the KFF Tracking poll more than nine months ago. This month's poll also includes an analysis of older Americans age 65 or older (n=606). To obtain a large enough sample, the sampling frame included an oversample of older adults using cell phones (n=26) and landlines (n=75) as well as callbacks to adults who fit the age criterion using the SSRS Omnibus poll (n=136). To efficiently obtain a sample of lower-income and non-White respondents, the sample also included an oversample of prepaid (pay-as-you-go) telephone numbers (25% of the cell phone sample consisted of prepaid numbers) as well as a subsample of respondents who had previously completed Spanish language interviews on the SSRS Omnibus poll (*n*=11). Both the random digit dial landline and cell phone samples were provided by Marketing Systems Group (MSG).

Computer-assisted telephone interviews conducted by landline (464) and cell phone (976, including 662 who had no landline telephone) were carried out in English and Spanish by SSRS of Glen Mills, PA. For the landline sample, respondents were selected by asking for the youngest adult male or female currently at home based on a random rotation. If no one of that gender was available, interviewers asked to speak with the youngest adult of the opposite gender. For the cell phone sample, interviews were conducted with the adult who answered the phone. KFF paid for all costs associated with the survey with additional funding for the over-sample provided by the John Hopkins' Bloomberg School of Public Health.

The combined landline and cell phone sample was weighted to balance the sample demographics to match estimates for the national population using data from the Census Bureau's 2017 American Community Survey (ACS) on sex, age, education, race, Hispanic origin, and region along with data from the 2010 Census on population density. The sample was also weighted to match current patterns of telephone use using data from the January-June 2018 National Health Interview Survey. The weight takes into account the fact that respondents with both a landline and cell phone have a higher probability of selection in the combined sample and also adjusts for the household size for the landline sample, and design modifications, namely, the oversampling of prepaid cell phones and likelihood of non-response for the re-contacted sample. To ensure accurate representation of the older population, the data were weighted separately for those younger than 65 and those 65 or older. All statistical tests of significance account for the effect of weighting.

The margin of sampling error including the design effect for the full sample is plus or minus 3 percentage points. Numbers of respondents and margins of sampling error for key subgroups are shown in the table below. For results based on other subgroups, the margin of sampling error may be higher. Sample sizes and margins of sampling error for other subgroups are available by request. Note that sampling error is only one of many potential sources of error in this or any other public opinion poll. Kaiser Family Foundation public opinion and survey research is a charter member of the Transparency Initiative (http://www.aapor.org/Transparency_Initiative.htm) of the American Association for Public Opinion Research.

Group	N (unweighted)	M.O.S.E.
Total	1,440	±3 percentage points
Adults who currently take prescription medicine		
Adults with prescription drug plans	1092	±4 percentage points
Democrats	473	±6 percentage points
Republicans	410	±6 percentage points
Independents	397	±6 percentage points
Adults, 65 and older	606	±5 percentage points
Adults, 65 or older, with prescription drug plan	513	±5 percentage points

Endnotes

Findings

1. In 2018 President Trump announced his prescription drug plan titled "American Patients First," which included the proposal to require drug manufacturers to publish list prices for their prescription drugs in television advertisements. KFF Health Tracking Polls (https://www.kff.org/report-section/kaiser-health-tracking-poll-june-2018-campaigns-pre-existing-conditions-and-prescription-drug-ads-findings/) consistently find a majority of the public – including a majority of Democrats, independents, and Republicans, have supported this policy proposal.

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2. The Trump Administration's FY2019 budget proposal (https://www.whitehouse.gov/wp-content/uploads/2018/02/budget-fy2019.pdf) included this proposal and it was referenced in the Administration's May 2018 blueprint (https://www.gpo.gov/fdsys/pkg/FR-2018-05-16/pdf/2018-10435.pdf) on drug costs.

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3. Kantor, E.D., Rehm, C.D., Haas, J.S. et al. (2015). Trends in Prescription Drug Use Among Adults in the United States from 1999-2012. *JAMA, 314*(17), 1818-1830. Available at https://jamanetwork.com/journals/jama/fullarticle/2467552 (https://jamanetwork.com/journals/jama/fullarticle/2467552)

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ISSUE BRIEF

BlueCross BlueShield Association

MARCH 2019

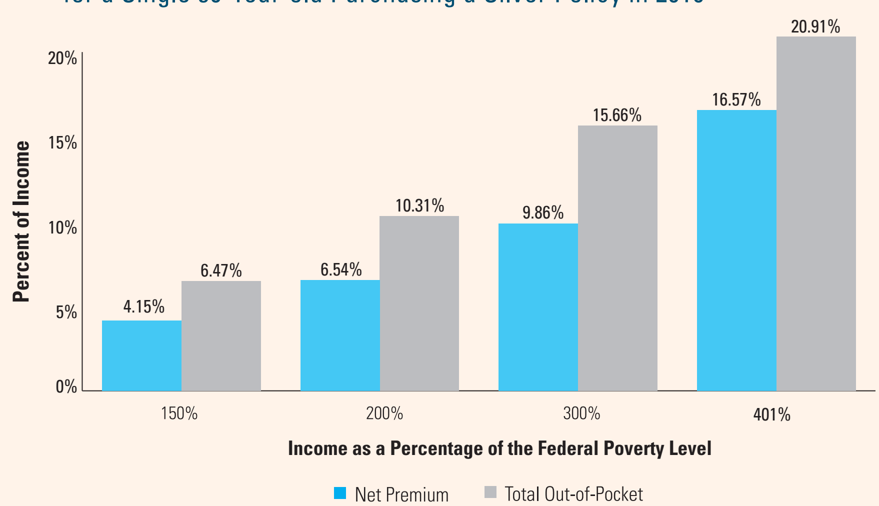
Reducing Individual Market Premiums to Expand Access to Coverage and Care

ISSUE

More than 14 million people purchase comprehensive coverage in the individual health insurance market. This is an important source of coverage for those without job-based insurance, including small business owners and self-employed individuals, workers in the gig economy, workers who are not eligible for employer-sponsored health plans and retirees who are not eligible for Medicare. Many individuals who have significant medical conditions and need extensive and often costly care depend on the individual market for coverage.

Unfortunately, individual market premiums are often unaffordable for people who do not qualify for financial assistance, and coverage options for these people remain limited. For many, the cost of coverage and care is out of reach, with many purchasers required to pay more than 15 percent of their income for health insurance so they can obtain the medical care they need.

Figure 1: Premiums and Out-of-Pocket Costs as a Percentage of Income for a Single 50-Year-old Purchasing a Silver Policy in 2019



BCBSA RECOMMENDS

The individual market is a critical source of coverage for people from all walks of life, and it should be strengthened to make coverage more affordable while protecting those with pre-existing conditions. To achieve this, BCBSA recommends that policymakers take three critical steps:

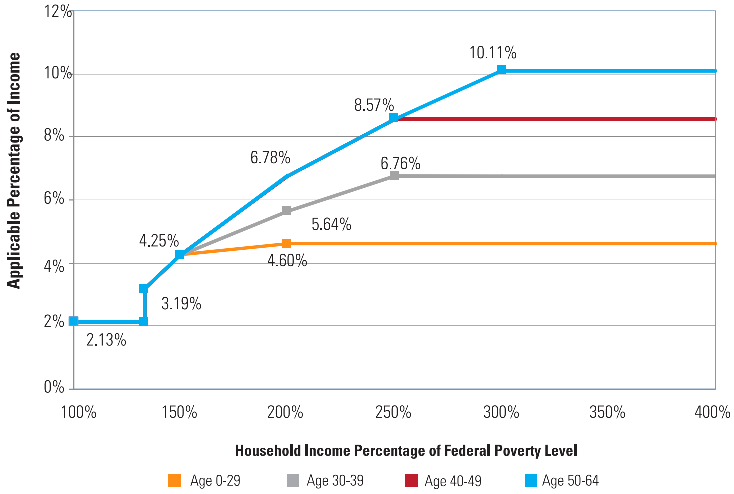
1. Revise federal assistance to help more people afford coverage
2. Enact policies to lower costs and remove financial barriers to accessing care
3. Improve outreach to encourage people to obtain and maintain insurance

Taken together, the actuarial firm Oliver Wyman estimates these three actions would reduce the average individual market premium by 33 percent, while enabling an additional 4.2 million people to obtain ACA coverage.

1. REVISE FEDERAL ASSISTANCE TO HELP MORE PEOPLE AFFORD COVERAGE

Congress should adjust tax credits to make coverage more affordable and boost enrollment among younger people. The current tax credit provides substantial financial assistance for older consumers who are more likely to need medical care and thus more likely to purchase coverage, while providing more limited assistance for younger people. Enhancing tax credits for younger people would increase the number of individuals covered, especially among younger adults. Increasing the participation of younger and healthier people while also maintaining financial assistance for older consumers will help provide a better enrollment balance and help bring premiums down.

Figure 2: Proposed ACA Premium Subsidy - Income Limits Age Adjusted for 2021*



*Subsidy income limits projected to 2021 by Oliver Wyman. Income limits for ages 50-64 are the same as those under current law.

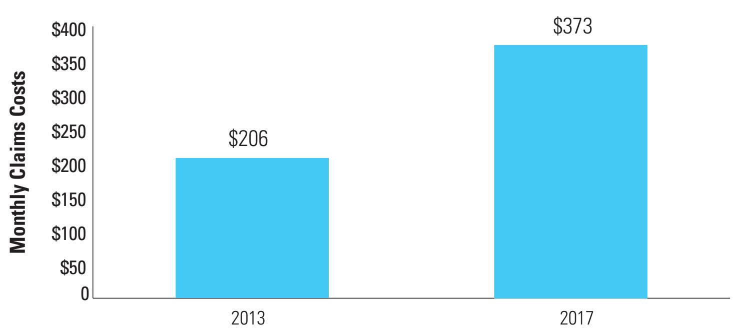
Congress should adjust the current tax credit structure to help those who are ineligible for tax credits today. While federal tax policy provides indirect assistance to those with employer-sponsored coverage regardless of income, those purchasing coverage on their own receive no financial assistance under the ACA tax credit structure if their income is over 400 percent of the federal poverty level. Today, the average premium for a silver plan for a family of four exceeds $20,000 annually, and individuals who are ineligible for tax credits pay the full price. As a result, many forgo coverage because it is too expensive. The existing tax credit structure[1] should be adjusted so that no one purchasing coverage in the individual market would be required to pay more than 12 percent of income for health insurance.

Congress should improve cost-sharing protections to help lower-income people access medical care. The cost-sharing reduction (CSR) program provides significant assistance to help lower-income individuals by reducing or eliminating out-of-pocket costs such as deductibles and copayments when they access medical care. However, people with incomes between 200-300 percent of the federal poverty level are required to pay significant out-of-pocket costs that may serve as a barrier to accessing care. Expanding cost-sharing protections to cover 80 percent of total costs for those between 200-300 percent of the federal poverty level would assure that the program works better for people who are having trouble affording the care they need.

2. ENACT POLICIES TO LOWER COSTS AND REMOVE FINANCIAL BARRIERS TO ACCESSING CARE

Congress should establish a sustained federal funding system to support the cost of caring for those with significant medical needs. As people with serious health conditions entered the individual market, the cost of medical claims to pay for their care rose rapidly (see Figure 3), and now exceed costs for those with employer-based coverage. Five percent of people who buy coverage in the individual market represent almost 60 percent of health care claims' costs. A sustained federal funding mechanism which states could draw on to support the cost of caring for those with serious health conditions is essential to make premiums more affordable for everyone, especially those who do not qualify for a tax credit.

Figure 3: Individual Market Claims Before and After Implementation of ACA



Data from MLR Public Use Files. For 2017, data is based on Individual Market adjusted to represent ACA-compliant coverage using 2016 relativities. Monthly Claims Costs includes reduction for CSRs.

1 The current tax credit limits the out-of-pocket cost of insurance to a percentage of income for those under 400 percent of poverty.

Creating a premium affordability program to support the cost of care for those with serious medical conditions (those with claims in excess of $65,000) would reduce premiums by about 15 percent and cost the federal government less than $3 billion.[2] The lower premiums resulting from such a program would mean tax credit expenditures—which are tied to premiums—also would fall. Such a program would be a major commitment to assuring that coverage remains available and affordable for those with pre-existing conditions.

Congress should provide relief from the health insurance tax. In January 2018, Congress passed legislation suspending the ACA health insurance tax (HIT) for 2019. If Congress does not act, the HIT will add more than $16 billion to the cost of insurance for individuals, small businesses, families and Medicare Advantage enrollees in 2020 when the tax is slated to return. Eliminating the HIT would reduce premiums by 2-3 percent.

Congress should modernize health plans that are linked with health savings accounts (HSAs). Currently, high-deductible health plans that are linked to HSAs are prohibited from offering services other than preventive care on a pre-deductible basis. This can create cost barriers to care for patients with chronic illnesses. To provide better management of chronic disease, Congress should permit HSA-qualified health plans to cover high value services before the deductible. For example, a health plan could provide coverage of insulin before the deductible to ensure patients with diabetes have access to this live-saving drug. This would preserve the consumer-directed features of HSAs and assure access to services that keep people healthy and address chronic conditions.

3. IMPROVE OUTREACH TO ENCOURAGE PEOPLE TO OBTAIN AND MAINTAIN INSURANCE

Exchanges should provide enhanced outreach to ensure that people enroll in coverage. A recent Commonwealth Fund survey found that two of five (40 percent) of America's 27.5 million uninsured, working-age adults were not aware of their state's marketplace or HealthCare.gov.[3] As costs of operating exchanges decrease over time, user fees for issuers should be lowered, and some of the fees should be redirected to outreach, education and marketing to encourage enrollment. In addition, federal funding for outreach should be restored to 2014 levels. States also should be encouraged to develop more efficient and less costly outreach and enrollment platforms.

Exchanges should provide information on coverage status to states to improve outreach efforts and simplify enrollment. States should have access to aggregated information on health insurance enrollment and income status to determine who is potentially eligible for government assistance in subsidized, qualified health plans, as well as in the Medicaid and CHIP programs. This information would allow better targeting of outreach and education campaigns. At the same time, Congress should work to simplify the eligibility rules for tax credits to make it easier for people to know whether they qualify for financial assistance to help them purchase coverage.

Policymakers should continue to allow consumers to automatically renew coverage. About 3 million people automatically re-enroll in health insurance coverage each year on the health insurance exchanges. Automatic re-enrollment is a feature of employer-based insurance as well as Medicare Advantage and Medicare Part D. Allowing consumers to auto-renew helps ensure continued enrollment and should be maintained. State efforts to provide incentives for individuals to maintain health insurance coverage also should be supported.

2 The program would pay 70 percent of the costs between $65,000 and $1 million.

3 https://www.commonwealthfund.org/publications/issue-briefs/2017/sep/following-aca-repeal-and-replace-effort-where-does-us-stand

REDUCING PREMIUMS AND EXPANDING ENROLLMENT IN THE INDIVIDUAL HEALTH INSURANCE MARKET

February 28, 2019

Kurt Giesa, FSA, MAAA

Peter Kaczmarek, FSA, MAAA

CONTENTS

1

Executive Summary

The Affordable Care Act (ACA) has successfully extended coverage to many people who had no access to health coverage prior to 2014. However, many people are faced with unaffordable or unattractive options if they have moderate incomes and do not have access to employer or publicly sponsored health coverage.

We prepared this report for the BlueCross and BlueShield Association to discuss options that would help to improve the individual market and make individual health coverage more affordable to a broader portion of the population. It contains three sections. The first section is this executive summary. In Section 2, we provide an overview of the individual health insurance market and its current challenges. In Section 3, we discuss options available to help improve this market, and we use our micro-simulation model to illustrate the impact these proposals could have on the market. For details regarding the Oliver Wyman Healthcare Reform Micro-Simulation Model (HRMM) and the methods underlying our estimates, please see this link.

Our primary findings are the following:

- The ACA led to a significant increase in the number of people covered under the individual market through 2015, but enrollment has declined since then, especially among non-subsidized enrollees. At the same time, insurers participating in the individual market experienced significant financial losses through 2016 and then increased premiums in an effort to stem those losses.

- Market improvement proposals currently under consideration include age-adjusted premium subsidies, enhancing cost sharing reductions, enhancing benefits insurers provide to low-income insureds through cost sharing reductions, $15 billion per year for a reinsurance program, improved outreach and marketing efforts, and the elimination of the 9010 HIT fee. Our analysis shows that each of these could help increase enrollment in the individual market and would increase federal spending marginally.

- Specifically, we find that these provisions, combined, would increase enrollment by roughly 4.2 million individuals in the ACA market, reduce the nationwide average premium by approximately 33%,[1] and increase federal spending by $10.2 billion annually, when considering federal outlays for external funding, APTCs, and marketing and outreach spending, but without the impact of lost revenue from the elimination of the 9010 HIT fee.[2]

[1] The nationwide average premium estimate includes demographic and geographic changes in the ACA risk pool.

[2] CBO estimated a loss in revenue of $12.7 billion in fiscal year 2019 due to the elimination of the tax on insurance providers in calendar year 2019. See Table 3: https://www.cbo.gov/system/files/115th-congress-2017-2018/costestimate/rulescommitteeprint115-55-c.pdf

2

Overview of the Individual Market

The ACA fundamentally changed the operation of the individual health insurance market.[3] Enrollment in the individual market increased initially from pre-ACA levels of approximately 10.9 million enrollees in 2013 to 17.5 million in 2015. This was followed by declines in the number of enrollees in 2016 and 2017 (see Figure 1). Most of the decline in 2017 was among the non-subsidized, off-Exchange enrollees in ACA-compliant plans. On-Exchange enrollment remained relatively stable. Most of the on-Exchange enrollees are eligible for premium subsidies (APTCs) that largely shield them from premium increases. However, off-Exchange enrollees are not eligible for APTCs. As a result, these individuals must absorb, in full, any rate increases as discussed below. About 2.1 million or 14% of the total enrollees in 2017 had transitional or grandfathered plans (referred to here as non-ACA compliant plans) which are closed blocks of business with declining enrollment.[4,5]

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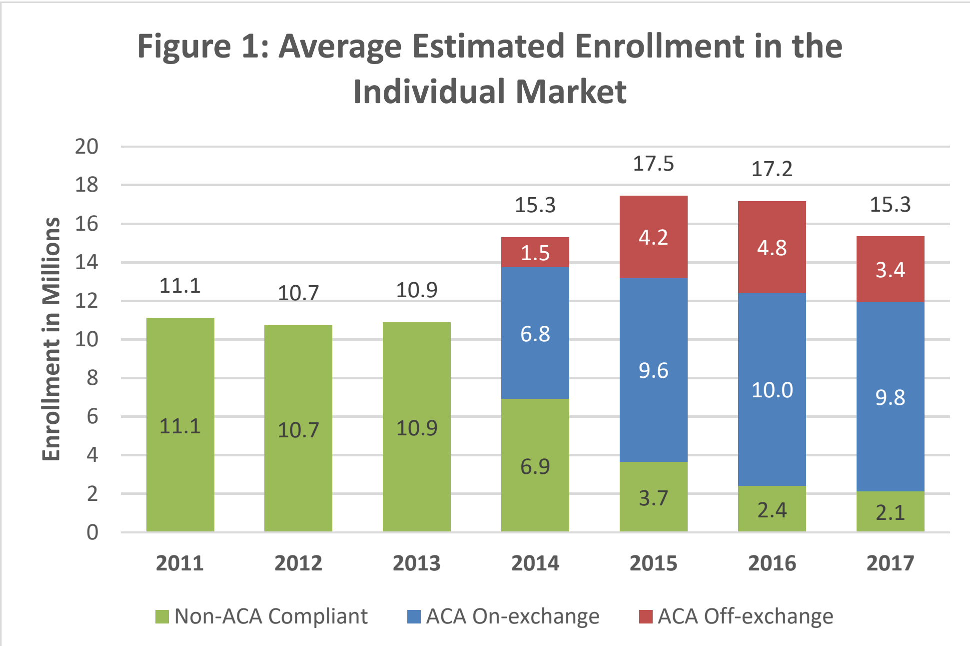
[3] https://www.gpo.gov/fdsys/granule/PLAW-111publ148/PLAW-111publ148/content-detail.html

[4] https://www.cms.gov/CCIIO/Resources/Regulations-and-Guidance/Downloads/transition-to-compliant-policies-03-06-2015.pdf

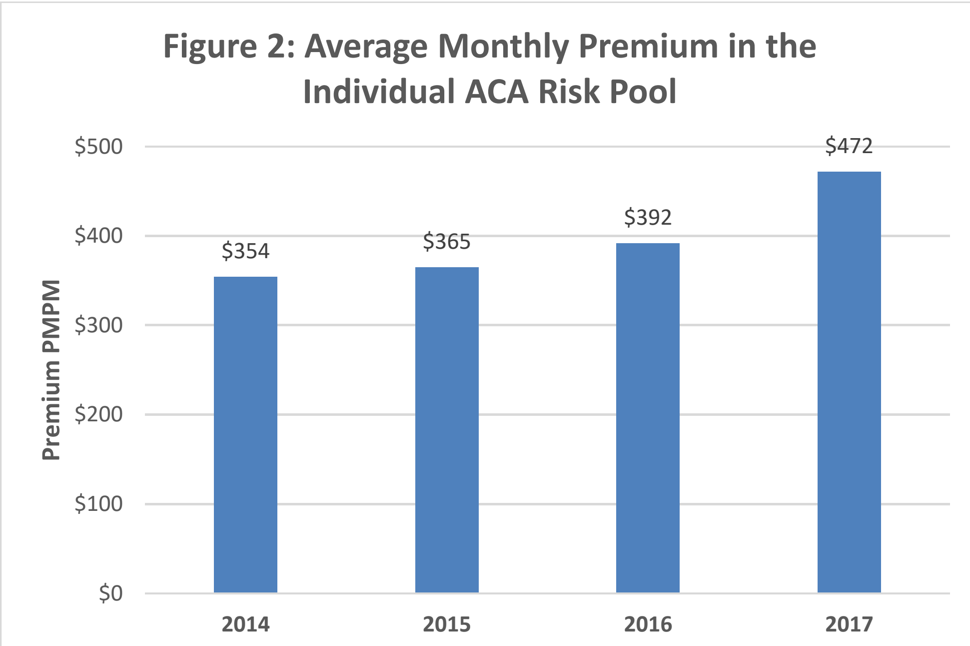
[5] https://www.cms.gov/CCIIO/Resources/Regulations-and-Guidance/Downloads/transition-to-compliant-policies-03-06-2015.pdf



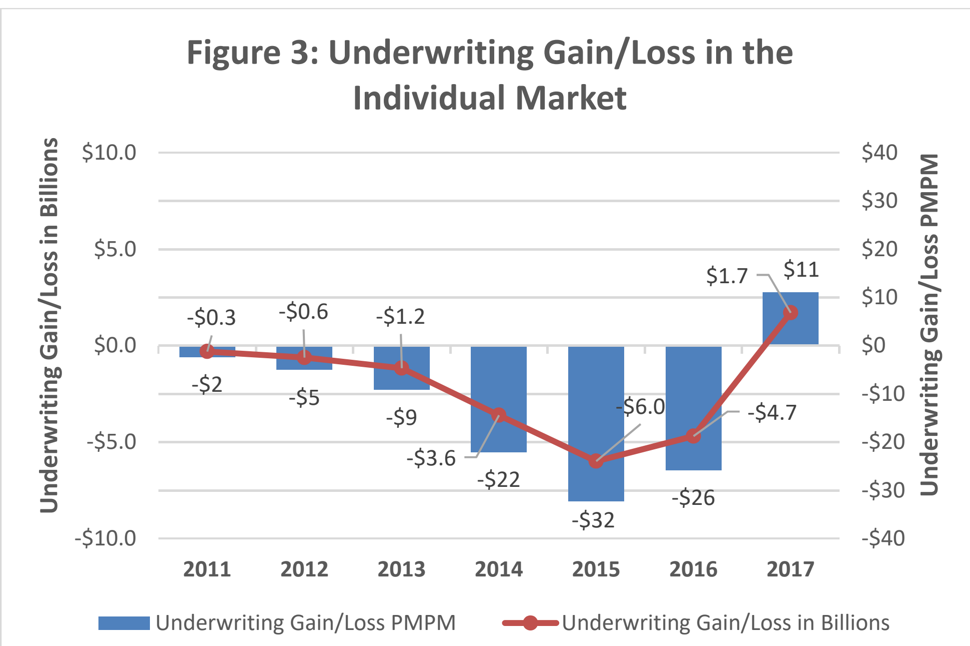
Source: Member months statistics from Statutory Reporting, CMS Summary of Risk Adjustment Transfers, CMS Effectuated Enrollment reports and MLR rebate reports; Excludes student, mini-med or other non-major medical coverage types.

In Figure 2, we show the nationwide average premium per member per month (PMPM) in the ACA individual market from 2014 to 2017. In 2017, the average premium increased by more than 20%, to $472 PMPM ($5,664 per year). The primary reason for this increase was the losses issuers were experiencing in this market (Figure 3). As a note, average premiums are significantly higher in the ACA market than in the pre-ACA market, as we discuss in prior work.[6]

[6] https://health.oliverwyman.com/content/dam/oliver-wyman/blog/hls/featured-images/August2017/Market_Stabilization_Report.pdf, see Figure 1 in this link



Source: CMS Summary Report on Risk Transfer Payments 2014-2017; national average enrollment weighted premium; Individual excluding Catastrophic and Merged markets; premium is pre-subsidies.



Source: Underwriting gain/loss divided by member months statistics from Statutory Reporting - Supplemental Health Care Exhibit. Excludes California's DMHC filers.

While the rate increases in 2017 helped issuers stem their losses from participating in the ACA marketplace, premiums in the individual ACA market increased substantially, particularly for the non-subsidized population (those with incomes greater than 400% of the federal poverty level (FPL) or $100,400 for a family of four in 2019).[7]

In Figure 4, we show how much a family with a household income of 401% FPL with two parents age 50 and two children under age 14, would have to pay, on average, for ACA coverage for the lowest cost silver plan[8] and cost sharing[9] after accounting for federal taxes.[10] The family would have to spend a total of $33,472 for their ACA coverage and cost sharing, or about 33% of pre-tax income, and would have only half of their gross income available for all other expenses after accounting for taxes and health insurance costs. In comparison, typical family coverage provided by private employers is estimated to cost the employee about $5,824[11] on a pre-tax basis and provides coverage with lower cost sharing estimated at $4,377.[12] The same family would have about $69,000 in disposable income after accounting for the cost of health insurance and taxes as shown in Figure 5, which is about 36% more income than if the family were covered in the individual ACA market.

[7] https://aspe.hhs.gov/poverty-guidelines

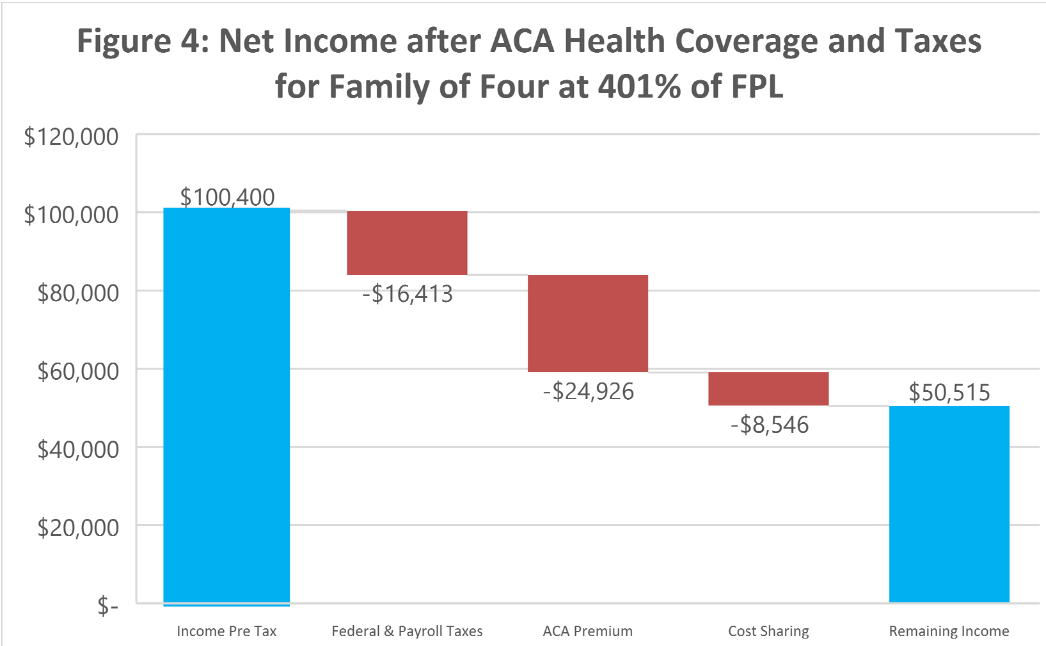
[8] Estimated at $24,926 based on Oliver Wyman calculations using the 2019 individual market landscape file based on the premiums for lowest cost silver plan coverage in each county in the 39 states with a federally facilitated marketplace: https://www.healthcare.gov/health-plan-information-2019/

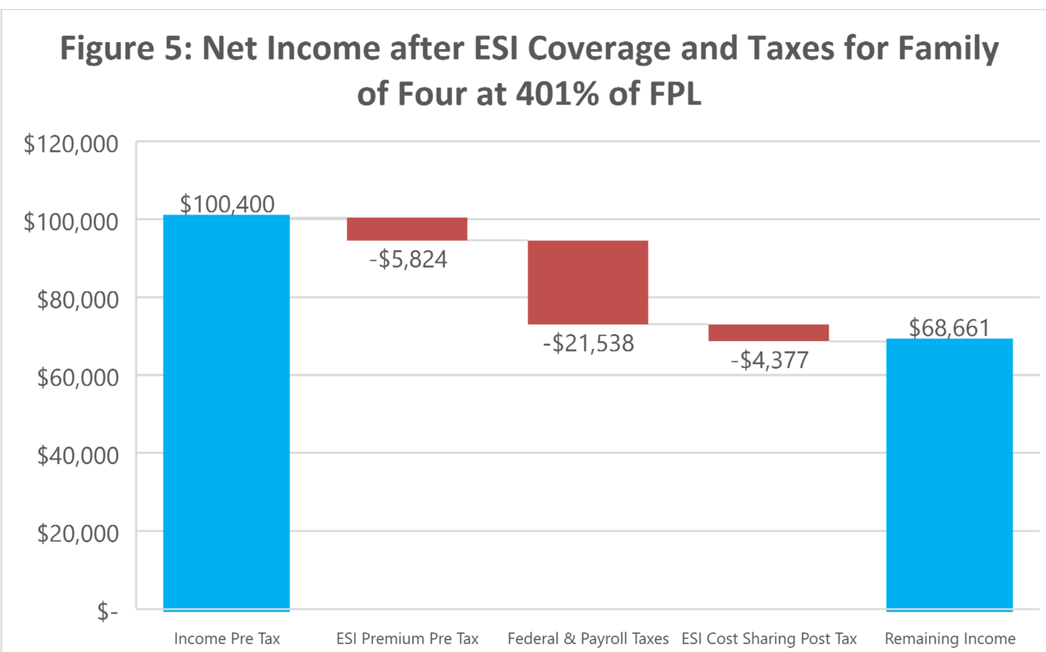
[9] Estimated at $8,546 based on premium of $24,926 * 80% loss ratio / 70% actuarial value of silver plan * 30% of member cost sharing.

[10] Calculated after subtracting $8,732 in federal taxes (based on 2019 Federal income standard deduction of $24,400 for married couples filing jointly with 12% marginal tax rate) and $7,681 for Social Security and Medicare taxes (7.65% of $100,400 in income) with no state income tax.

[11] Workers contribution to Family Coverage, All Plans in 2018, Figure A on Page 10 of the 2018 Employer Health Benefits Report, Kaiser Family Foundation trended at 5% to 2019: http://files.kff.org/attachment/Report-Employer-Health-Benefits-Annual-Survey-2018

[12] Estimated at $4,377 based on the 2018 ESI Coverage Cost of $19,616 * 1.05 trend * 85% loss ratio / 80% actuarial value of ESI plan * 20% of member cost sharing.





Consistent with recent experience, we expect that non-subsidy enrollment in the individual ACA market will continue to decline. The elimination of the mandate penalty in 2019 reduces the “cost” of being uninsured, especially for the healthier and younger population.[13] New regulations for short-term limited duration plans and association health plans could provide alternative coverage options which might be more affordable compared to the ACA coverage, but which would also be limited to a healthier population.[14,15] Continuing enrollment declines in the ACA market among the healthier population will likely lead to future premium rate increases, further destabilizing the market, increasing federal cost for premium subsidies, and reducing plan choices and competition among carriers.

In Section 3 of this report, we suggest that policymakers consider a set of proposals that would make ACA coverage more affordable and ensure access to comprehensive health coverage, regardless of the individual's health status.

[13] https://www.healthcare.gov/fees/fee-for-not-being-covered/

[14] https://www.cms.gov/newsroom/fact-sheets/short-term-limited-duration-insurance-final-rule

[15] https://www.federalregister.gov/documents/2018/06/21/2018-12992/definition-of-employer-under-section-35-of-erisa-association-health-plans

3

Market Improvement Proposals

In this section, we will discuss important market improvement proposals, and we provide analysis of the projected impact of these proposals. The list of proposals we outline here is not exhaustive. For example, we have not included a federally enforced mandate requirement like the recently repealed mandate, even though we believe that would be an effective mechanism to help improve this market.

Permanent External Funding for a Reinsurance Program

High premiums discourage enrollment of the healthier and younger population, and that, in turn, leads to even higher premiums for remaining enrollees.[16] This is especially a problem for individuals who do not qualify for premium subsidies or tax incentives, such as contract employees, early retirees, or the self-employed. The transitional reinsurance program that ended in 2016, was effective in lowering premiums in the non-group market,[17] and our micro-simulation modeling shows that lower premiums resulting from this external funding would attract more non-subsidized individuals and a younger and healthier population. In addition, a significant portion of the cost of the external funding will be offset by APTC savings as premiums decline.

Age Adjusted Premium Subsidies

Under the ACA, premium subsidies are structured to limit the enrollees' premium expenditure on a sliding scale relative to their household's income between 100% and 400% of FPL. Most households above 400% and below 100% of FPL do not qualify for premium subsidies. Figure 6 shows the maximum percentage of income projected for coverage year 2021 an individual or household must pay towards the cost of coverage for the second-lowest-cost silver plan. Because ACA premiums can vary by age based on a 3:1 age curve, at a given income, older enrollees receive a larger subsidy than younger enrollees. As the older population has a stronger preference for protecting their assets and using health care services, the current subsidy structure is more attractive to an older population and leads to an older, unbalanced risk pool.

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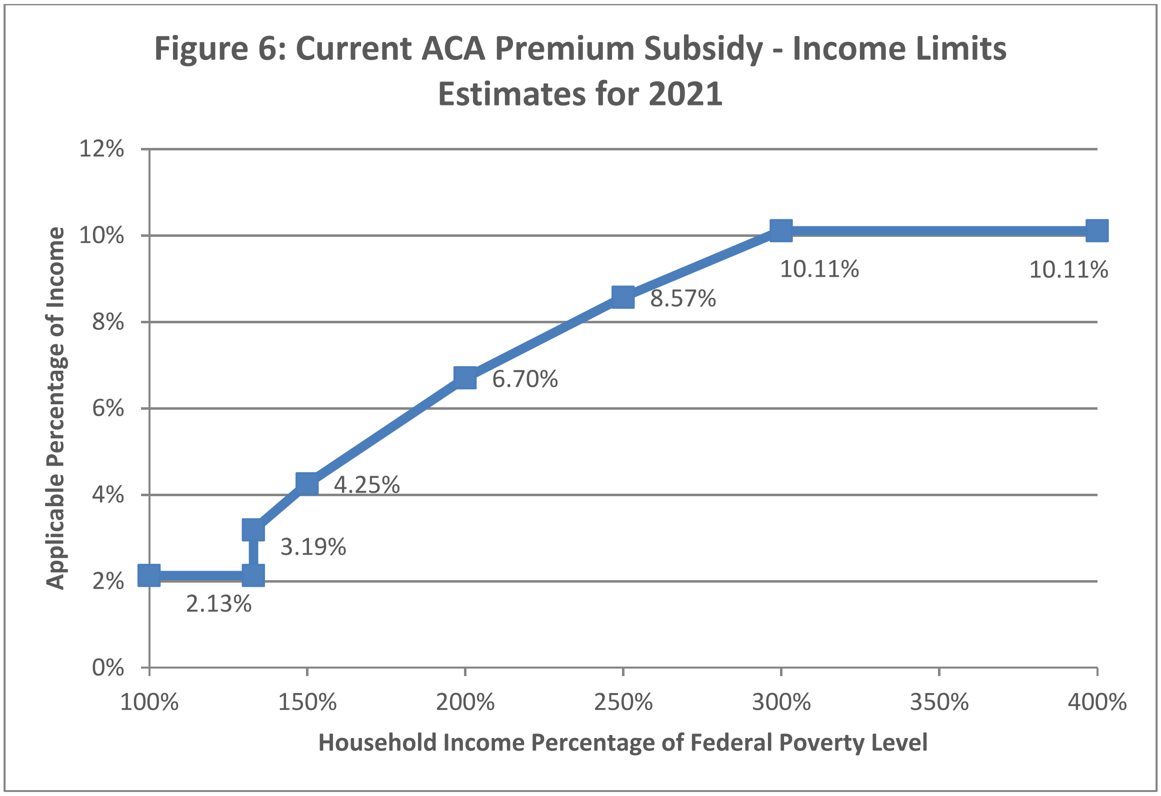
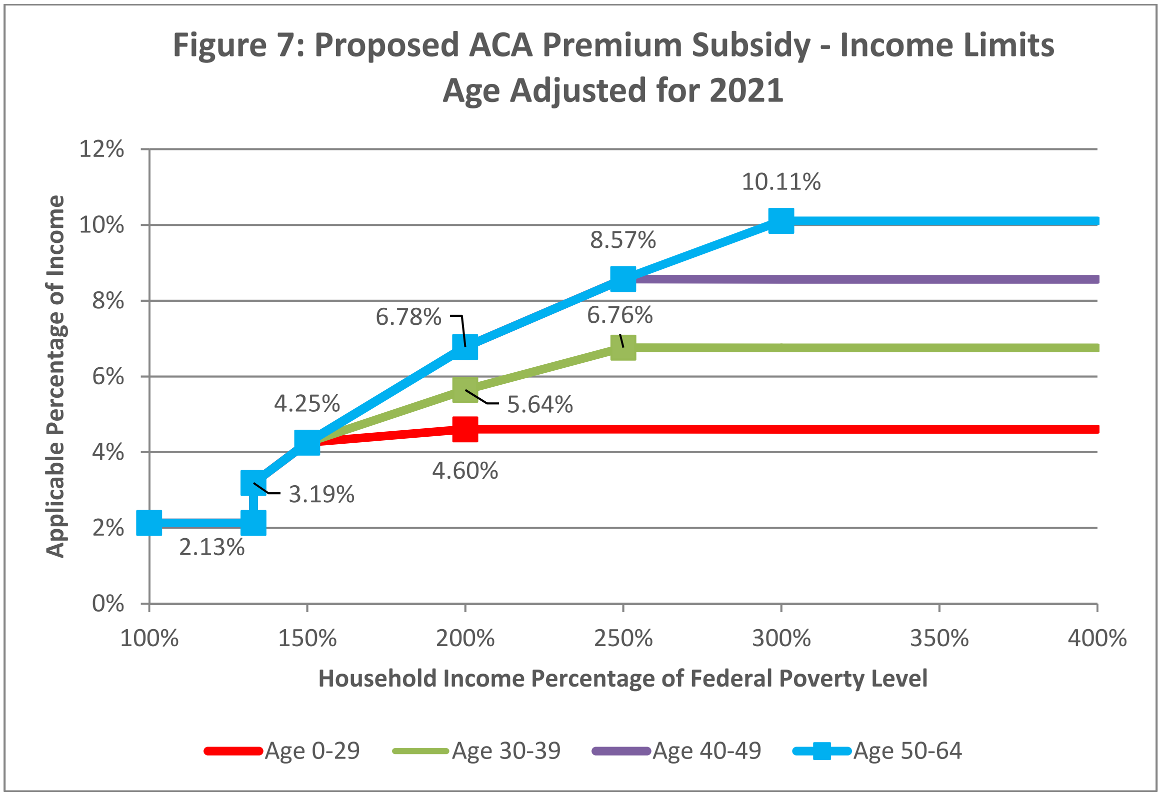
[16] Finkelstein, A., Hendren, N., and Shepard, M., "Subsidizing Health Insurance for Low-Income Adults: Evidence from Massachusetts," NBER Working Paper 23668, August 2017.

[17] https://www.cms.gov/CCIIO/Programs-and-Initiatives/Premium-Stabilization-Programs/Downloads/Summary-Reinsurance-Payments-Risk-2016.pdf



Modification of the subsidy structure, where the maximum percentage of income is determined not only by FPL but also by the age of the oldest member of the household, would make coverage more attractive to a younger population, thereby improving the morbidity of the risk pool. In Figure 7, we show a proposed age adjusted subsidy structure. Households where the oldest member's age is between 50 and 64 would receive the same subsidy as under current law. Households where oldest member is younger than 50 with incomes between 150% and 400% would be required to pay a lower percentage of their income towards the cost of coverage than under current law.



Cap on ACA Premium Spending above 400% of FPL

Households with income above 400% of FPL do not qualify for any premium subsidies under current law. As discussed in Section 2, a family with two adults age 50 and two children under age 14 and income of $100,400 (401% of FPL) would have to pay on average $24,926 for the lowest cost silver plan in the ACA marketplace in 2019 excluding cost sharing. This is roughly 25% of their gross income, and 30% of their post-tax income.

As an alternative, we modeled the market assuming a cap of 12% of household gross income on the cost of coverage in the ACA marketplace. This modification would make coverage much more affordable for a large segment of the population that currently finds coverage unaffordable. It would also help to insulate insureds from large rate increases and reduce the size of the uninsured population. We have assumed in our modeling of the 12% cap provision that it would not the impact or alter the availability of private, employer-sponsored coverage significantly. We chose a 12% cap to provide a minimum amount of financial protection to families that otherwise would not qualify for premium assistance while being high enough to avoid significantly affecting the employer sponsored coverage.[18]

Improved Treatment of CSR Plans

Households with incomes between 100% and 250% of FPL are eligible for ACA plans with reduced member cost sharing (ranging from 6% to 27% of the allowed claim cost). Households between 250% and 400% of FPL can use premium subsidies to purchase the benchmark, silver plans with expected member cost sharing around 30% without the need to spend a higher share of income, as shown in Figure 6. Here, we modeled the impact of providing coverage that has at least an 80% actuarial value to individuals with incomes between 200% and 300% of FPL to reduce the burden of high patient cost sharing on the lower income population, and we have assumed CSR payments are fully funded.

Improved Funding for Exchange Outreach and Marketing

Greater awareness about coverage options among the eligible population through marketing and advertising can lead to higher enrollment in the ACA.[19] Additionally, it motivates a healthier population to enroll and can help reduce premiums and the average federal spending on premium subsidies per enrollee.[20] We estimated that increasing the current CMS marketing and outreach budget from $20 million to $160 million would increase the ACA enrollment by roughly 5% in the 34 individual markets served by the Federally-facilitated Marketplace (FFM), based on our analysis of published research on the impact of outreach and marketing.

Section 9010 Fee Tax Moratorium

The reinstatement of health insurer tax (HIT) is estimated to result in an increase in premiums of roughly 2.2% in 2020 and subsequent years.[21] A moratorium on the HIT would help reduce premiums and provide more stability to the individual, ACA market.

As we describe below, we modeled each of these market improvement proposals, and together they lead to an increase in ACA enrollment of roughly 4.2 million individuals in 2021, reduce the nationwide average premium by approximately 33%, and cost the

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[18] In 2018, only 3% of workers in Large Firms (more than 200 workers) and 14% of workers in Small Firms (3-199 workers) contributed $12,000 or more annually towards family coverage, see Figure 6.14 on Page 91 of the 2018 Employer Health Benefits Report, Kaiser Family Foundation.

[19] https://www.healthaffairs.org/doi/10.1377/hlthaff.2017.1507

[20] https://hbex.coveredca.com/data-research/library/CoveredCA_Marketing_Matters_Issue_Brief.pdf

[21] https://health.oliverwyman.com/2018/08/new-analysis--how-the-acas-hit-will-impact-2020-premiums.html

federal government an additional $10.2 billion when considering the $15 billion for the reinsurance program premium subsidies, and marketing/outreach spending.[22]

Healthcare Reform Micro-Simulation Model Results

We used our HRMM to estimate the impacts of the market improvement proposals on enrollment, average premiums and federal spending. Table 1 shows the main assumptions employed in the baseline and market improvement scenarios.

Table 1 - Assumptions for Baseline and Market Improvement Scenarios

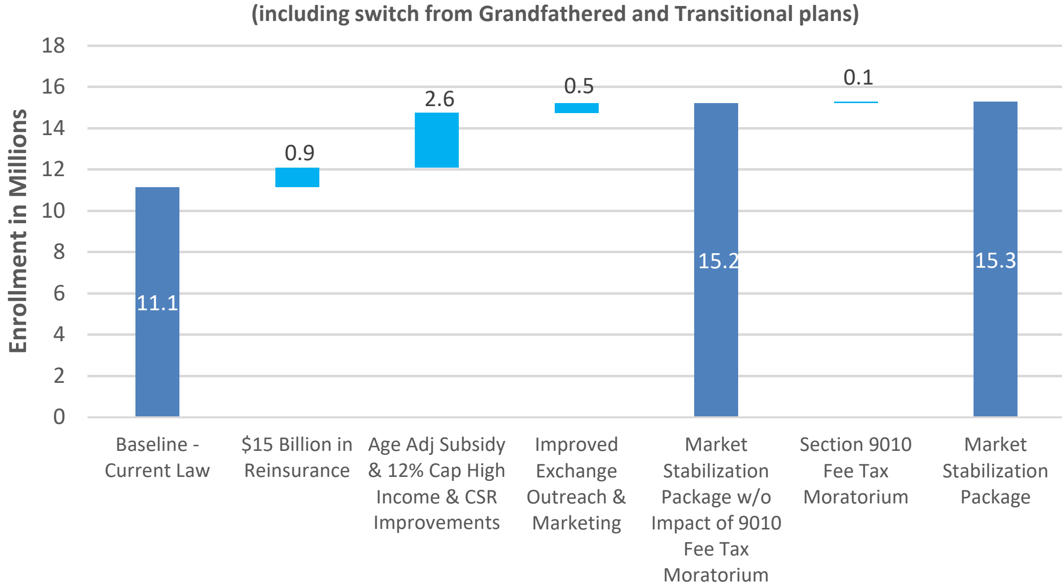
Item	Baseline / Current Regulation Scenario	ACA Market Improvement Scenario
APTC methodology under current ACA regulations	Yes	Modified age adjusted APTC percentage factors up to 400% of FPL; flat 12% gross income cap for silver premium above 400% FPL
CSR methodology under current ACA regulations	Yes	Enhanced CSR plan available at 80% actuarial value for households with income between 200% and 300% of FPL, and fully funded
ACA Shared Responsibility Payment (Mandate)	No	No
Transitional policies allowed	Yes, through 2021	Yes, through 2021
9010 HIT Fees Collected	Yes	No, 2.20% premium impact in 2021
Reinsurance Program	No	Yes, $15 billion per year
CMS Budget for Outreach, Marketing and Navigators in 34 FFM States	At 2019 funding level, about $20 million	Funding is increased to 2017 levels, about $167 million
All other ACA regulations	Unchanged	Unchanged

In Figures 8 through 10 we show the impact of the market improvement proposals described above on enrollment, market average premiums, and federal spending on APTCs, external funding and marketing/outreach, respectively. We did not include any

[22] Excluding impact on federal expenditure and revenues like reduced Exchange user fees through lower premiums, loss of the HIT revenue, etc.

other revenue effects in Figure 10. We estimate that the market improvement proposals we modeled would increase the ACA-compliant individual market enrollment by about 4.2 million enrollees, or roughly 38%. This estimate includes about 0.6 million enrollees switching from non-ACA compliant plans to ACA-compliant plans. The provisions would reduce the nationwide average premium by 33% and would increase federal spending by about $10.2 billion annually for the budget items we included. The market provisions without the impact from the elimination of the 9010 HIT fee would increase enrollment by roughly 4.1 million individuals in the ACA market, reduce the nationwide average premium by approximately 31%, and increase federal spending by $12.4 billion.

Figure 8: Projected Enrollment in the ACA Individual Market 2021
(including switch from Grandfathered and Transitional plans)



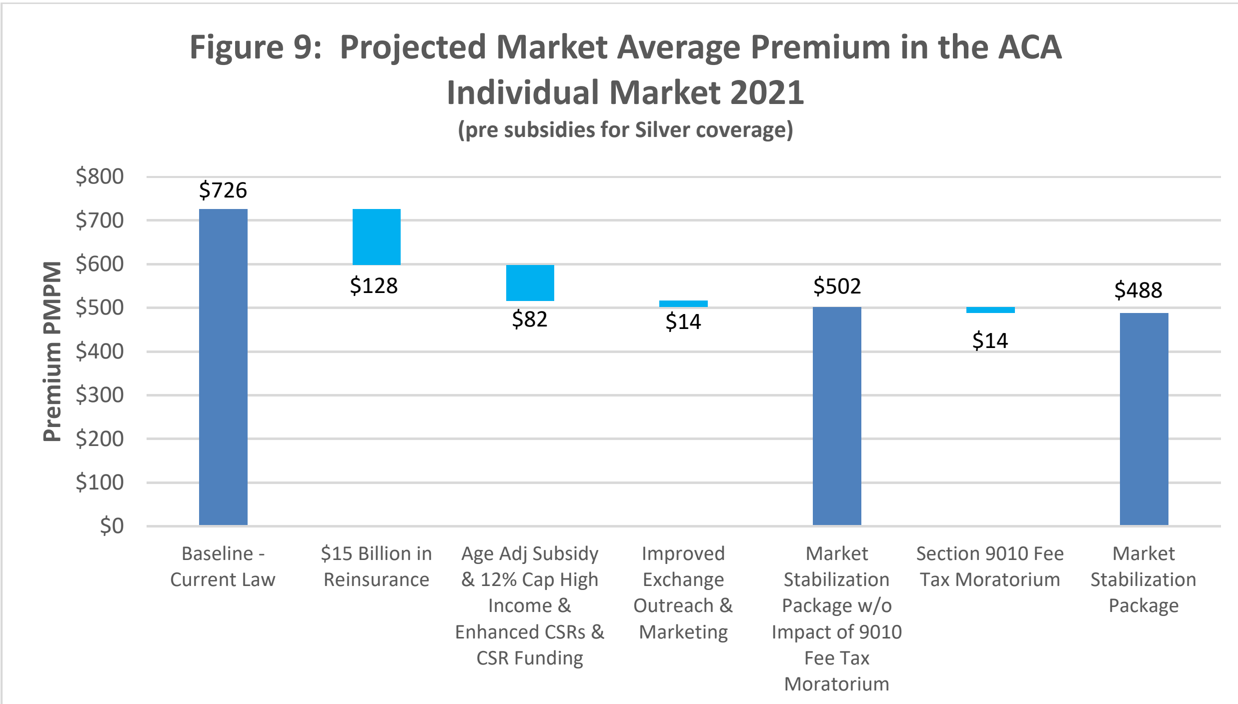


Figure 9: Projected Market Average Premium in the ACA Individual Market 2021
(pre subsidies for Silver coverage)
Premium PMPM
$800
$700
$600
$500
$400
$300
$200
$100
$0
$726
$128
$82
$14
$502
$14
$488
Baseline - Current Law
$15 Billion in Reinsurance
Age Adj Subsidy & 12% Cap High Income & Enhanced CSRs & CSR Funding
Improved Exchange Outreach & Marketing
Market Stabilization Package w/o Impact of 9010 Fee Tax Moratorium
Section 9010 Fee Tax Moratorium
Market Stabilization Package

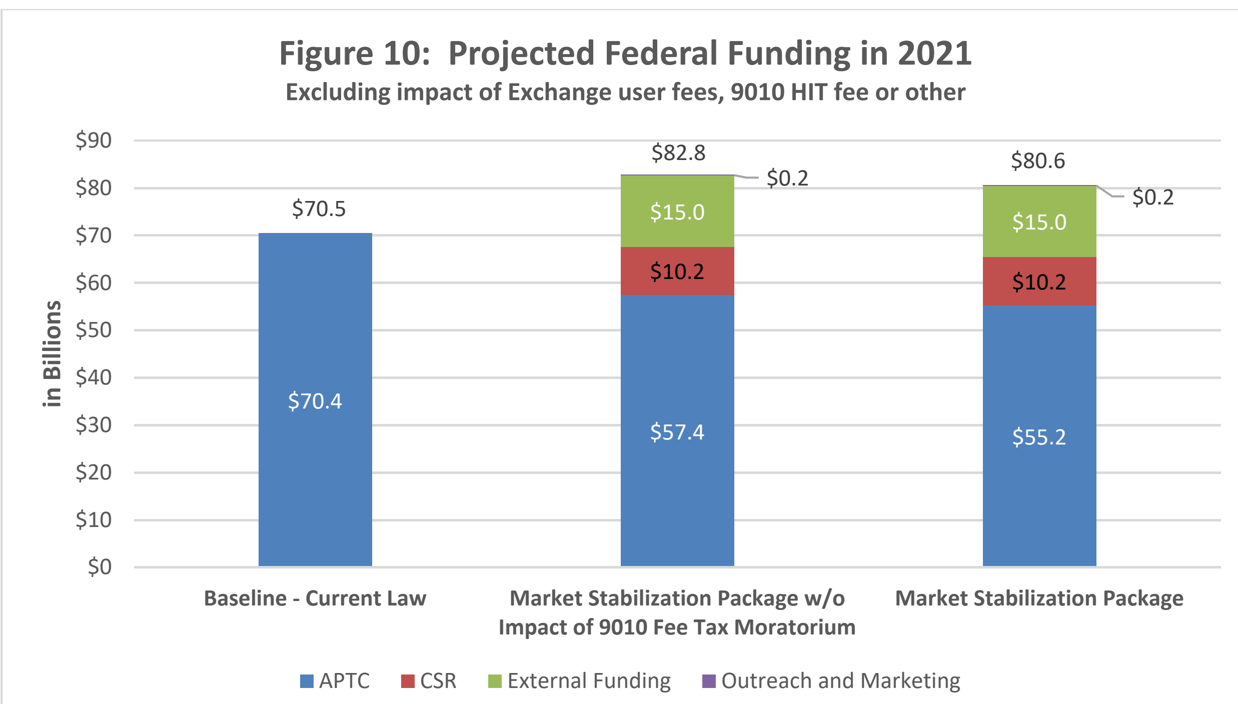


Figure 10: Projected Federal Funding in 2021
Excluding impact of Exchange user fees, 9010 HIT fee or other
in Billions
$90
$80
$70
$60
$50
$40
$30
$20
$10
$0
$70.5
$70.4
$82.8
$0.2
$15.0
$10.2
$57.4
$80.6
$0.2
$15.0
$10.2
$55.2
Baseline - Current Law
Market Stabilization Package w/o Impact of 9010 Fee Tax Moratorium
Market Stabilization Package
APTC
CSR
External Funding
Outreach and Marketing

Report Qualifications, Assumptions and Limiting Conditions

We prepared this report for the BlueCross and BlueShield Association for the purposes stated herein. This report is not to be used for any other purpose.

In this work, we have relied on publicly available data and information without independent audit. Though we have reviewed the data for reasonableness and consistency, we have not audited or otherwise verified this data. It should also be noted that our review of data may not always reveal imperfections. We have assumed that the data and information we relied upon are both accurate and complete. The results of our analysis are dependent on this assumption. If this data or information is inaccurate or incomplete, our findings and conclusions may need to be revised.

Our conclusions are based on data and information that we believe are appropriate for these purposes, and on the estimation of the outcome of many contingent events. Our estimates make no provision for extraordinary future events not sufficiently represented in historical data on which we have relied, or which are not yet quantifiable.

The sources of uncertainty affecting our estimates are numerous and include items such as changes in policies beyond those modeled here such as changes in outreach and advertising, changes in taxes, and changes in federal and state funding.

While this analysis complies with applicable Actuarial Standards of Practice, users of this analysis should recognize that our projections involve estimates of future events and are subject to economic and statistical variations from expected values. We have not anticipated any extraordinary changes to the legal, social, or economic environment that might affect the results of our modeling. For these reasons, no assurance can be given that the emergence of actual results will correspond to the projections in this analysis.

The authors of this report are members of the American Academy of Actuaries and meet that body's Qualifications Standards to perform this work and render the opinions expressed in this report.

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Claims Denials and Appeals in ACA Marketplace Plans

Karen Pollitz, **Cynthia Cox** , and **Rachel Fehr**

Published: Feb 25, 2019

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ISSUE BRIEF

In this report, we analyze transparency data released by the Centers for Medicare and Medicaid Services (CMS) to examine claims denials and appeals among issuers offering individual market coverage on healthcare.gov from 2015-2017. We find that, across issuers with complete data, 19% of in-network claims were denied by issuers in 2017, with denial rates for specific issuers varying significantly around this average, from less than 1% to more than 40%. We also find that consumers rarely appeal claims denials to their issuers, and when they do, issuers typically uphold their original decision. Healthcare.gov consumers appealed less than one-half of one percent of denied claims, and issuers overturned 14% of appealed denials.

Transparency data can provide information about health plan coverage and operations that might not otherwise be readily apparent. For example, they can reveal how often issuers deny claims or pay claims promptly. Transparency data can also shed light on the adequacy of health plan networks, for example, showing how often enrollees seek out-of-network care. Data can form the basis for report cards or other tools to help consumers understand and compare health plan options, and can inform oversight activities, such as plan certification and market conduct examinations.

> *ACA Marketplace plans denied an average of nearly 1 in 5 in-network claims in 2017; denial rates ranged from 1% to 45% across insurers*

The data posted by CMS has significant limitations, some of which may be partially addressed in future collections. The large range in claim denial rates across issuers raise questions about the quality of the data. The current release does not provide information about why a claim was denied, making it difficult to assess what is driving the denials and why they vary so much. CMS also is not collecting data for several categories specified in the Affordable Care Act (ACA), including the number of out-of-network claims submitted and denied and consumer financial liability for out-of-network claims. In addition, while the law requires reporting by most employer-sponsored group health plans and other individual market plans, CMS is currently only collecting information from issuers offering individual plans through the Federal Marketplace.

ACA Transparency Data

The Affordable Care Act (ACA) requires periodic data reporting by group health plans and by health insurance issuers in the individual and group markets to make more transparent how coverage works in practice.[1] Plans are to report data on the following:

- Claims payment policies and practices
- Periodic financial disclosures
- Data on enrollment
- Data on disenrollment
- Data on the number of claims that are denied
- Data on rating practices
- Information on cost-sharing and payments with respect to any out-of-network coverage
- Information on enrollee and participant rights under this title
- Other information as determined appropriate by the Secretary

The law requires these data to be available to state insurance regulators and to the public.

In 2016, the Centers for Medicare and Medicaid Services (CMS) began collecting ACA transparency data for non-group issuers of qualified health plans (QHPs) – both major medical and stand-alone dental plans (SADPs) – sold through healthcare.gov. Currently, public use files for three calendar years – 2017, 2016, and 2015 – are aggregated at the issuer level and available online.

We analyzed these public files, with a particular focus on major medical plans. We excluded issuers that primarily offered stand-alone dental coverage and companies with incomplete data. The working files for this analysis are posted to the report page and the methods section below details our rules for inclusion.

There are limitations to the publicly-posted data. For example, the transparency data do not include reasons for claims denials. Issuers use standardized reason codes for claims adjustments and denials; without this information, one cannot distinguish claims denied for reasons of medical necessity, for example, from those denied due to an incorrect or incomplete submission. Transparency data also do not include other detail that could shed light on the nature of claims submitted and denied – for example, reporting on the types of services or dollar amounts involved.

Additionally, reporting differences may be the result of issuers interpreting instructions differently, particularly around how to report partially approved claims or duplicate claims denied. The accuracy of data reporting may be another limitation; CMS does not conduct data verification of the transparency data.

CMS does not yet require issuers to report data for some categories specified in law, such as the number of out-of-network claims submitted or denied or consumer financial liability for out-of-network claims.[2] In addition, although the ACA called for transparency data reporting to begin September 1, 2010 for all non-grandfathered individual and group plans offered outside of the marketplace, to date, the federal government does not collect transparency data for any of the following:

- Qualified health plans (QHPs) offered through 12 state-based marketplaces
- Non-group plans offered outside of the marketplace in any state
- Employer-sponsored health plans (non-grandfathered) offered through or outside of the marketplace in any state

Analysis of Transparency Data

ACA transparency data reveal new information not previously available to the public about the number of in-network claims submitted in healthcare.gov plans, the number of in-network claims denied, the number of denied claims that are appealed, and the outcome of appeals.[3] This provides a glimpse into plan performance that may be of interest to consumers and regulators.

Claims submitted and denied

Of the 180 major medical issuers in healthcare.gov states included in the transparency data, 130 show complete data on in-network claims received and denied for the 2017 plan year. Together these issuers reported 229.8 million in-network claims received, of which 42.9 million were denied, for an average in-network claims denial rate of 19% (Figure 1).

In these data, issuers report all denials including denials due to ineligibility, denials due to incorrect submission or billing, duplicate claims, and denials based on medical necessity.

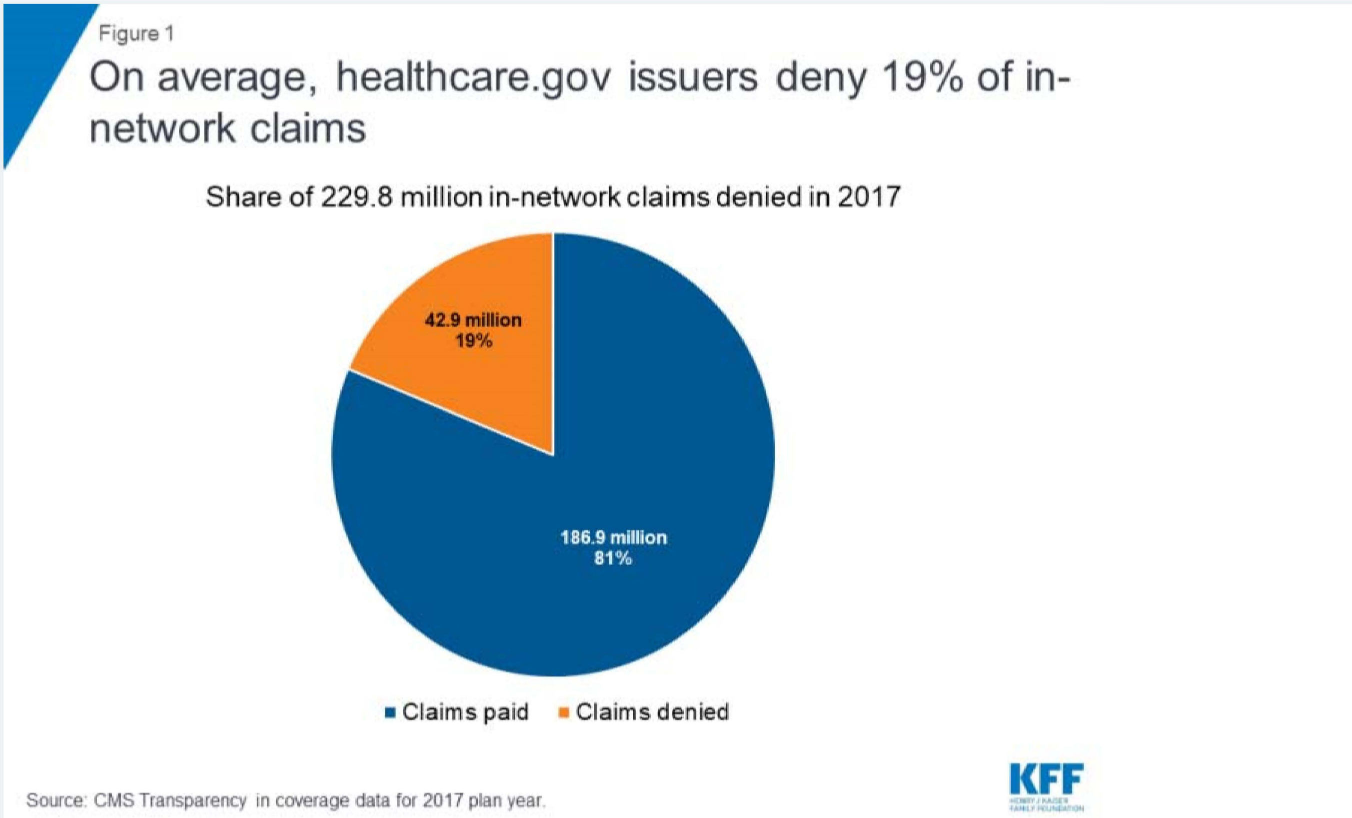


Figure 1: On average, healthcare.gov issuers deny 19% of in-network claims

ACA transparency data show denial rates by issuers were highly variable, ranging from 1% to 45% of in-network claims. Overall for 2017, 40 of the 130 reporting Healthcare.gov major medical issuers had a denial rate for in-network claims of 10% or lower. Another 43 reporting issuers denied between 11 and 20% of in-network claims that year, while 47 issuers denied more than 20% of in-network claims this year (Figure 2).

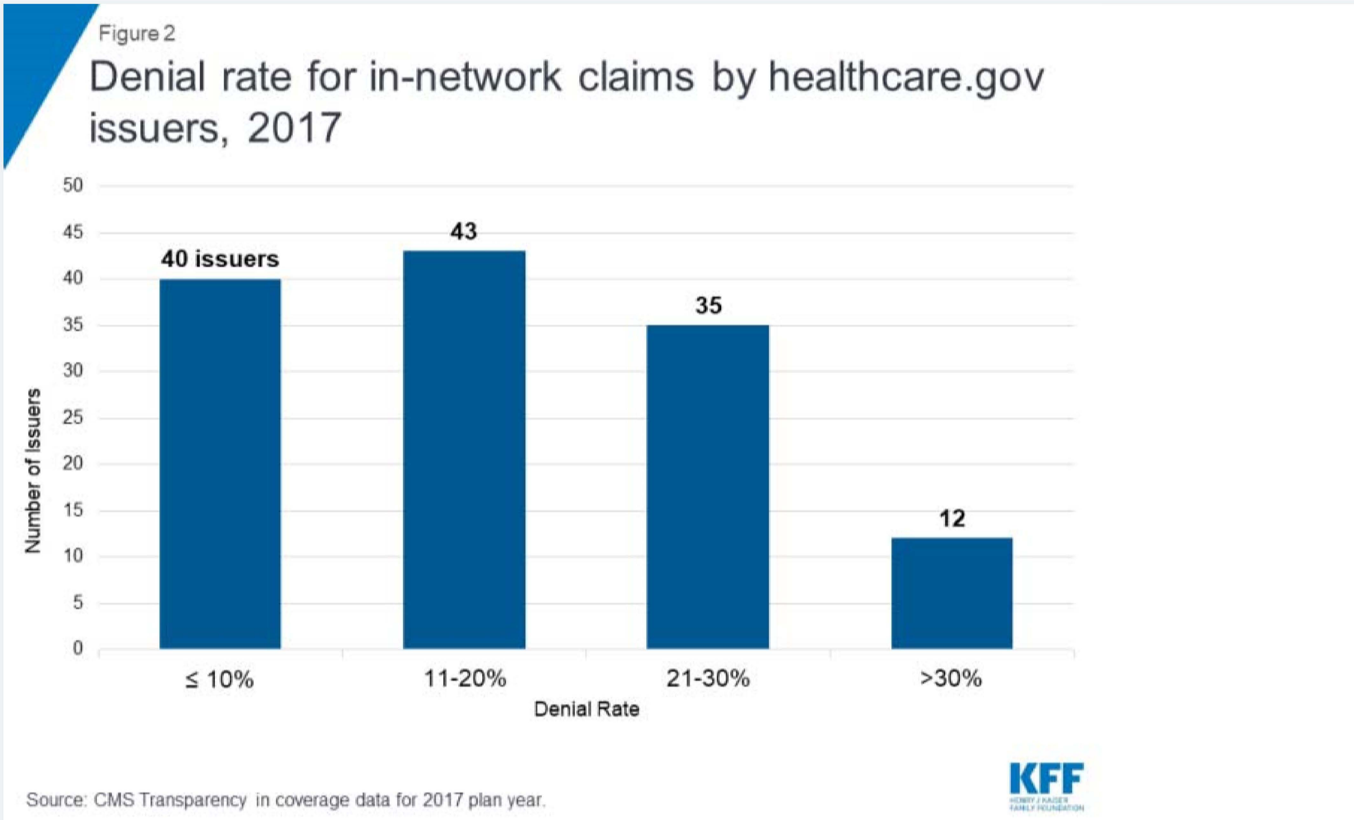


Figure 2: Denial rate for in-network claims by healthcare.gov issuers, 2017

Denial rates also vary from state to state (Figure 3). However, in states where multiple issuers participate in the marketplace, the average denial rate can obscure variation among issuers. For example, in Florida, where six marketplace issuers together denied 11% of more than 40 million in-network claims submitted in 2017, denial rates of the six issuers ranged from 2% to 32%.

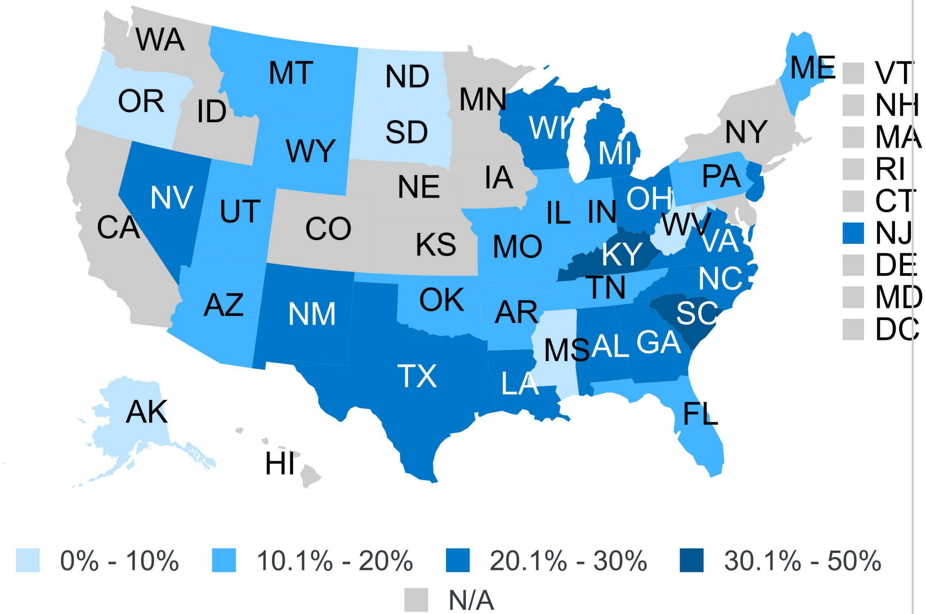
A variety of factors could explain the variation in denial rates across issuers and markets , including but not limited to differences in:

- Determination of medical necessity
- Limits (e.g. day or visit limits) on covered services
- Degree to which issuers' automated claims processing systems routinely deny certain claims
- Provider knowledge about which claims will be covered and how to properly submit claims
- Issuer reporting methods, for example, in how to count partial approvals

Depending on the nature of the denial, consumers may or may not be held harmless. If held harmless, a consumer may never realize a claim had been denied, but if not, she could face significant financial liability.

Figure 3

Average denial rate for in-network claims by healthcare.gov issuers, by state (2017)



Florida

10.90%

6 Issuers Included (98% of state enrollment):
Blue Cross and Blue Shield of Florida (4% denial rate)
Celtic Insurance Company (21%)
Health Options (3%)
Health First Commercial Plans (13%)
Molina Healthcare of Florida (32%)
Florida Health Care Plan (2%)

1 Issuer Missing from Transparency Data (2% of state enrollment):
Humana Medical Plan

Notes: States are shown in gray if they are state-based exchanges or if 60% or more of the enrollment in that state is missing from this analysis (either because issuers are missing from the CMS transparency data or because issuers have missing or invalid data). Each issuer shown on the map represents a unique HIOS ID and issuers have not been aggregated up to their parent companies. Determinations of whether issuers are missing from the transparency data are based on HIOS IDs, not issuer names.

On average, issuers reported similar denial rates in earlier years. For the 2016 plan year, healthcare.gov issuers denied 17% of in-network claims, with denial rates of issuers ranging from less than 1% to more than 65%. For the 2015 plan year, the average denial rate was 19%, with denial rates ranging from less than 1% to more than 90%. The claims denial rate was relatively consistent over time for some issuers, while for others it was more variable. For example, Molina Healthcare of Florida reports denying 32% of in-network claims submitted in 2017, 30% in 2016, and 22% in 2015. Meanwhile, Blue Cross Blue Shield of South Carolina reports denying 30% in 2017, 16% in 2016, and 15% in 2015. UPMC Health Plan of Pennsylvania reports denying 4% in 2017, 2016, and 2015. However, Security Health Plan of Wisconsin reports denying 7% of in-network claims in 2017, 8% in 2016, and 35% in 2015.

For the 98 issuers of standalone dental plans in healthcare.gov states that show data on in-network claims submitted and denied in 2017, claims totaled 2.9 million, of which 712,671 (25%) were denied. Nine of the SADP issuers reported denial rates of 10% or less for in-network claims, while 36 issuers reported denial rates of 30% or higher.

Marketplace insurers denied nearly 1 in 5 in-network claims in 2017. Denials can occur due to improperly submitted or duplicate claims as well as services that the insurer says are not medically necessary

Appeals

The ACA transparency data show the number of denied claims that were appealed to the plan (internal appeals), the number of internally appealed denials that were overturned by the issuer, the number of external appeals made by consumers, and the number of externally appealed denials that were overturned. The CMS public use files suppress values lower than 10.

Consumers rarely appeal denied claims. In 2017, 121 major medical issuers show data values on submitted, denied, and appealed in-network claims. Together they denied more than 42 million claims, of which consumers appealed fewer than 200,000 – an appeal rate of less than one-half of one percent (Figure 4). Transparency data for 2015 and 2016 show even lower appeal rates by consumers, 0.1% and 0.2%, respectively.

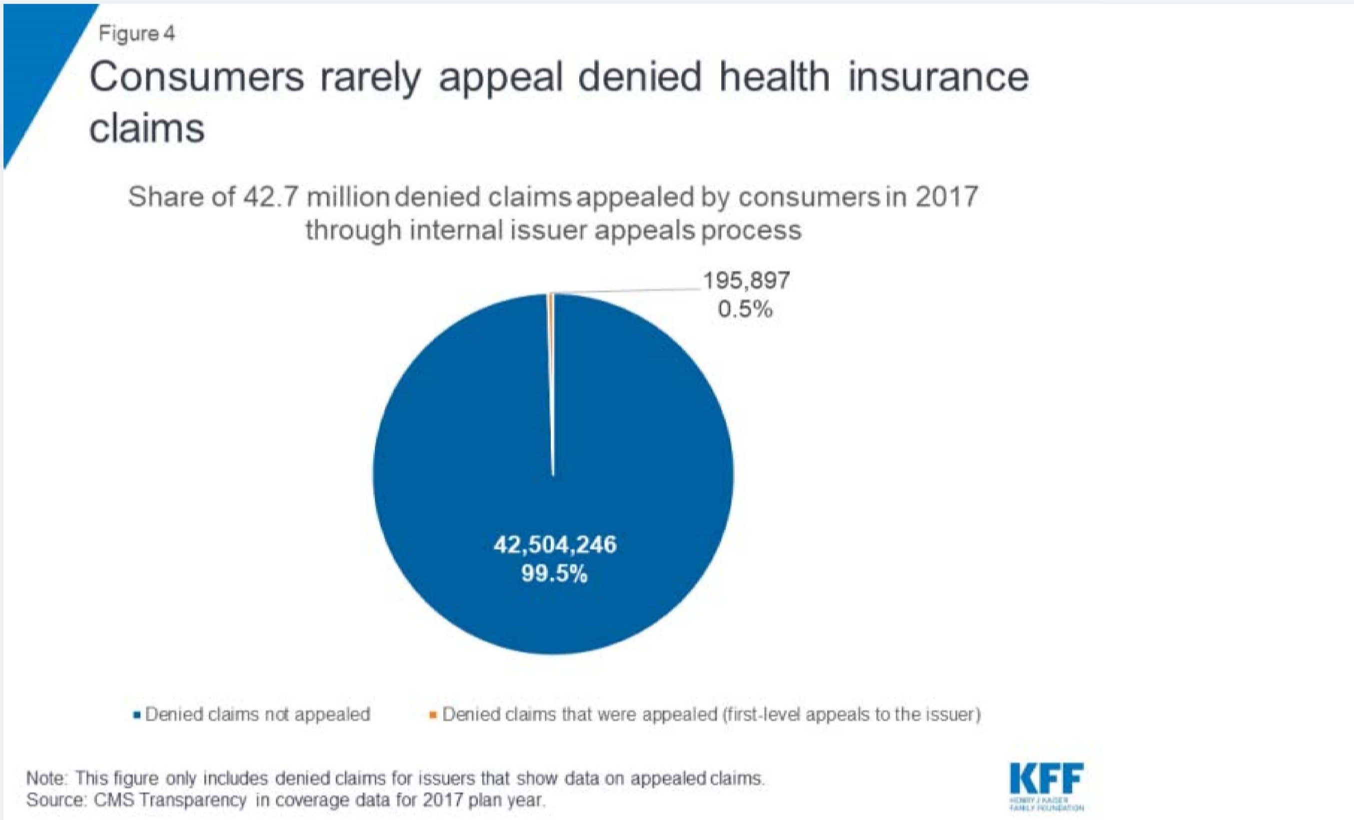


Figure 4: Consumers rarely appeal denied health insurance claims

Issuers uphold the vast majority of denials that are appealed. In 2017, 14% of denials that enrollees appealed internally to their health plans were overturned. The overturn rate of appealed claims denials also varies. Among 118 issuers whose appeals outcomes data were not suppressed, the overturn rate ranged from 1 percent to 88 percent.

> *Enrollees in healthcare.gov plans appealed less than 1% of denied claims in 2017. About 1 in 7 appeals resulted in a reversal of the original denial*

The ACA guarantees external appeal rights to enrollees in all non-grandfathered private health plans. When issuers uphold denials at the internal appeal level, consumers have the option of requesting an independent review by an outside entity, whose decision is binding. Consumers also can bypass internal appeal and go directly to external review in emergencies and certain other circumstances. Consumers seldom avail themselves of external review. Of the 130 issuers that reported data on external appeals requested in 2017, 84 had data suppressed because the number of external appeals filed was less than 10. Even if a value of 9 were assumed for each of the suppressed data fields, fewer than 1 in 11,000 denied claims made it to external review.

Issuers also report data on the disposition of external reviews, though number values for the vast majority have been suppressed. For 2017, 18 issuers display number values for both the number of external appeals filed and the number of denials overturned at external review. For 112 other issuers, either the number of external appeals filed, or the number overturned, or both, was smaller than 10, and thus suppressed. Given these limitations, the data do not support a finding about the percent of denials overturned at external review.

Other Data Sources Provide Context

Absent data on how often other commercial health issuers deny claims, it is difficult to put ACA transparency data in context. The federal government does not yet require ACA transparency data reporting by other insurance issuers or group health plans. In its most recent data collection notice, CMS says it will work with the U.S. Department of Labor and State-based Exchanges to extend transparency data reporting on a phased-in basis after the 2021 collection year.

State insurance regulators collect data on denied claims, appeals, and other metrics from all licensed health issuers in the U.S. under the Market Conduct Annual Statement (MCAS) system, administered by the National Association of Insurance Commissioners. The MCAS health data collection began in 2018 for the 2017 plan year. Data are reported at the plan metal level (i.e., bronze, silver, gold, and platinum) for plans in the individual and small group market, on- and off-exchange. Additional reporting metrics will be added for the 2018plan year, including reason categories for claims denials, and separate reporting on prior authorizations required for behavioral health and substance use services. MCAS data are collected to inform oversight and market conduct activities and, to date, have not been released to the public.

Meanwhile several other sources of data are available that provide some points of comparison for evaluating the ACA transparency data.[4]

Covered California

One state-based marketplace – CoveredCA – requires issuers to report data on in-network claims submitted and denied each year. Data are reported at the issuer level and are posted on the marketplace website. For the 2017 plan year, 10 issuers reported receiving 33 million in-network claims, of which 8 million were denied (24%). The denial rate for individual issuers ranged from 7% to 41% that year. For 2016, 10 issuers reported receiving 24 million claims of which 4 million were denied (18%). Denial rates for issuers ranged from 4% to 33% that year. These metrics and trends are roughly similar to those seen in the ACA transparency data for healthcare.gov issuers. CoveredCA does not post data on appeals.

Connecticut Health Insurance Report Card

Connecticut publishes an annual consumer report card on health insurance carriers. The 2017 report card includes information about 4 HMOs and 8 health issuers that together cover 2.2 million state residents; about 83% of enrollment is from large group plans, 11% from small group plans, and about 6% from individual market plans. The Connecticut report card includes data on all claims submitted and denied, as well as major reasons for claims denials. Data are aggregated and shown at the issuer level.

In 2017, 10 issuers reported receiving 13.8 million claims[5], of which 2.2 million (16%) were denied. For specific issuers, the denial rate ranged from 8.5% to 24%. Connecticut issuers also report on certain major reason categories for denied claims. On average, less than 1% of claims denials were on the basis of medical necessity; 9% of denials were because the claim was for a non-covered service; 13% of denials were for duplicate claims; another 13% of denials were because the claimant was not an eligible enrollee or dependent, and 16% of denials were for claims that were incompletely submitted. Reasons were not reported for nearly half of all denials (48.9%), classified in the report card under “all other miscellaneous.”

According to the report card, Connecticut consumers appealed just over 19,000 of the 2.2 million denied claims in 2017, an appeal rate of 0.8%. On average, issuers reversed 39% of denials that were appealed. The 19,000 appeals involved claims denied for every type of reason. On average, appeals of medical necessity denials were reversed by issuers 38% of the time. Issuers were slightly more likely to reverse denials based on claims having been duplicates or submitted incompletely (43% and 44%, respectively), and much less likely to overturn denials based on the claimant not being an eligible enrollee of the plan (15%).[6]

Medicare Advantage

A recent report by the Inspector General (IG) of the US Department of Health and Human Services examined claims denial rates and appeals in Medicare Advantage plans (ACA transparency data requirements do not apply to the Medicare program). The IG found that, on average, 8% of claims and prior authorizations (combined) submitted to Medicare Advantage plans over a 3-year period (2014-2016) were denied by issuers – less than half the denial rate reported, on average, by healthcare.gov issuers. In addition, the report found that 1% of denied claims were appealed by consumers, and 75% of appeals resulted in overturn of the denial. The IG report also described a 2015 CMS audit of claims denials by Medicare Advantage plans that cited 56% of audited contracts for making inappropriate denials.

Survey of Consumer Experiences

Transparency data provide no information about how claims denials affect patients, though other research sheds some light. A 2000 survey by the Kaiser Family Foundation of consumer experiences with private health insurance found that most consumers (51%) experienced some problem with their coverage. About half of problems related to billing and paperwork issues, while about one-third related to care, and the impact on consumers was often substantial. Almost

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DOI: 10.1377/hlthaff.2018.05499
HEALTH AFFAIRS 38, NO. 3 (2019): –

National Health Expenditure Projections, 2018–27: Economic And Demographic Trends Drive Spending And Enrollment Growth

ABSTRACT **National health expenditures are projected to grow at an average annual rate of 5.5 percent for 2018–27 and represent 19.4 percent of gross domestic product in 2027. Following a ten-year period largely influenced by the Great Recession and major health reform, national health spending growth during 2018–27 is expected to be driven primarily by long-observed demographic and economic factors fundamental to the health sector. Prices for health care goods and services are projected to grow 2.5 percent per year, on average, for 2018–27—faster than the average price growth experienced over the last decade—and to account for nearly half of projected personal health care spending growth. Among the major payers, average annual spending growth in Medicare (7.4 percent) is expected to exceed that in Medicaid (5.5 percent) and private health insurance (4.8 percent) over the projection period, mostly as a result of comparatively higher projected enrollment growth. The insured share of the population is expected to remain stable at around 90 percent throughout the period, as net gains in health coverage from all sources are projected to keep pace with population growth.**

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During 2018–27 national health spending is expected to be driven primarily by long-observed demographic and economic factors fundamental to the health sector, largely in contrast to the prior decade—which was affected by the notable impacts of a historic recession and the implementation of wide-ranging health reform legislation.[1] Overall, national health spending is projected to grow at 5.5 percent per year, on average, for 2018–27 (exhibit 1). This is faster than the average growth rate experienced following the last recession (3.9 percent for 2008–13) and the more recent period inclusive of the Affordable Care Act's major coverage expansions (5.3 percent for 2014–16). However, it is slower than the rate throughout the nearly two decades preceding the Great Recession (7.3 percent for 1990–2007). Growth in gross domestic product (GDP) during the ten-year projection period is projected to average 4.7 percent. Because national health spending growth is expected to increase 0.8 percentage point faster, on average, than growth in GDP over the projection period, the health share of GDP is expected to rise from 17.9 percent in 2017 to 19.4 percent in 2027, with almost all of the increase in share expected after 2020.

Projected average annual spending growth rates for the underlying major payers of health care are expected to vary substantially during 2018–27, mainly as a result of differing expected trends in enrollment growth. Average Medicare spending growth is projected to be the fastest, at

EXHIBIT 1

National health expenditures (NHE), aggregate and per capita amounts, share of gross domestic product (GDP), and average annual growth from previous year shown, by source of funds, selected calendar years 2013–27

Source of funds	2013[a]	2016	2017	2018[b]	2019[b]	2027[b]
EXPENDITURE, BILLIONS						
NHE	$2,881.8	$3,361.1	$3,492.1	$3,646.9	$3,823.1	$5,963.2
Health consumption expenditures	2,728.6	3,202.9	3,324.5	3,470.3	3,637.6	5,679.9
Out of pocket	325.9	356.1	365.5	378.6	396.9	585.8
Health insurance	2,088.1	2,504.5	2,604.2	2,720.9	2,850.6	4,545.8
Private health insurance	947.1	1,136.4	1,183.9	1,237.7	1,278.2	1,896.7
Medicare	589.9	677.1	705.9	747.4	800.1	1,436.8
Medicaid	445.2	565.6	581.9	594.8	623.4	992.1
Federal	256.9	358.3	361.2	369.5	386.5	611.1
State and local	188.4	207.3	220.6	225.3	237.0	380.9
Other health insurance programs[c]	105.9	125.3	132.6	141.0	148.8	220.2
Other third-party payers and programs and public health activity	314.7	342.4	354.8	370.8	390.0	548.4
Investment	153.2	158.2	167.6	176.5	185.5	283.3
Population (millions)	315.7	322.9	325.2	327.9	330.7	352.7
GDP, billions	$16,784.9	$18,707.2	$19,485.4	$20,498.6	$21,503.1	$30,755.4
Disposable personal income, billions	12,505.3	14,170.9	14,796.3	15,563.2	16,297.3	23,453.9
NHE per capita	9,128.9	10,410.1	10,739.1	11,121.2	11,559.3	16,907.0
GDP per capita	53,170.5	57,941.2	59,922.8	62,511.0	65,015.9	87,198.3
Prices (2012 = 100.0)						
Personal Health Care Price Index	1.015	1.049	1.062	1.081	1.101	1.359
GDP Implicit Price Deflator, chain weighted	1.018	1.059	1.079	1.104	1.130	1.344
NHE as percent of GDP	17.2%	18.0%	17.9%	17.8%	17.8%	19.4%
ANNUAL GROWTH						
NHE	3.9%	5.3%	3.9%	4.4%	4.8%	5.7%
Health consumption expenditures	4.0	5.5	3.8	4.4	4.8	5.7
Out of pocket	2.0	3.0	2.6	3.6	4.8	5.0
Health insurance	4.4	6.2	4.0	4.5	4.8	6.0
Private health insurance	3.4	6.3	4.2	4.5	3.3	5.1
Medicare	5.3	4.7	4.2	5.9	7.1	7.6
Medicaid	5.3	8.3	2.9	2.2	4.8	6.0
Federal	5.6	11.7	0.8	2.3	4.6	5.9
State and local	5.0	3.2	6.4	2.1	5.2	6.1
Other health insurance programs[c]	6.0	5.8	5.8	6.4	5.5	5.0
Other third-party payers and programs and public health activity	3.4	2.9	3.6	4.5	5.2	4.4
Investment	1.7	1.1	6.0	5.3	5.1	5.4
Population[d]	0.8	0.8	0.7	0.8	0.9	0.8
GDP	2.5	3.7	4.2	5.2	4.9	4.6
Disposable personal income	2.9	4.3	4.4	5.2	4.7	4.7
NHE per capita	3.0	4.5	3.2	3.6	3.9	4.9
GDP per capita	1.7	2.9	3.4	4.3	4.0	3.7
Prices (2012 = 100.0)						
Personal Health Care Price Index	2.2	1.1	1.3	1.7	1.9	2.7
GDP Implicit Price Deflator, chain weighted	1.6	1.3	1.9	2.3	2.3	2.2

SOURCES Centers for Medicare and Medicaid Services, Office of the Actuary, National Health Statistics Group; and Department of Commerce, Bureau of Economic Analysis and Bureau of the Census. **NOTES** For definitions, sources, and methods for NHE categories, see CMS.gov. National Health Expenditure Accounts: methodology paper, 2017: definitions, sources, and methods [Internet]. Baltimore (MD): Centers for Medicare and Medicaid Services; [cited 2019 Jan 25]. Available from: https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/Downloads/dsm-17.pdf. Numbers might not add to totals because of rounding. Percent changes are calculated from unrounded data. Tables with data for all years of the projection period can be found at CMS.gov. NHE projections 2018–27—tables [Internet]. Baltimore (MD): Centers for Medicare and Medicaid Services; 2019 [cited 2019 Feb 20]. Available from: https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/Downloads/Proj2018Tables.zip. [a]Annual growth, 2008–13. [b]Projected. [c]Includes health-related spending for Children's Health Insurance Program (CHIP), Titles XIX and XXI; Department of Defense; and Department of Veterans Affairs. [d]Estimates reflect the Bureau of the Census's definition of *resident-based population* (which includes all people who usually reside in the fifty states or the District of Columbia but excludes residents living in Puerto Rico and areas under US sovereignty, and US Armed Forces overseas and US citizens whose usual place of residence is outside of the United States). Estimates also include a small (typically less than 0.2 percent of population) adjustment to reflect census undercounts. Projected estimates reflect the area population growth assumptions found in the 2018 *Medicare Trustees Report* (see note 4 in text).

7.4 percent per year, as the shift of the baby-boom generation into the program continues to result in robust growth in enrollment (2.5 percent per year, on average) (exhibit 2). This shift also contributes to comparatively slower projected private health insurance enrollment growth of just 0.2 percent per year in 2018–27 and underlies the expectation that growth in private health insurance spending will be the slowest among the payers, at just 4.8 percent per year, on average. Medicaid spending growth is expected to be 5.5 percent, on average, with projected enrollment growth of 1.3 percent per year during this period.

Per enrollee, rates of growth in spending for Medicare, Medicaid, and private health insurance are expected to be somewhat similar over the ten-year projection period (4.7 percent, 4.1 percent, and 4.6 percent per enrollee, respectively). However, these averages mask the unique year-to-year trends among the major payers that are influenced by regulation, legislation, and economic factors—each of which is discussed in more detail below.

For 2018, national health spending is projected to have grown by 4.4 percent, following a rate of 3.9 percent in 2017 (exhibit 1).[1] Faster projected spending growth of almost 2 percentage points in Medicare (5.9 percent) primarily contributes to the acceleration that reflects higher expected growth for both hospital services and prescription drugs. However, Medicaid spending growth is projected to have slowed by 0.7 percentage point in 2018 (to 2.2 percent), as enrollment growth is expected to have slowed for the fourth consecutive year.

EXHIBIT 2

National health expenditures (NHE) and health insurance enrollment, aggregate and per enrollee amounts, and average annual growth from previous year shown, by source of funds, selected calendar years 2013–27

Source of funds	2013[a]	2016	2017	2018[b]	2019[b]	2027[b]
EXPENDITURE, BILLIONS						
Private health insurance	$947.1	$1,136.4	$1,183.9	$1,237.7	$1,278.2	$1,896.7
Medicare	589.9	677.1	705.9	747.4	800.1	1,436.8
Medicaid	445.2	565.6	581.9	594.8	623.4	992.1
ANNUAL GROWTH IN EXPENDITURE						
Private health insurance	3.4%	6.3%	4.2%	4.5%	3.3%	5.1%
Medicare	5.3	4.7	4.2	5.9	7.1	7.6
Medicaid	5.3	8.3	2.9	2.2	4.8	6.0
PER ENROLLEE SPENDING						
Private health insurance	$ 5,052	$ 5,771	$ 6,001	$ 6,269	$ 6,511	$ 9,384
Medicare	11,503	12,144	12,347	12,726	13,240	19,546
Medicaid	7,553	7,944	8,013	8,099	8,289	12,029
ANNUAL GROWTH IN PER ENROLLEE SPENDING						
Private health insurance	4.3%	4.5%	4.0%	4.5%	3.9%	4.7%
Medicare	2.4	1.8	1.7	3.1	4.0	5.0
Medicaid	0.9	1.7	0.9	1.1	2.4	4.8
ENROLLMENT, MILLIONS						
Private health insurance	187.5	196.9	197.3	197.4	196.3	202.1
Medicare	51.3	55.8	57.2	58.7	60.4	73.5
Medicaid	58.9	71.2	72.6	73.4	75.2	82.5
Uninsured	44.1	28.7	29.7	29.9	31.2	36.2
Population	315.7	322.9	325.2	327.9	330.7	352.7
Insured share of total population	86.0%	91.1%	90.9%	90.9%	90.6%	89.7%
ANNUAL GROWTH IN ENROLLMENT						
Private health insurance	−0.9%	1.7%	0.2%	0.1%	−0.6%	0.4%
Medicare	2.9	2.8	2.5	2.7	2.9	2.5
Medicaid	4.4	6.5	2.0	1.1	2.4	1.2
Uninsured	1.2	−13.4	3.7	0.7	4.3	1.9
Population	0.8	0.8	0.7	0.8	0.9	0.8

SOURCE Centers for Medicare and Medicaid Services, Office of the Actuary, National Health Statistics Group. **NOTES** For definitions, sources, and methods for NHE categories, see CMS.gov. National Health Expenditure Accounts: methodology paper, 2017 (see exhibit 1 notes). Numbers might not add to totals because of rounding. Percent changes are calculated from unrounded data. Tables with data for all years of the projection period can be found at CMS.gov. NHE projections 2018–27—tables (see exhibit 1 notes). [a]Annual growth, 2008–13. [b]Projected.

From the perspective of overall health insurance enrollment, net gains in health insurance coverage across all sources are expected to have kept pace with overall population growth. As a result, the insured share of the population is projected to have remained stable at 90.9 percent.

For 2019, growth in national health spending is expected to increase again to 4.8 percent (exhibit 1). Medicare spending growth is projected to continue accelerating (to 7.1 percent), partly as a result of faster growth in per enrollee spending attributable to higher fee-for-service payment updates. Growth in Medicaid expenditures is also expected to rise (to 4.8 percent), in part because of expansions of Medicaid coverage in Idaho, Maine, Nebraska, Utah, and Virginia. A somewhat mitigating influence on overall national health spending growth, however, is the expected impact of the repeal of the individual mandate. The repeal is expected to result in lower private health insurance enrollment, since some people—particularly those with direct-purchase insurance—may elect to forgo coverage.[2,3] Combined, these shifts in enrollment lead to a projected net increase in the number of uninsured of 1.3 million people, to 31.2 million in 2019 (exhibit 2). However, projected gains in enrollment through other sources are expected to partially offset those declines, resulting in only a slight decrease in the insured share of the population (to 90.6 percent in 2019, from 90.9 percent in 2018).

For 2020–27, growth in national health spending is expected to average 5.7 percent. This rate is faster than projected for 2019, and faster growth is generally evident for the underlying major payers and health care services and goods (exhibits 1 and 3). The acceleration is in part due to faster growth in personal health care prices as measured by the Personal Health Care Price Index (exhibit 1). Also contributing is increasingly higher expected growth in utilization on the part of Medicare beneficiaries and those with private health insurance, the latter influenced by a lagged response to comparatively higher income growth during 2020–22. With respect to insurance coverage over 2020–27, growth in employer-sponsored health insurance enrollment is projected to be below that of population growth and decline for those purchasing insurance directly, which contributes to a slight decline in the insured share of the population to 89.7 percent by 2027 (exhibit 2).

The share of health care spending sponsored (or financed) by federal, state, and local governments is expected to increase by 2 percentage points during 2018–27, reaching 47 percent by 2027 (exhibit 4). The increase is entirely accounted for by the federal government share, which is expected to grow from 28 percent in 2017 to 31 percent in 2027, and largely reflects faster growth in Medicare spending as the baby-boom generation continues to transition into the program. The expected business and household share is expected to fall from 55 percent in 2017 to 53 percent in 2027.

Model And Assumptions

The national health expenditure projections incorporate a combination of actuarial and econometric modeling methods, as well as judgments about future events and trends that are expected to influence health spending.[3] They are largely based on economic and demographic assumptions in the 2018 *Medicare Trustees Report*,[4] updated to reflect more recently released macroeconomic data.[3] The projections also reflect current law[5] and do not reflect any policy proposals currently under consideration.

Estimates of future health care spending and enrollment are inherently subject to substantial uncertainty that increases over the projection horizon. In addition to the potential effects of evolving health care markets and changes in law over time, economic conditions can differ from the intended midrange assumptions used here.

In the case of one economic variable, disposable personal income, analysis by the Office of the Actuary has consistently found a relationship between growth in that metric and growth in health spending, especially for private health insurance.[3] That is, as income growth increases or decreases, health spending growth tends to follow in the same direction, but with a lag.

This relationship has been evident over the full history of the National Health Expenditure Accounts and is reflected in these projections.[3] As a result, with faster growth in income assumed for the coming decade relative to the recent past, it is expected that health spending growth will respond and be higher as well.[3] The projections presented here reflect this relationship. Thus, to the extent that actual growth in income differs from what is assumed, actual growth in health spending may differ from what is projected.

Factors Accounting For Growth

In exhibit 5 average annual personal health care spending[6] growth is decomposed to demonstrate the relative contributions of underlying price growth (economywide and relative personal health care price inflation), use and intensity, population growth, and age-sex mix. During 2018–27 personal health care spending growth is expected to average 5.5 percent, with growth

EXHIBIT 3

National health expenditures (NHE) amounts and annual growth from previous year shown, by spending category, selected calendar years 2013–27

Spending category	2013[a]	2016	2017	2018[b]	2019[b]	2027[b]
EXPENDITURE, BILLIONS						
NHE	$2,881.8	$3,361.1	$3,492.1	$3,646.9	$3,823.1	$5,963.2
Health consumption expenditures	2,728.6	3,202.9	3,324.5	3,470.3	3,637.6	5,679.9
Personal health care	2,438.0	2,851.9	2,961.0	3,085.3	3,242.5	5,058.4
Hospital care	937.6	1,092.8	1,142.6	1,193.4	1,254.7	1,961.6
Professional services	759.4	884.0	920.0	962.8	1,013.6	1,541.2
Physician and clinical services	569.6	666.5	694.3	728.0	767.6	1,172.0
Other professional services	78.7	92.4	96.6	100.8	106.1	165.3
Dental services	111.1	125.1	129.1	134.0	139.9	203.9
Other health, residential, and personal care	144.3	173.4	183.1	188.4	196.9	318.6
Home health care	81.4	93.1	97.0	101.8	108.8	186.8
Nursing care facilities and continuing care retirement communities	149.0	163.0	166.3	170.8	178.0	270.7
Retail outlet sales of medical products	366.3	445.6	451.9	468.1	490.5	779.4
Prescription drugs	265.2	332.0	333.4	344.5	360.3	576.7
Durable medical equipment	45.1	51.0	54.4	57.4	60.9	97.8
Other nondurable medical products	56.0	62.7	64.1	66.2	69.3	105.0
Government administration	37.4	44.7	45.0	46.7	49.4	81.0
Net cost of health insurance	174.2	220.7	229.5	247.2	252.0	417.3
Government public health activities	79.1	85.6	88.9	91.1	93.6	123.2
Investment	153.2	158.2	167.6	176.5	185.5	283.3
Noncommercial research	46.7	47.6	50.7	53.5	56.2	83.3
Structures and equipment	106.5	110.6	116.9	123.1	129.3	200.0
ANNUAL GROWTH						
NHE	3.9%	5.3%	3.9%	4.4%	4.8%	5.7%
Health consumption expenditures	4.0	5.5	3.8	4.4	4.8	5.7
Personal health care	4.1	5.4	3.8	4.2	5.1	5.7
Hospital care	5.2	5.2	4.6	4.4	5.1	5.7
Professional services	3.6	5.2	4.1	4.7	5.3	5.4
Physician and clinical services	3.7	5.4	4.2	4.9	5.4	5.4
Other professional services	4.6	5.5	4.6	4.3	5.3	5.7
Dental services	2.2	4.0	3.2	3.8	4.4	4.8
Other health, residential, and personal care	4.9	6.3	5.6	2.9	4.5	6.2
Home health care	6.0	4.6	4.3	4.9	6.8	7.0
Nursing care facilities and continuing care retirement communities	3.0	3.0	2.0	2.7	4.2	5.4
Retail outlet sales of medical products	2.2	6.8	1.4	3.6	4.8	6.0
Prescription drugs	2.0	7.8	0.4	3.3	4.6	6.1
Durable medical equipment	3.3	4.2	6.8	5.5	6.1	6.1
Other nondurable medical products	2.7	3.8	2.2	3.3	4.7	5.3
Government administration	4.2	6.1	0.5	3.9	5.7	6.4
Net cost of health insurance	3.3	8.2	4.0	7.7	2.0	6.5
Government public health activities	3.1	2.7	3.9	2.4	2.8	3.5
Investment	1.7	1.1	6.0	5.3	5.1	5.4
Noncommercial research	1.5	0.7	6.5	5.4	5.1	5.0
Structures and equipment	1.8	1.3	5.7	5.3	5.1	5.6

SOURCE Centers for Medicare and Medicaid Services, Office of the Actuary, National Health Statistics Group. **NOTES** For definitions, sources, and methods for NHE categories, see CMS.gov. National Health Expenditure Accounts: methodology paper, 2017 (see exhibit 1 notes). Numbers might not add to totals because of rounding. Percent changes are calculated from unrounded data. Tables with data for all years of the projection period can be found at CMS.gov. NHE projections 2018–27—tables (see exhibit 1 notes). [a]Annual growth, 2008–13. [b]Projected.

in personal health care prices expected to account for nearly half of that growth, on average. Growth in use and intensity is expected to account for just under one-third of the average annual personal health care spending growth, with population growth and the changing age-sex mix of the population accounting for the remainder. Over specific years within the projection period, however, there are notable trends in prices and the volume and intensity of services, some of which are anticipated to contrast with recent experience.

Inflation for health care goods and services, as measured by the Personal Health Care Price

EXHIBIT 4

National health expenditures (NHE) amounts, average annual growth from previous year shown, and percent distribution, by type of sponsor, selected calendar years 2013–27

Type of sponsor	2013[a]	2016	2017	2018[b]	2019[b]	2027[b]
EXPENDITURE, BILLIONS						
NHE	$2,881.8	$3,361.1	$3,492.1	$3,646.9	$3,823.1	$5,963.2
Businesses, household, and other private revenues	1,620.6	1,836.7	1,914.1	2,002.9	2,095.2	3,136.4
Private businesses	580.4	669.1	696.5	730.9	765.1	1,123.2
Household	833.0	942.8	978.6	1,019.9	1,064.1	1,619.3
Other private revenues	207.2	224.7	239.0	252.0	266.0	393.9
Governments	1,261.2	1,524.4	1,577.9	1,644.0	1,727.9	2,826.8
Federal government	752.7	952.4	982.4	1,032.7	1,089.7	1,833.8
State and local governments	508.5	572.0	595.5	611.2	638.2	993.0
ANNUAL GROWTH						
NHE	3.9%	5.3%	3.9%	4.4%	4.8%	5.7%
Businesses, household, and other private revenues	2.8	4.3	4.2	4.6	4.6	5.2
Private businesses	2.3	4.9	4.1	4.9	4.7	4.9
Household	3.1	4.2	3.8	4.2	4.3	5.4
Other private revenues	3.3	2.7	6.4	5.4	5.6	5.0
Governments	5.3	6.5	3.5	4.2	5.1	6.3
Federal government	6.1	8.2	3.2	5.1	5.5	6.7
State and local governments	4.2	4.0	4.1	2.6	4.4	5.7
DISTRIBUTION						
NHE	100%	100%	100%	100%	100%	100%
Businesses, household, and other private revenues	56	55	55	55	55	53
Private businesses	20	20	20	20	20	19
Household	29	28	28	28	28	27
Other private revenues	7	7	7	7	7	7
Governments	44	45	45	45	45	47
Federal government	26	28	28	28	29	31
State and local governments	18	17	17	17	17	17

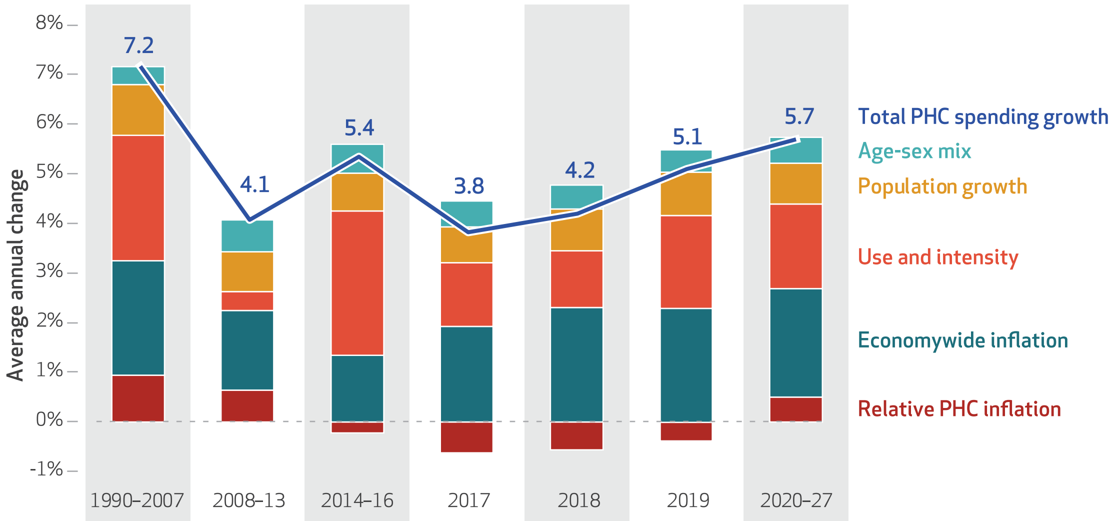
SOURCE Centers for Medicare and Medicaid Services, Office of the Actuary, National Health Statistics Group. **NOTES** For definitions, sources, and methods for NHE categories, see CMS.gov. National Health Expenditure Accounts: methodology paper, 2017 (see exhibit 1 notes). Numbers might not add to totals because of rounding. Percent changes are calculated from unrounded data. Tables with data for all years of the projection period can be found at CMS.gov. NHE projections 2018–27—tables (see exhibit 1 notes). [a]Annual growth, 2008–13. [b]Projected.

Index and inclusive of both economywide and relative personal health care price inflation, is projected to play a larger role in the coming decade (averaging growth of 2.5 percent per year for 2018–27, compared to 1.1 percent for 2014–17) and account for nearly half of personal health care spending growth. This expectation reflects accelerating growth in both economywide inflation and relative personal health care price inflation (or the difference between price growth for personal health care goods and services and economywide inflation). The expected acceleration in growth in economywide prices occurred primarily in 2018. From 2019 forward, a steady increase in relative personal health care price inflation is projected, as certain factors that contributed to low or negative growth in relative personal health care price inflation since 2011 are anticipated to be less influential in restraining prices over the next decade. Such factors include rising sensitivity to prices by consumers and insurers, especially for services subject to cost sharing;[7] selective contracting by insurers; and improvements in productivity through the use of lower-cost providers in physician offices.[8] Similarly, input price growth, including health-sector wages, is expected to accelerate as downward pressure on provider prices lessens.

The average growth rate for use and intensity of services is projected to be 1.7 percent over 2018–27 and to account for about 30 percent of personal health care spending growth (exhib-

EXHIBIT 5

Factors accounting for growth in personal health care (PHC) expenditures, selected calendar years 1990–2027



SOURCES Centers for Medicare and Medicaid Services, Office of the Actuary, National Health Statistics Group; and Department of Commerce, Bureau of Economic Analysis and Bureau of the Census. **NOTES** "Relative PHC inflation" represents the share of medical price growth that exceeds economywide inflation. "Economywide inflation" reflects the gross domestic product deflator index. "Use and intensity" includes quantity and mix of services. As a residual, this factor also includes any errors in measuring prices or total spending. "Age-sex mix" refers to that mix in the population. Growth in the total PHC Price Index is equal to the sum of economywide and relative PHC inflation and is a chain-weighted index of the price for all personal health care deflators. The height of the bars reflects the sum of factors that contribute positively to growth. In those cases where a factor may contribute growth of less than zero, the net total growth is reflected by the line and associated point estimate noted for each period.

it 5). This result contrasts with the rate observed during the years immediately following the implementation of the coverage expansions under the Affordable Care Act (2014–16), when use and intensity was the dominant driver of personal health care spending growth—representing 2.9 percentage points, or just over half, of the average spending growth rate of 5.4 percent. Initially, these increases were largely influenced by expanding enrollment, followed by faster per enrollee spending growth that likely reflected care provided to the newly insured. Unlike that unique time period, during 2018–27 growth in the use and intensity of medical care is primarily influenced by the anticipated effects of macroeconomic growth consistent with the longer-run historical relationship.

Outlook For Spending And Enrollment By Payer

MEDICARE Medicare spending growth is projected to have increased 5.9 percent in 2018, compared to 4.2 percent in 2017 (exhibit 1), mainly because of faster per enrollee spending growth (3.1 percent in 2018 versus 1.7 percent in 2017) (exhibit 2). Increases in Medicare private health plan payments, as well as spending for fee-for-service hospital care and prescription drugs, underlie the projected acceleration.

In 2019 Medicare spending is projected to increase by 7.1 percent, a 1.2-percentage-point acceleration over growth in 2018. Increases in fee-for-service payment rates compared to 2018, along with slightly faster growth in the use and intensity of physician and clinical services, contribute to faster expected growth in per enrollee spending, which is projected to rise to 4.0 percent. Additionally, projected Medicare enrollment growth reaches its peak at 2.9 percent in 2019, up from 2.7 percent in 2018.

Over 2020–27 Medicare spending growth is expected to remain highest among the payers, averaging 7.6 percent. Compared to the 7.1 percent increase projected for 2019, this faster average growth is primarily driven by an expectation of a continued rebound in growth in the use and intensity of services used throughout the period that is more consistent with the program's long-term experience, compared to that of the past decade. By the end of the projection period (2026–27) the expected growth rate decelerates to around 7.0 percent, down from a projection-period peak of 8.1 percent in 2022, as slower increases in input prices—including for hospitals—and anticipated faster multifactor productivity growth lead to smaller payment updates for many Part A services. Enrollment growth is also anticipated to slow gradually during these years, from 2.8 percent in 2020 to 2.1 percent by 2027—a rate more consistent with the pre-baby-boom period. By the end of the projection period the Medicare share of total health spending is projected to rise to 24.1 percent by 2027 from 20.2 percent in 2017.

MEDICAID Medicaid spending growth is expected to have been just 2.2 percent in 2018, down from 2.9 percent growth in 2017 (exhibit 1)—the fourth consecutive year of slowing growth following the ACA's expansion of Medicaid coverage in 2014. The expected trend in 2018, as in prior years, is principally explained by slower growth in enrollment, which is projected to have slowed to 1.1 percent in 2018 from 2.0 percent the previous year (exhibit 2). While growth for nearly all Medicaid services is expected to have slowed in 2018, growth in the net cost for Medicaid managed care plans is expected to have rebounded, compared to a decline in growth in 2017. This pattern reflects the historical and projected timeline over which the federal government is recovering payments from managed care organizations as a result of favorable prior-period experience.[1]

Growth in Medicaid spending is expected to accelerate in 2019 to 4.8 percent. Five additional states have approved and are expected to implement Medicaid expansion in 2019, a factor that contributes in part to the aggregate spending growth increase. Projected Medicaid enrollment growth—2.4 percent in 2019 compared to 1.1 percent in 2018—reflects this newly eligible population. Growth in per enrollee Medicaid spending is expected to accelerate, as well, by 1.3 percentage points to 2.4 percent in 2019, as a result of faster growth in price factors.

Medicaid spending is expected to grow at an average rate of 6.0 percent over 2020–27. The pattern in annual growth, however, is influenced by reductions to disproportionate share hospital payments for hospitals set in law.[9] These payments are scheduled to be reduced in 2020 and are then further reduced in 2021. Consequently, Medicaid spending growth is expected to grow slowly at 5.0 percent in 2020 and 5.4 percent in 2021. For 2022 through 2025, when the disproportionate share hospital payment reductions are equivalent to 2021, overall Medicaid spending growth is expected to be higher at 6.1 percent. Beginning in 2026 there are no reductions in the disproportionate share hospital payments, which leads to a notable expected one-year acceleration in 2026 for overall Medicaid spending growth to 7.0 percent. Otherwise, an enrollment mix more heavily influenced by spending patterns of comparatively more expensive aged and disabled beneficiaries is expected to result in per enrollee spending growth that is at or above 5 percent in every year during 2022–27.

PRIVATE HEALTH INSURANCE AND OUT-OF-POCKET SPENDING For private health insurance spending, growth is expected to have increased slightly from 4.2 percent in 2017 to 4.5 percent in 2018, near the overall growth rate for national health expenditures of 4.4 percent (exhibit 1). While spending for most services and goods is expected to have grown slightly faster in 2018,[10] the acceleration was partially offset by slower projected growth in the net cost of private health insurance,[11] as private insurers offering plans in the Marketplace had fared better financially in 2017 and thus reduced the difference between premium revenues and expected benefit payments.[12] Out-of-pocket spending growth is expected to have accelerated to 3.6 percent in 2018 from 2.6 percent in 2017, a rate that is consistent with faster income growth as well as with the higher average deductibles for employer-based private health insurance enrollees in 2018 compared to 2017.[13]

The projected spending trends in 2019 in part reflect the estimated impact of the effective repeal of the individual mandate. As some people choose to forgo maintaining health insurance, private health insurance enrollment is expected to decline slightly, primarily in the direct-purchase insurance market. Accordingly, private health insurance spending growth is expected to slow to 3.3 percent in 2019 from 4.5 percent in 2018. Conversely, out-of-pocket spending is expected to grow more rapidly, at 4.8 percent in 2019 compared to 3.6 percent in 2018, in part because fewer people have private insurance coverage.

Private health insurance spending is expected to grow 5.1 percent per year, on average, for 2020–27. Growth in this spending is projected to peak at 5.4 percent in 2023–24, in lagged response to the high anticipated growth in disposable personal income a few years prior. Private health insurance spending growth is then expected to slow to 4.8 percent by 2027, as income growth generally decelerates. As the payer with the slowest expected growth over the full projection period, the private health insurance share of national health spending is projected to fall from 33.9 percent in 2017 to 31.8 percent in 2027.

Growth in out-of-pocket spending, which is also primarily influenced by economic factors, is expected to be similar to that of private health insurance spending in 2020–27, at 5.0 percent. However, the projection-period peak in growth is expected in 2022 (5.4 percent), the year in which the excise tax on high-cost insurance plans is scheduled to go into effect.[14] By 2027, because total out-of-pocket spending is expected to grow more slowly, on average, than health insurance spending (exhibit 1), it is expected to account for a decreasing share of national health spending (9.8 percent in 2027, down from 10.5 percent in 2017).

Outlook For Major Medical Services And Goods

PRESCRIPTION DRUGS Following growth of just 0.4 percent in 2017, prescription drug spending is expected to have grown 3.3 percent in 2018 but still be among the slowest-growing health care sectors (exhibit 3). Higher utilization growth is anticipated, compared to the relatively low growth in 2016 and 2017,[1] partially driven by an increase in the number of new drug introductions (fifty-nine in 2018, up from an average of thirty-four during 2016–17).[15]

In 2019 prescription drug spending growth is projected to accelerate further, to 4.6 percent, as a result of higher expected growth in drug utilization (including from new drugs) and a modest increase in drug price growth.

Prescription drug spending is expected to increase, on average, by 6.1 percent per year for 2020–27 (exhibit 3). Contributing to the acceleration in growth during this period is the expectation that the use of prescription drugs will increase over the next several years as a result of increasingly robust efforts by employers and insurers to reduce any barriers regarding the use of maintenance drugs needed to keep their enrollees with chronic conditions healthy.[16] Two other factors contributing to higher expected growth in the use of prescription drugs are the aging of the population and changes to pharmacotherapy guidelines.[16] These trends, coupled with faster expected spending increases in lagged response to faster growth in income, result in a peak projected growth rate for prescription drug spending of 6.4 percent in 2023–24. Finally, prescription drug spending growth is expected to rise because of a shift in the intensity and mix of drug usage associated with the many projects currently in clinical development that could, over the next few years, result in innovative, yet more expensive, new drugs across such therapeutic areas as cancer, diabetes, and Alzheimer's disease.[17]

HOSPITALS Hospital spending is expected to have grown similarly in 2018 (4.4 percent) and 2017 (4.6 percent) (exhibit 3). By payer, somewhat slower growth in both Medicaid and private health insurance hospital spending offset slightly faster growth in Medicare hospital spending. For 2019 hospital spending growth is expected to increase to 5.1 percent because of faster growth in Medicare hospital payment updates and an increase in the use of hospital services associated with new Medicaid expansion–related enrollees. These increases are somewhat offset by slower expected growth in private health insurance hospital spending, which is partially attributable to the repeal of the individual mandate.

Over 2020–27 hospital spending growth is expected to average 5.7 percent per year, up from 5.1 percent in 2019. Consistent with overall spending, Medicare is expected to experience the fastest growth in spending for hospital care during this period. The peak growth for overall hospital spending is projected to occur in 2026 (6.1 percent) and is strongly influenced by substantially faster Medicaid spending growth in 2026 that reflects the expiration of Medicaid disproportionate share hospital payment reductions scheduled in current law for September 30, 2025. Private health insurance spending growth for hospital care is expected to reach its projection-period peak in 2024, consistent with the lagged relationship to income.

Hospital price growth is also expected to rise by 2027. The acceleration in this growth over the projection period primarily reflects continued wage increases for hospital employees that are anticipated from the low rates of growth experienced following the Great Recession, as well as tighter labor markets for hospital employees, including nurses.[18] Growth is partially offset, however, by Medicare payment updates that are reduced by growth in economywide productivity, which is projected to accelerate during the projection period.[4]

PHYSICIAN AND CLINICAL SERVICES Spending in 2018 for physician and clinical services is projected to have grown 4.9 percent, rising from 4.2 percent in 2017 (exhibit 3). Price growth for physician and clinical services is expected to have increased 0.3 percentage point but to have remained at near historically low rates at 0.7 percent. This continued low price growth was likely influenced, in part, by physician practices using more nonphysicians to provide care, a practice that was related to increased productivity and profits even in the presence of slow price growth.[8] The acceleration in overall projected spending growth also reflects faster growth in use that is partly related to a lagged response to growth in income over the recent history and also from increases in the number of office visits due to the severe 2017–18 flu season.[19]

In 2019, growth in spending for physician and clinical services is projected to accelerate once more, to 5.4 percent from 4.9 percent in 2018. An acceleration in Medicaid spending growth is the primary factor contributing to the trend, which is in part associated with program's expansion by additional states.

Over the remainder of the projection period, 2020–27, average annual growth in physician and clinical services spending is projected to be 5.4 percent. The growth rate for Medicare spending is expected to be substantially faster than that projected for physician and clinical services spending in private health insurance. That projected differential is largely due to faster enrollment associated with the continued shift of the baby-boom generation from private health insurance to Medicare.

Another factor contributing to the growth in overall physician and clinical services spending over 2020–27 is an anticipated acceleration in physician price growth. Underlying this acceleration are projected rising costs related to the provision of care. In particular, wages are expected to increase as a result of the supply of physicians not being able to meet expected increases in demand for care connected with the aging population.[20] Furthermore, some of the productivity gains that have been achieved through the use of lower-cost providers as a substitute for physician care within physician practices may be less pronounced in the future, because of limitations such as licensing restrictions on the scope of care that may be provided by nonphysician providers.[21]

Conclusion

During the past ten years the lingering effects of the Great Recession, coupled with the coverage and payment provisions of the Affordable Care Act, have significantly influenced the trends in health care spending and enrollment in the United States. Over the next decade, however, the outlook for health spending and insurance coverage is expected to be primarily driven by long-observed demographic and economic factors fundamental to the health sector. While the national health spending growth rate is projected to average 5.5 percent per year for 2018–27 (exhibit 1), annual growth is expected to generally accelerate over much of the projection period. Medicare spending growth is expected to accelerate and be the fastest among the major payers, reflecting not only the continued enrollment shift of the baby-boom generation into the program but also the growth rate for use and intensity, which is projected to gradually increase toward the rates observed during Medicare's long-term history. Growth in health care prices, reflecting both economywide and relative personal health care price inflation, is also expected to rebound somewhat toward rates more consistent with the period before the Great Recession and to return to a state in which personal health care price growth exceeds that of economywide price inflation. Finally, recent and anticipated faster growth in disposable personal income is expected to lead to an increased demand for services, albeit with a lag, and put upward pressure on the pattern of private health insurance and out-of-pocket spending growth over the projection period. ■

The opinions expressed here are the authors' and not necessarily those of the Centers for Medicare and Medicaid Services. The authors thank Paul Spitalnic, Stephen Heffler, Aaron Catlin, Micah Hartman, Greg Savord, Cathy Curtis, and anonymous peer reviewers for their helpful comments. [*Published online February 20, 2019.*]

NOTES

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5 Consistent with the methods employed in the *Medicare Trustees Report* (see note 4), these projections assume that payments would continue to be made even after the projected depletion of the Medicare Hospital Insurance trust fund, currently projected to occur in 2026.

6 Personal health care expenditures (PHC) measures the total amount spent to treat people with specific medical conditions. It represents about 85 percent of total national health expenditures over the projection period.

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EDITORIAL

Rationing of Health Care in the United States
An Inevitable Consequence of Increasing Health Care Costs

Howard Bauchner, MD

The modern era of medicine began in the 1960s. Health care coverage expanded with the passage of Medicare and Medicaid and the increasing availability of employee-based health insurance. Scientific and clinical advances began to occur at a far more rapid pace. Physicians became more specialized and began to focus on acute care dominated by cardiovascular disease, diabetes, and cancer rather than infectious diseases, and there was increasing recognition of the importance of chronic diseases. With more data available, it became possible to measure variation in the delivery and quality of care, along with disparities and rationing in the provision of care. Health care costs per person more than doubled between 1960 and 1970, beginning their 5-decade increase.[1]

Rationing and cost of care are inextricably linked, although measuring the amount and extent of rationing and defining rationing is difficult. There are many types of rationing, including rationing by access (type of insurance), by cost (out-of-pocket expenses), by restriction (the service is not available or paid for by a third party), or by long waits (Canada and parts of the United States). Broadly, rationing refers to approaches that are used to allocate resources and potentially restrict access to effective therapies. Rationing is linked to poverty, race, and ethnicity, and it inevitably leads to differences in the care that certain groups of individuals receive.

Rationing of care often is part of the larger discussion of disparities in health care. Healthy People 2020 defines a *health disparity* as "a particular type of health difference that is closely linked with social, economic, and/or environmental disadvantage. Health disparities adversely affect groups of people who have systematically experienced greater obstacles to health based on their racial or ethnic group; religion; socioeconomic status; gender; age; mental health; cognitive, sensory, or physical disability; sexual orientation or gender identity; geographic location; or other characteristics historically linked to discrimination or exclusion."[2] Disparity in health care is often used as an inclusive term, including differences in health outcomes, which is not only a product of access to treatment but also social determinants of health. Social determinants of health, for example, the quality of education and housing, are largely outside of the general focus of the health care system, although that is changing with an increasing commitment to population health and renewed interest in the inextricable link between social determinants of health and health outcomes. Disentangling and differentiating among health disparities, health outcomes, rationing of care, health equity, population health, and social determinants of health represent important challenges.

This decade and the next likely represent the postmodern era of medicine. Big data, machine learning, precision medicine–based therapies, and the genetics revolution, including rapid sequencing of the genome and manipulation of both the germline and somatic cells, suggest that the scientific advances to emerge may be as significant as the expansion of health care coverage and other medical advances in the 1960s and 1970s. The expansion of health care coverage brought with it the recognition of health care disparities and the rationing of health care. An important question is whether these new scientific advances, with their attendant cost, will lead to further rationing of care.

Following the passage of the Affordable Care Act, much of the national discussion was focused on expansion of coverage and value in health care, but new concerns about rationing of care are emerging. For instance, more than 3 million individuals in the United States have hepatitis C infection. Who has been treated and who has not been treated? Will the remarkable discoveries such as CART-T cell technology or cancer immunotherapy be widely available, or rationed based on the ability to pay? Who has had access to transcatheter aortic valve replacement and who has not? With a cure for sickle cell disease in reach, will this treatment be developed and then become widely available, similar to new treatments for cystic fibrosis, or will inadequate research funding delay the development of a possible cure? How will decisions be made about the use of extremely expensive care during the last years of life? As more successful treatments become available for rare diseases, at very high cost, will all individuals benefit, or just a select few?

The cost of health care continues to increase, now approaching 18% of the US gross domestic product. Health care expenditures consume approximately 30% of many state budgets, and this does not include the cost of health care paid by states for their own employees and via pension benefits. Even at the estimated 4% to 5% yearly increase in health care costs for the next decade, this projected increase exceeds the rate of inflation. As the number of individuals working in health care increases, any reduction in the ongoing increase in cost will be nearly impossible. Moreover, some highly prevalent conditions will continue to drive increases in health care costs. For instance, the obesity epidemic will inevitably increase health care expenses, with its associated complications affecting the endocrine, cardiovascular, and musculoskeletal systems, including hip and knee replacement operations at younger ages, and often necessitating subsequent joint replacement procedures.

The United States is mired in a great philosophical debate. Is health care a right or a privilege?[3] In part this debate is embedded in the historical, underlying sociopolitical discourse in the United States—is this a nation that champions individual rights and achievement at the expense of the common good? This philosophical debate plays out in health care. Rationing of health care is likely always going to occur, but for those who maintain that health care is a privilege, attention to rationing and attempts to ensure that rationing is minimized may not be a priority. Yet, even for those who assert that health care is a right and that health care coverage should be provided to all individuals in a more just and fair way, unless the relentless increase in the cost of health care is addressed, rationing of health care is likely to become more common.

Identifying approaches to mitigate the increase in health care costs has been elusive. Debates about waste in health care, prices of drugs and devices, volume, fraud, defensive medicine, inappropriate testing, and misaligned incentives have been ongoing for more than a decade. Each of these potential areas of cost containment provides income for specific groups, making change difficult. However, there is one area—administrative costs—about which there is broad agreement that it adds needlessly to the cost of health care, frustrates physicians and other clinicians, provides little benefit beyond employment, and clearly is one area in which the United States leads the world.[4,5] These costs involve, but are not limited to, billing, excessive documentation, and the need to obtain prior approval for certain medications, radiological procedures, and specialty referrals. Although there is uncertainty about what percentage of the $3.5 trillion in annual health care spending is accounted for by administrative costs, if that amount is 10%, and could be reduced to 5%, an estimated $175 billion could be saved or redirected to provide care to patients and avoid rationing of some health care services. Reducing administrative costs should be the major focus of national efforts to reduce waste in health care and help control increases in health care spending.

For the United States to prosper in the 21st century, controlling health care costs is critical—indeed, it is the single most important challenge facing health care. Greater rationing of care is inevitable if health care costs continue to increase. Controlling health care costs is the only way to ensure appropriate investment in other areas, such as education, the environment, and infrastructure, and to provide a more equitable, just, and fair distribution of the remarkable health care advances that have been achieved with even more on the horizon. It has been said many times that in the richest country in the world, in which many of the greatest scientific and medical advances are developed, it is a blight on the US soul that each of its residents does not fully benefit from available health care.

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Published Online: February 13, 2019. doi:10.1001/jama.2019.1081

Conflict of Interest Disclosures: None reported.

Additional Contributions: I would like to thank Phil B. Fontanarosa, MD, MBA (*JAMA*), Howard Koh, MD (Harvard T.H. Chan School of Public Health, Boston, Massachusetts, and Harvard Kennedy School, Cambridge, Massachusetts), and C. David Naylor, MD, DPhil (Department of Medicine, University of Toronto, Ontario, Canada) for their comments and careful critique.

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The Growing Cost Burden of Employer Health Insurance for U.S. Families and Implications for Their Health and Economic Security

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Invited Testimony

U.S. House of Representatives Committee on Ways and Means,
Subcommittee on Select Revenue Measures
Hearing on "How Middle-Class Families Are Faring in Today's Economy"

February 13, 2019

The author thanks Herman K. Bhupal, David C. Radley, Michelle M. Doty, Bethanne Fox, and Rachel Nuzum for data analysis and research support; Kathleen Regan for helpful comments; and Deborah Lorber and Paul Frame for editorial support, all of the Commonwealth Fund.

The Growing Cost Burden of Employer Health Insurance for U.S. Families and Implications for Their Health and Economic Security

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The Commonwealth Fund

EXECUTIVE SUMMARY

Thank you, Mr. Chairman, members of the Subcommittee, for this invitation to testify today on how middle-class families are faring in today's economy. My comments will focus on the current status of health insurance coverage among people in the United States who get their insurance through employers.

Employer health insurance continues to be the primary source of insurance coverage for the majority of the U.S. population. More than half of U.S. residents under age 65—about 158 million people—get their health insurance through an employer, either their own or a family member's.

Two recent studies by the Commonwealth Fund indicate that families' costs for employer health insurance are rising faster than median income. Moreover, even as costs climb, families aren't receiving higher-quality insurance. The amount they have to spend out of pocket before their insurance coverage kicks in also continues to climb. Consequently, our research indicates that a growing share of people with employer coverage have such high out-of-pocket costs and deductibles relative to their income that they can be considered "underinsured".

People across the United States are not experiencing health care costs equally. This variation stems from differences in the size of employer premiums across states, how much employees are required to contribute to premiums, deductible amounts, and the widening disparity in median incomes across the country. We have found that families who could potentially spend the greatest amount of their incomes on insurance costs and deductibles are concentrated in the South.

Higher costs for insurance and health care have implications. People with low and moderate incomes may simply decide to go without insurance if it competes with other critical living expenses like housing, food, and education.

Likewise, people who maintain their coverage but who are underinsured may make similar tradeoffs between getting timely health care and meeting other budget demands. Commonwealth Fund surveys find that underinsured adults are much more likely to skip needed health care, like filling prescriptions or going to the doctor when they are sick, than are those who are not underinsured.

In addition, people who are underinsured are much more likely to report problems paying medical bills or say they are paying off medical debt over time. Many moderate- and low-income families simply do not have the assets or savings to pay for an unexpected medical bill—from an accident or acute illness and subsequent emergency room visit, for example—they may experience because of a high-deductible health plan. A recent Commonwealth Fund survey asked moderate- and low-income adults with employer coverage whether they would have the money to pay for an unexpected $1,000 medical bill; half said no.

Paying off accumulated medical bills over time affects other aspects of people's lives. A recent Commonwealth Fund survey found that many adults with medical bill or debt problems reported serious subsequent financial problems: 43 percent had used up all their savings to pay their bills, 43 percent had received a lower credit rating as a result of their debt, 32 percent racked up debt on their credit cards, 18 percent said they had delayed education or career plans. People with lower incomes were particularly affected: 37 percent said they were unable to pay for basic necessities like food, heat or rent as a result of their bills.

Take as an example, Robert and Tiffany Cano of San Tan Valley, Ariz., who were recently profiled by Kaiser Health News in its series with National Public Radio on consumers' medical bills. Both Robert and Tiffany work full time and have a combined income of about $100,000 a year. At the time of the story, the Canos had a family health plan through Robert's job as a manager at a large chain retail store. They were spending about $7,000 in premiums annually for a plan with a $3,000 deductible. The birth of their son a year ago and some subsequent health problems has left them with $12,000 in medical debt that they are struggling to pay off. Robert has taken on three additional part-time jobs and they have projected it will take about two more years to pay off their debt. Concerned about accumulating more debt, they have postponed needed health care for themselves and their baby. Tiffany, who works for a regional bank, has used a prosthetic limb most of her life because of birth defect that required her leg to be amputated below the knee as a child. She now needs a replacement prosthesis to accommodate changes in her body since her pregnancy. Although she has difficulty walking and suffers from blisters, she is concerned about whether they could afford their share of the cost of a new prosthesis.

The personal pain and financial stress suffered by families coping with high medical costs present a fundamental dilemma for employers. To the extent that they are designing benefits to shift increasing amounts of their insurance costs to their employees, they are potentially undermining the productivity of their own workforces.

More broadly, the growing number of underinsured people in the United States could have long-term implications for the nation's economic health. Research indicates that human capital is key to countries' long-term economic growth. In its landmark study in 2003, the Institute of Medicine (IOM) concluded that people who lack adequate health insurance all their lives have fundamentally different life experiences and less economic opportunity than those who are adequately insured, including lower educational attainment, lifetime earnings, and life expectancy. At the time of the study, it estimated that the aggregate, annualized cost of uninsured people's lost capital and earnings from poor health and shorter lifespans fell between $65 billion and $130 billion annually.

The U.S. has insured 20 million more people since the IOM study through the Affordable Care Act's coverage expansions. But with 28 million people still uninsured and an estimated 44 million more underinsured, the country continues to squander billions of dollars every year in people's lost capital and earnings. The subcommittee is to be commended for investigating this timely issue.

Thank you.

The Growing Cost Burden of Employer Health Insurance for U.S. Families and Implications for Their Health and Economic Security

Sara R. Collins, Ph.D.

The Commonwealth Fund

Thank you, Mr. Chairman, members of the Subcommittee, for this invitation to testify today on how middle-class families are faring in today's economy. My comments will focus on the current status of health insurance coverage among people in the United States who get their insurance through an employer.

Employer health insurance continues to be the primary source of insurance coverage for the majority of the U.S. population. More than half of U.S. residents under the age of 65—about 158 million people—get their health insurance through an employer, either their own or a family member's.[1]

Two recent studies by the Commonwealth Fund indicate that families' costs for employer health insurance are rising faster than median income.[2] Moreover, even as costs climb, families aren't receiving higher-quality insurance. The amount they have to spend out of pocket before their insurance coverage kicks in also continues to climb.

Consequently, our research indicates that a growing share of people with employer coverage have such high out-of-pocket costs and deductibles relative to their income that they can be considered "underinsured." We find that underinsured adults are much more likely to skip needed health care, like filling prescriptions or going to the doctor when they are sick, than are those who are not underinsured. In addition, people who are underinsured are much more likely to report problems paying medical bills or say they are paying off medical debt over time.

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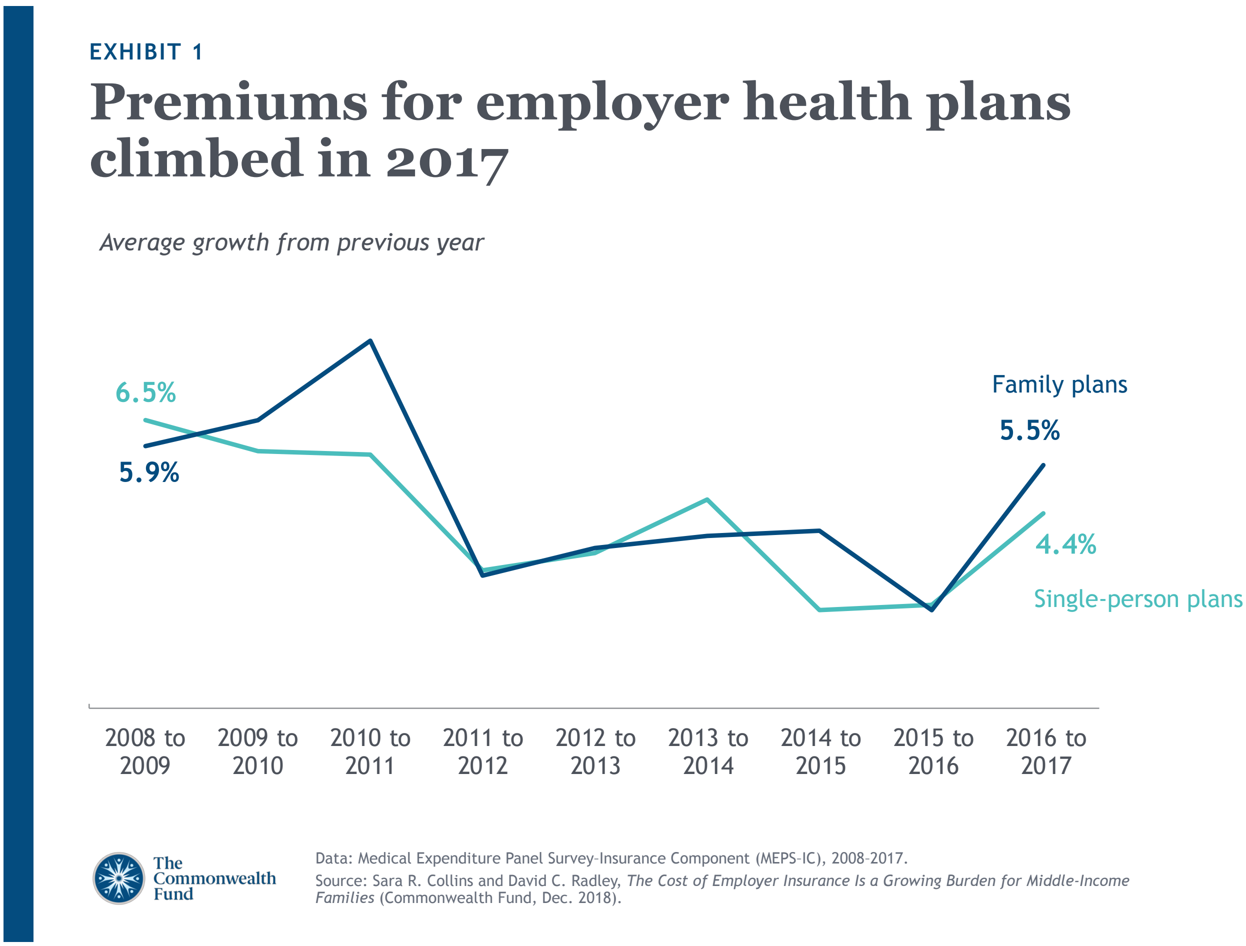
[1] Analysis of the 2018 Current Population Survey by Ougni Chakraborty and Sherry Glied of New York University for the Commonwealth Fund. "

[2] Sara R. Collins, Herman K. Bhupal, and Michelle M. Doty, Health Insurance Coverage Eight Years After the " ACA: Fewer Uninsured Americans and Shorter Coverage Gaps, But More Underinsured (Commonwealth Fund, " Feb. 2019). https://doi.org/10.26099/penv-q932; Sara R. Collins and David C. Radley, The Cost of Employer Insurance Is a Growing Burden for Middle-Income Families (Commonwealth Fund, Dec. 2018). " https://doi.org/10.26099/mf87-p820

Families' costs for employer health insurance are rising faster than median income

According to a recent Commonwealth Fund state-by-state analysis of the most recent federal Medical Expenditure Panel Survey–Insurance Component,[3] premiums for employer health plans ticked up in 2017 by 4.4 percent for single plans and 5.5 percent for family plans (Exhibit 1).[4] Average single-person premiums increased in 45 states and the District of Columbia and family premiums increased in 44 states and D.C.



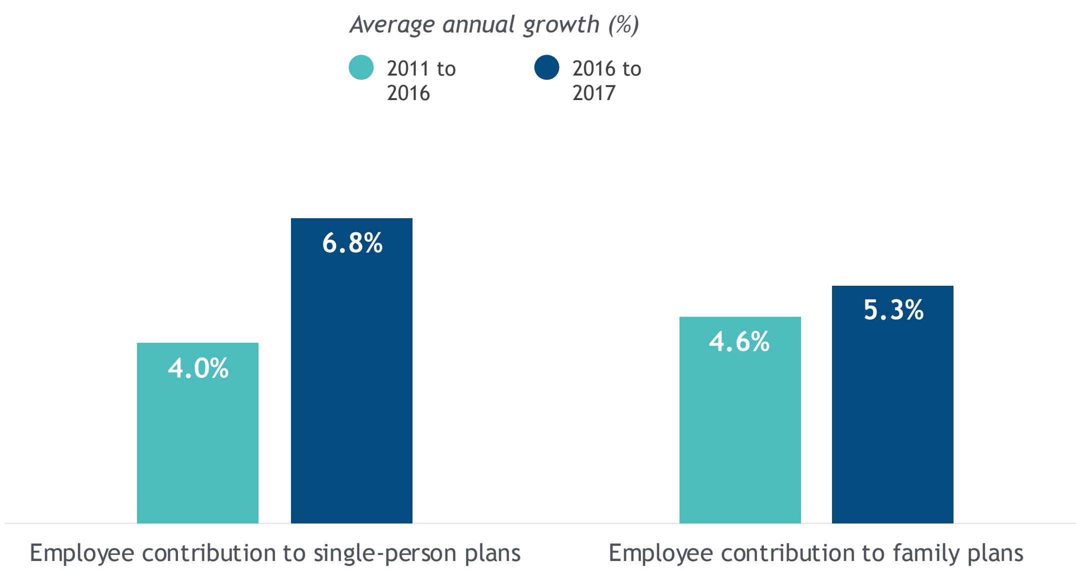
Workers and their families contribute about one-quarter of the cost of employer premiums, on average. But in 14 states, people with family plans paid for 30 percent or more of

[3] The Medical Expenditure Panel Survey- Insurance Component (MEPS-IC) is the most comprehensive survey of U.S. employer health plans. In 2017, the most recent year of the survey, the MEPS-IC surveyed more than 40,000 business establishments, with an overall response rate of 65.8 percent.
[4] Sara R. Collins and David C. Radley, The Cost of Employer Insurance Is a Growing Burden for Middle-Income Families (Commonwealth Fund, Dec. 2018). https://doi.org/10.26099/mf87-p820

the cost of their insurance. While these percentages have not changed very much in recent years, because the rate of growth in employer premiums increased overall in 2017, the amount employees paid rose too (Exhibit 2). Between 2016 and 2017, average annual employee premium contributions nationally rose by 6.8 percent to $1,415 for single-person plans and by 5.3 percent to $5,218 for family plans.

EXHIBIT 2

Employer premiums have risen, so have employee contributions



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Data: Medical Expenditure Panel Survey-Insurance Component (MEPS-IC), 2011, 2016, 2017.

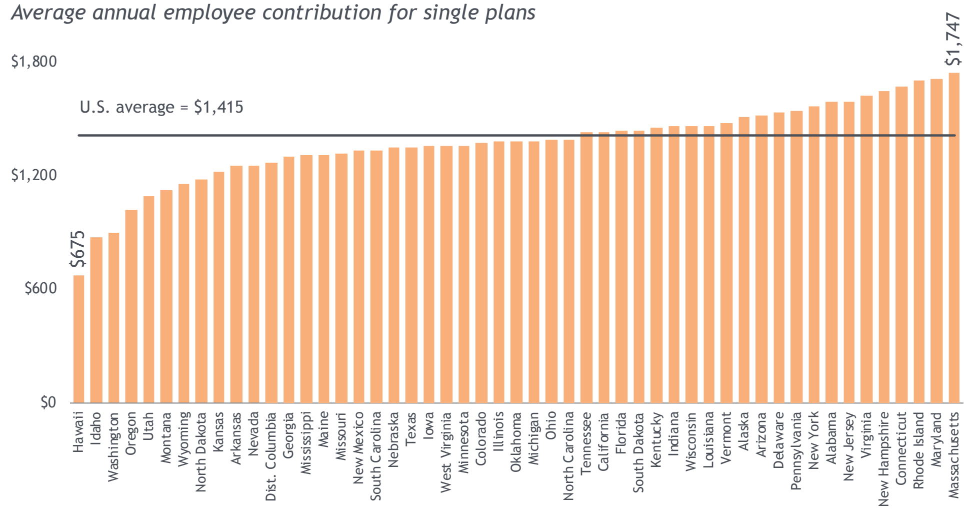
Source: Sara R. Collins and David C. Radley, *The Cost of Employer Insurance Is a Growing Burden for Middle-Income Families* (Commonwealth Fund, Dec. 2018).

Across the country, the amount that workers contribute for single-person plans increased in 32 states in 2017. Average payments for single plans ranged from a low of $675 in Hawaii to a high of $1,747 in Massachusetts (Exhibit 3). The amount that workers contribute for family plans increased in 35 states and the District of Columbia. These annual costs ranged from a low of $3,646 in Michigan to a high of $6,533 in Delaware (Exhibit 4).

EXHIBIT 3

Workers' premium payments for single plans range from $675 in HI to $1,747 in MA

Average annual employee contribution for single plans



The Commonwealth Fund

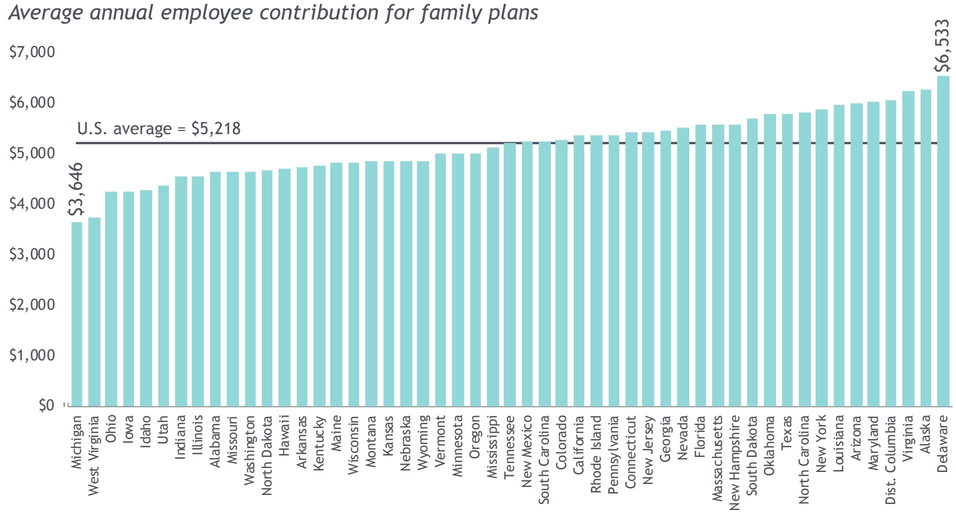
Data: Medical Expenditure Panel Survey-Insurance Component (MEPS-IC), 2017.

Source: Sara R. Collins and David C. Radley, *The Cost of Employer Insurance Is a Growing Burden for Middle-Income Families* (Commonwealth Fund, Dec. 2018).

EXHIBIT 4

Workers' premium payments for family plans range from $3,646 in MI to $6,533 in DE

Average annual employee contribution for family plans



The Commonwealth Fund

Data: Medical Expenditure Panel Survey-Insurance Component (MEPS-IC), 2017.

Source: Sara R. Collins and David C. Radley, *The Cost of Employer Insurance Is a Growing Burden for Middle-Income Families* (Commonwealth Fund, Dec. 2018).

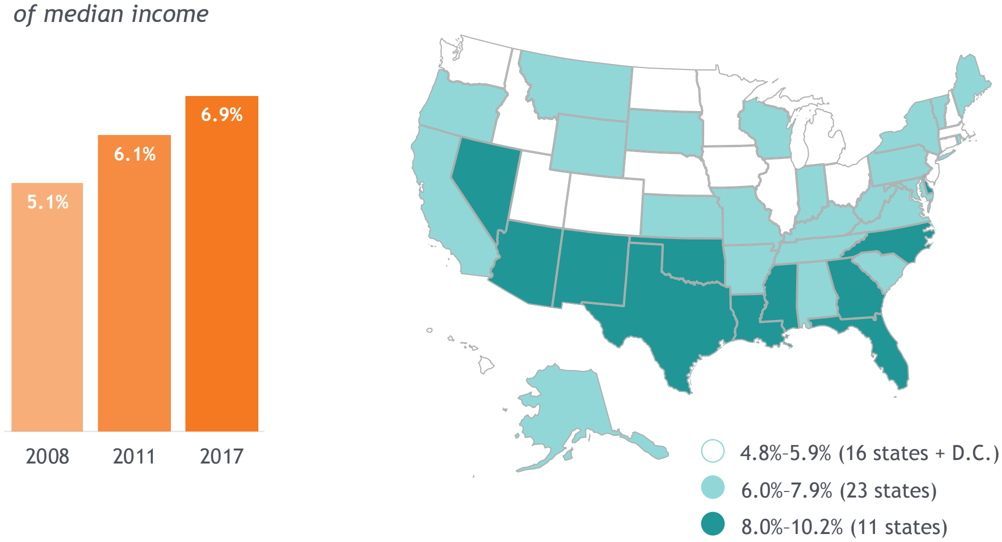
To understand what these insurance costs mean for people with incomes in the middle range of the U.S. income distribution (about $62,000 a year), the Commonwealth Fund study looked at the ratio of employee premium contributions to median income in the 50 states and D.C. The average employee premium cost across single and family plans amounted to nearly 7 percent of median income in 2017 (Exhibit 5). This is up from 5.1 percent in 2008. In 11 states (Arizona, Delaware, Florida, Georgia, Louisiana, Mississippi, Nevada, New Mexico, North Carolina, Oklahoma, Texas), premium contributions were 8 percent of median income or more, with a high of 10.2 percent in Louisiana.

EXHIBIT 5

Worker payments for employer coverage are growing faster than median income

Employee premium contribution as share of median income

Average employee premium contribution as percent of median state income in 2017



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Notes: Estimates of median household income used in the denominator for this ratio come from the Current Population Survey (CPS), which revised its income questions in 2013. The denominator in our ratio estimates prior to 2014 is derived from the traditional CPS income questions, while ratio estimates from 2017 are estimated from the revised income questions. Household incomes have been adjusted for the likelihood that people in the same residence purchase health insurance together.

Data: Employee premium contribution: Medical Expenditure Panel Survey-Insurance Component (MEPS-IC), 2008, 2011, 2017; Median household income: Current Population Survey, 2008-09, 2011-12, 2017-18.

Source: Sara R. Collins and David C. Radley, *The Cost of Employer Insurance Is a Growing Burden for Middle-Income Families* (Commonwealth Fund, Dec. 2018).

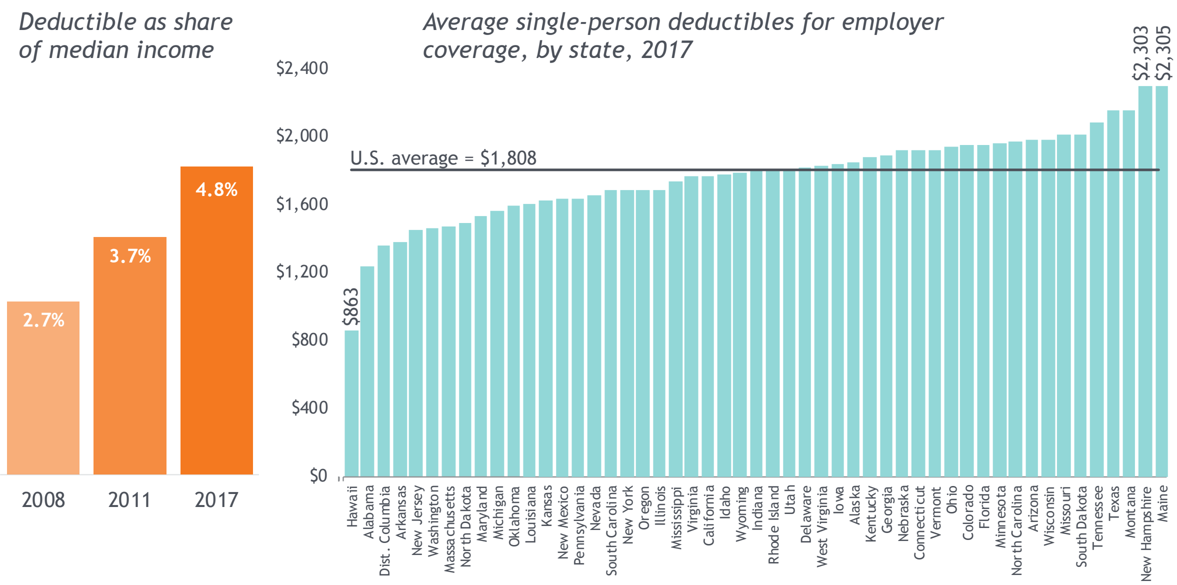
Even though premium costs are rising many families are not getting better plans

In many states, even though premium costs are rising, people are not getting insurance that offers them better protection. This is because deductibles are also increasing. Deductibles are the amount of health care services people must pay for out of pocket before their insurance coverage kicks in.

In 2017, the average deductible for single-person policies rose by 6.6 percent to $1,808. Average deductibles increased in 35 states and the District of Columbia. Deductibles ranged in size from a low of $863 in Hawaii to a high of about $2,300 in Maine and New Hampshire (Exhibit 6). Among families who spend enough on health care during the year to meet their deductibles, those at the midrange of the income distribution would spend 4.8 percent of their income on average before their coverage kicked in.[5] This is up from 2.7 percent of income in 2008.

EXHIBIT 6

Average deductibles are also outpacing growth in median income



Note: Estimates of median household income used in the denominator for this ratio come from the Current Population Survey (CPS), which revised its income questions in 2013. The denominator in our ratio estimates prior to 2014 is derived from the traditional CPS income questions, while ratio estimates from 2017 are estimated from the revised income questions. Household incomes have been adjusted for the likelihood that people in the same residence purchase health insurance together.

Data: Deductible: Medical Expenditure Panel Survey–Insurance Component (MEPS-IC), 2008, 2011, 2017; Median household income: Current Population Survey, 2008–09, 2011–12, 2017–18.

Source: Sara R. Collins and David C. Radley, *The Cost of Employer Insurance Is a Growing Burden for Middle-Income Families* (Commonwealth Fund, Dec. 2018).

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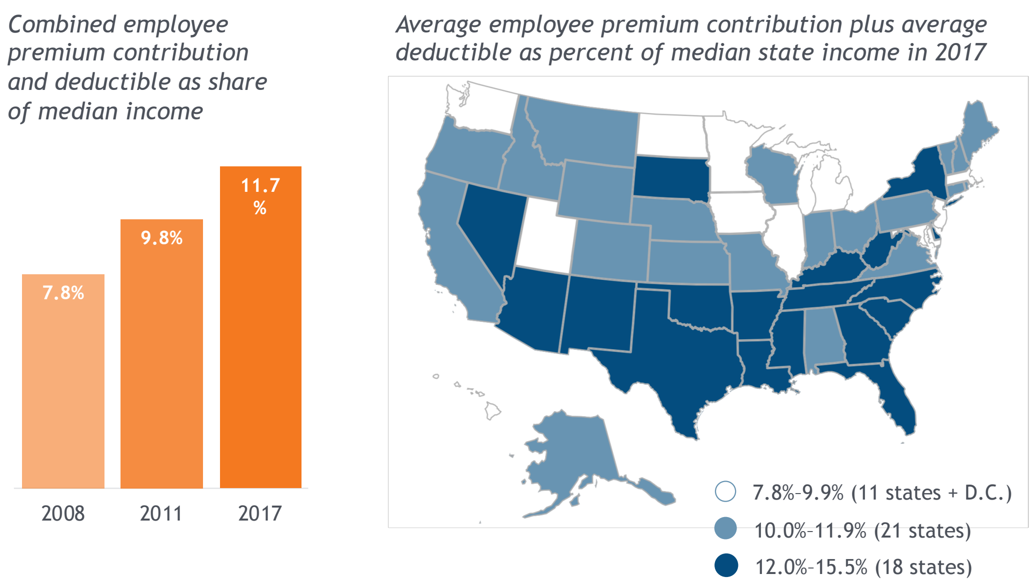
[5] Not everyone with a deductible has enough medical expenses in a given year to meet the deductibles; some services are covered by plans before people meet deductibles. By law, preventive care services and many cancer screens must be covered pre-deductible without cost-sharing. And many plans also cover certain prescription drugs and other services before the deductible is met.

Added together, the total cost of premiums and potential spending on deductibles, averaged across single and family policies, climbed to $7,240 in 2017. This combined cost ranged from a low of $4,664 in Hawaii to a high of more than $8,000 in eight states (Alaska, Arizona, Delaware, New Hampshire, North Carolina, South Dakota, Texas, and Virginia).

For people with middle incomes, total spending on premiums and potential out-of-pocket costs amounted to 11.7 percent of median income in 2017 (Exhibit 7). This is up from 7.8 percent a decade earlier. Costs were 12 percent or more of median income in 18 states. In Louisiana and Mississippi, these combined costs rose to 15 percent or more of median income.

EXHIBIT 7

Premium and deductible costs amounted to nearly 12 percent of median income in 2017



Note: Estimates of median household income used in the denominator for this ratio come from the Current Population Survey (CPS), which revised its income questions in 2013. The denominator in our ratio estimates prior to 2014 is derived from the traditional CPS income questions, while ratio estimates from 2017 are estimated from the revised income questions. Household incomes have been adjusted for the likelihood that people in the same residence purchase health insurance together.

Data: Employee premium contribution and deductible: Medical Expenditure Panel Survey-Insurance Component (MEPS-IC), 2008, 2011, 2017; Median household income: Current Population Survey, 2008-09, 2011-12, 2017-18.

Source: Sara R. Collins and David C. Radley, *The Cost of Employer Insurance Is a Growing Burden for Middle-Income Families* (Commonwealth Fund, Dec. 2018).

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People across the U.S. are not experiencing employer health insurance costs equally

People across the United States are not experiencing health care costs equally. This variation stems from differences in the size of employer premiums across states, how much employees are required to contribute to premiums, deductible amounts, and the widening disparity in median incomes across the country. For example, of the 18 states where potential cost burdens are above the national average, average contributions to family premiums exceeds the national average in 13. All 18 states have median incomes that are below—in some cases well below—the national average.

Families who could potentially spend the greatest amount of their incomes on insurance costs and deductibles are concentrated in the South. In Mississippi, for example, people on average spend 15 percent of their incomes on premiums and meeting deductibles. The overall premium for a family policy is below the national average, but families are asked to contribute 30 percent of the cost, which is higher than the national average. Further, Mississippi has one of the lowest median incomes in the country ($42,500). In contrast, people in New Hampshire pay more per year for their insurance and deductibles, but median income is among the highest in the country ($75,000).

The share of adults in employer plans who are underinsured has nearly tripled this century

The Commonwealth Fund has been measuring and tracking the number of underinsured adults since 2003 with its Biennial Health Insurance Survey. The purpose of this measure is to gauge the quality and cost protectiveness of a person's health plan relative to income. We do not include premiums in the measure. Our underinsured measure is based on a continuously insured adult's reported out-of-pocket costs over the course of a year and his or her health plan deductible. Someone who is insured all year is defined as underinsured if:

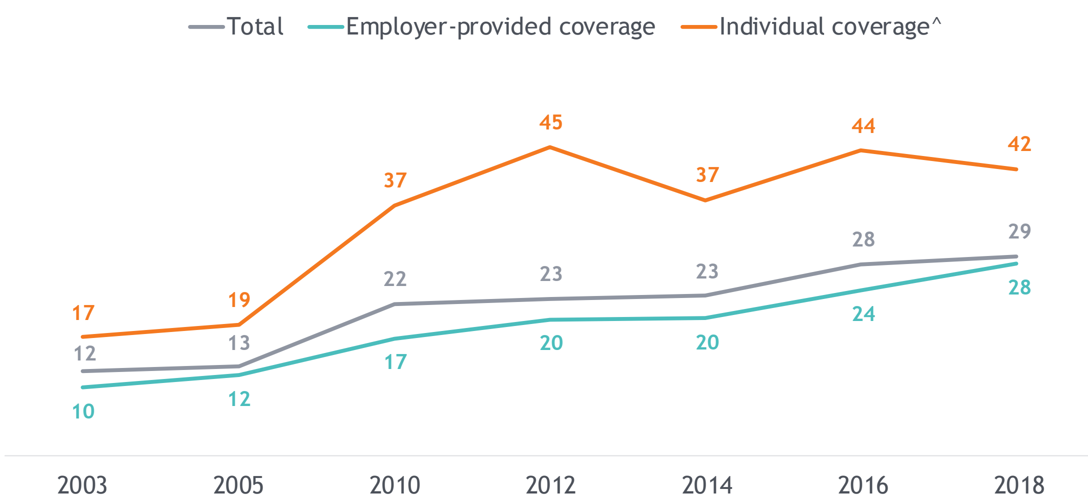
- out-of-pocket costs, excluding premiums, over the prior 12 months are equal to 10 percent or more of household income; or
- out-of-pocket costs, excluding premiums, are equal to 5 percent or more of household income if their income is under 200 percent of poverty ($24,120 for an individual or $49,200 for a family of four); or
- health plan deductible comprises 5 percent or more of household income.

In the most recent Commonwealth Fund Biennial Health Insurance Survey, an estimated 44 million working age adults, or 29 percent of those who were continuously insured, were deemed underinsured because of high out-of-pocket costs and deductibles.[6] This is up from an estimated 29 million, or 22 percent, in 2010 (Exhibit 8). People who buy plans on their own through the individual market—including the ACA marketplaces—are underinsured at the highest rates. However, the greatest growth in the share of underinsured adults is occurring among those in employer health plans.

Exhibit 8

More adults are underinsured, with the greatest growth occurring among those with employer coverage

Percent of adults ages 19-64 insured all year who were underinsured



Notes: "Underinsured" refers to adults who were insured all year but experienced one of the following: out-of-pocket costs, excluding premiums, equaled 10% or more of income; out-of-pocket costs, excluding premiums, equaled 5% or more of income if low-income (<200% of poverty); or deductibles equaled 5% or more of income. Total includes adults with coverage through Medicaid and Medicare. Respondents may have had another type of coverage at some point during the year, but had coverage for the entire previous 12 months. ^ For 2014 and 2016, includes those who get their individual coverage through the marketplace and outside of the marketplace.

Data: Commonwealth Fund Biennial Health Insurance Surveys (2003, 2005, 2010, 2012, 2014, 2016, 2018).

Source: Sara R. Collins, Herman K. Bhupal, and Michelle M. Doty, *Health Insurance Coverage Eight Years After the ACA: Fewer Uninsured Americans and Shorter Coverage Gaps, But More Underinsured* (Commonwealth Fund, Feb. 2019).

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The share of adults covered by employer plans who are underinsured has nearly tripled this century, rising from 10 percent in 2003 to 28 percent in 2018 (Exhibit 9). Growth in both the proliferation and size of deductibles in employer plans, along with stagnant wages, are the key culprits in this phenomenon. The share of working-age adults with employer plans whose deductibles are 5 percent or more of their income has grown by a factor of eight, from just 2 percent in 2003 to 16 percent in 2018.

[6] Sara R. Collins, Herman K. Bhupal, and Michelle M. Doty, Health Insurance Coverage Eight Years After the ACA: Fewer Uninsured Americans and Shorter Coverage Gaps, But More Underinsured (Commonwealth Fund, Feb. 2019). https://doi.org/10.26099/penv-q932

EXHIBIT 9

Underinsured indicators among adults with employer coverage

*Underinsured indicators among adults ages 19-64 insured all year, with employer coverage at the time of the survey**	2003	2005	2010	2012	2014	2016	2018
Out of pocket medical expenses equal 10% or more of family annual income	6%	8%	11%	13%	12%	14%	14%
Out of pocket medical expenses equal 5% or more of income if low income^	6%	5%	7%	7%	8%	8%	7%
Cumulative percent/millions, using two indicators above	9%	11%	14%	15%	15%	16%	17%
Deductible equals 5% or more of income	2%	2%	6%	8%	11%	13%	16%
Cumulative percent/millions, using all three indicators^^	10%	12%	17%	20%	20%	24%	28%

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* Respondents may have had another type of coverage at some point during the year, but had coverage for the entire previous 12 months. ^ Less than 200% of the Federal Poverty Level. ^^ Underinsured defined as insured all year but experienced one of the following: out of pocket expenses, excluding premiums, equaled 10% or more of income; out of pocket expenses, excluding premiums, equaled 5% or more of income if low income (<200% of poverty); or deductibles equaled 5% or more of income.

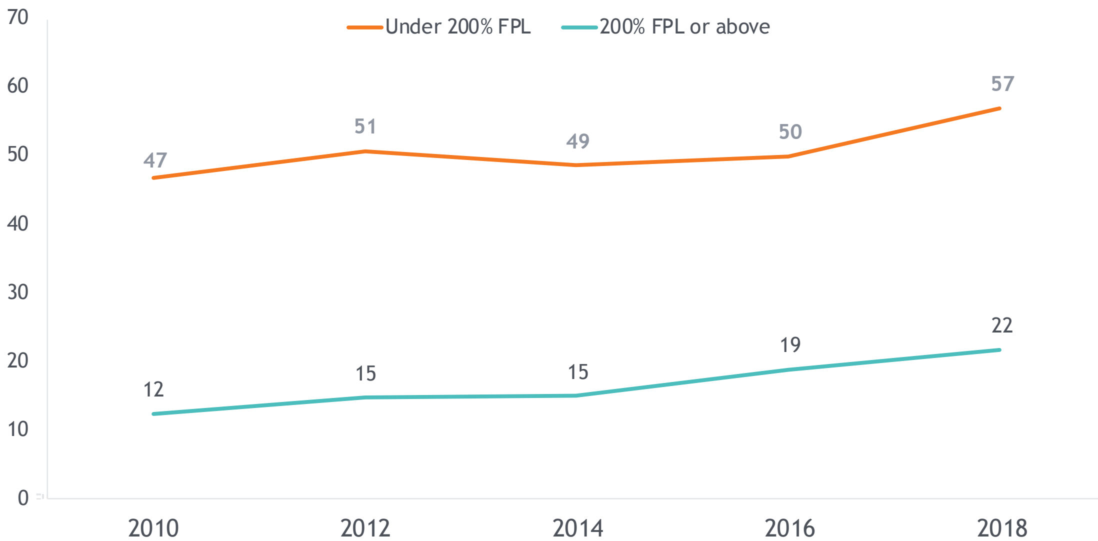
Data: Commonwealth Fund Biennial Health Insurance Surveys (2003, 2005, 2010. 2012, 2014, 2016, and 2018).

People with modest incomes in employer plans are underinsured at the highest rates. More than half (57%) of adults in employer plans with incomes under 200 percent of poverty ($24,120 for individual or $49,200 for a family of four) were underinsured in 2018, more than twice the rate of those with incomes above that level (Exhibit 10). Underinsured rates have also climbed steadily among adults in employer plans with incomes of 200 percent of poverty or more, and are now nearly double what they were in 2010.

EXHIBIT 10

Underinsured rates among people in employer plans are highest among lower-income adults

Percent of adults ages 19-64 insured all year, with employer coverage at time of survey, who were underinsured



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Notes: "Underinsured" refers to adults who were insured all year but experienced one of the following: out-of-pocket costs, excluding premiums, equaled 10% or more of income; out-of-pocket costs, excluding premiums, equaled 5% or more of income if low-income (<200% of poverty); or deductibles equaled 5% or more of income. Respondents may have had another type of coverage at some point during the year, but had coverage for the entire previous 12 months.
Data: Commonwealth Fund Biennial Health Insurance Surveys (2010, 2012, 2014, 2016, and 2018).

Higher premiums and greater cost sharing have implications

Higher costs for insurance and health care have implications. People with low and moderate incomes may simply decide to go without insurance if their premium costs compete with other critical living expenses like housing, food, and education. In 2017, average per-person expenditures on food in the U.S. amounted to 13 percent of median income and housing costs were 32 percent.[7]

Likewise, people who maintain their coverage but are underinsured may make similar tradeoffs between getting timely health care and other budget demands. Our survey research finds that that underinsured adults are much more likely to skip needed health care than are those who are not underinsured. Among underinsured adults in employer plans, 40 percent reported

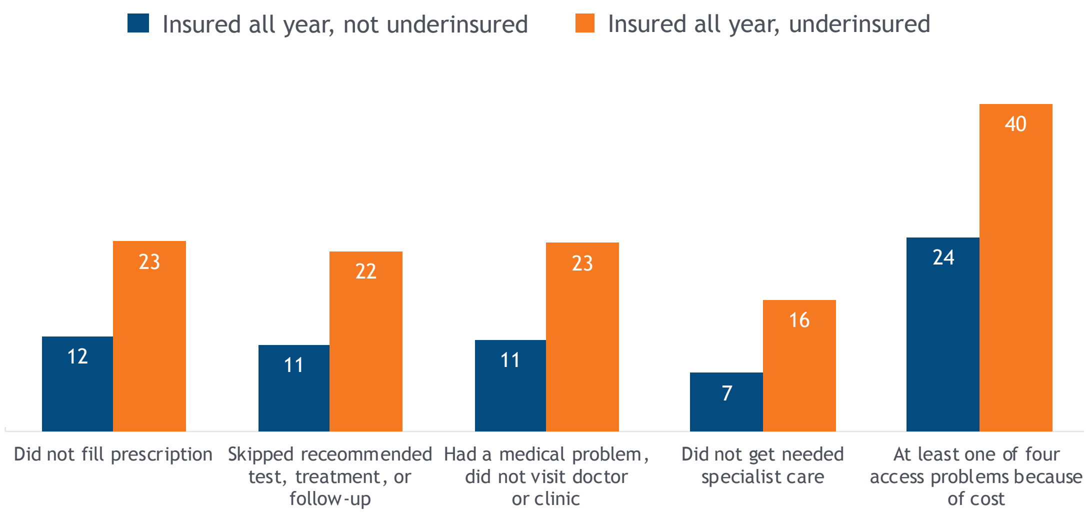
[7] Bureau of Labor Statistics, "Consumer Expenditures — 2017," news release (U.S. Department of Labor, Sept. 11, 2018). https://www.bls.gov/news.release/pdf/cesan.pdf

that they had not received needed health care because of cost in the prior year (Exhibit 11).[8] These adults reported that over the last 12 months, because of the cost, they had either not filled a prescription (23%); skipped a medical test, treatment or follow up visit recommended by a doctor(22%); had a medical problem but did not go to a doctor or clinic (23%), or did not see a specialist when their doctor thought they needed to (16%).

EXHIBIT 11

Underinsured adults in employer plans report more cost-related problems getting needed care

*Percent of adults ages 19-64 with employer coverage who had any of four access problems in past year because of cost**



The Commonwealth Fund

Notes: * Includes any of the following because of cost: did not fill a prescription; skipped recommended medical test, treatment, or follow-up; had a medical problem but did not visit doctor or clinic; did not see a specialist when needed. "Underinsured" refers to adults who were insured all year but experienced one of the following: out-of-pocket costs, excluding premiums, equaled 10% or more of income; out-of-pocket costs, excluding premiums, equaled 5% or more of income if low-income (<200% of poverty); or deductibles equaled 5% or more of income. Respondents may have had another type of coverage at some point during the year, but had coverage for the entire previous 12 months.

Data: Commonwealth Fund Biennial Health Insurance Survey (2018).

In addition, people who are underinsured are much more likely to report problems paying medical bills or say they are paying off medical debt over time. Many moderate- and low-income families simply do not have the savings or assets to pay for unexpected medical bills they may experience — from an accident or acute illness and subsequent emergency room visit, for example — because of a high-deductible health plan. In a recent Commonwealth Fund survey, we asked working-age adults about potentially experiencing an unexpected medical event that

[8] In this measure, people have been insured continuously over the prior 12 months. The insurance source is at the time of the survey. In our sample, 89% of people with employer coverage who were underinsured had had the same plan for one year or longer.

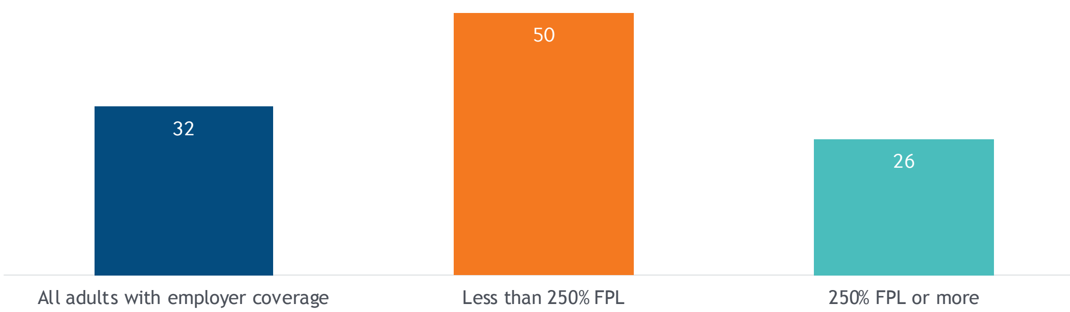
left them with a $1,000 bill. Among those with employer coverage, one-half of moderate- and low-income adults (less than $30,150 for an individual or $61,500 for a family of four) said they would not have the money to pay the bill within 30 days (Exhibit 12).

EXHIBIT 12

One of third of adults with employer coverage say they would not have the money to pay an unexpected $1,000 medical bill within 30 days

If you were to experience an unexpected medical event in 2018 that left you with a bill for $1,000, would you have the money to pay the bill within 30 days?

Percent of adults ages 19-64 with employer coverage who responded "no"



The Commonwealth Fund

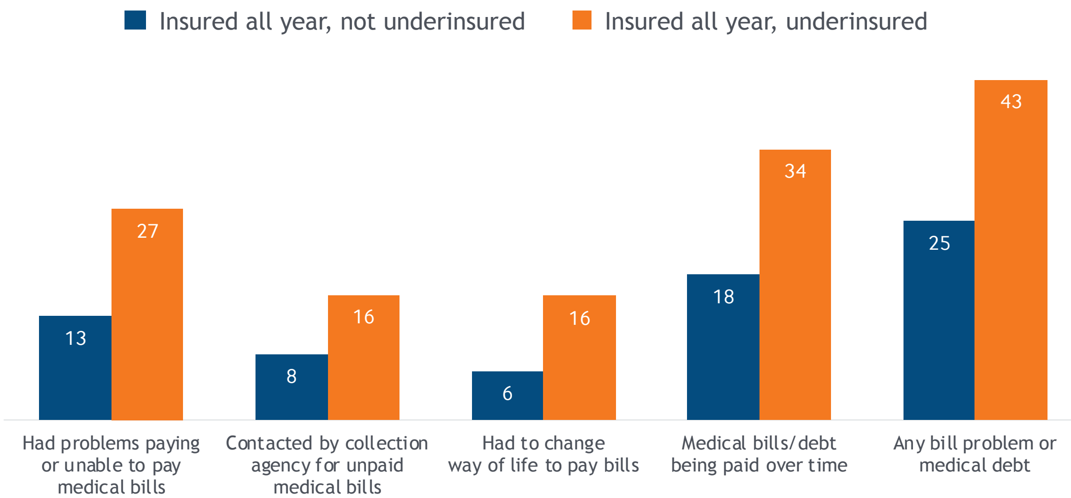
Data: Commonwealth Fund Affordable Care Act Tracking Survey, Feb.-Mar. 2018.

Nationally, underinsured adults are much more likely to report struggling with medical bills than are those who are not underinsured. Among people in employer plans, 43 percent of those who were underinsured reported problems with medical bills (Exhibit 13). These included problems paying or being unable to pay a medical bill (27%), being contacted by a collection agency about an unpaid medical bill (16%), having to change their way of life significantly in order to pay their bills (16%), or paying off medical bills over time (34%).

EXHIBIT 13

Underinsured adults in employer plans report more problems paying medical bills

*Percent of adults ages 19-64 with employer coverage who had medical bill or debt problems in past year**



The Commonwealth Fund

Notes: * Includes any of the following: had problems paying or unable to pay medical bills; contacted by collection agency for unpaid medical bills; had to change way of life to pay bills; medical bills/debt being paid over time. “Underinsured” refers to adults who were insured all year but experienced one of the following: out-of-pocket costs, excluding premiums, equaled 10% or more of income; out-of-pocket costs, excluding premiums, equaled 5% or more of income if low-income (<200% of poverty); or deductibles equaled 5% or more of income. Respondents may have had another type of coverage at some point during the year, but had coverage for the entire previous 12 months.

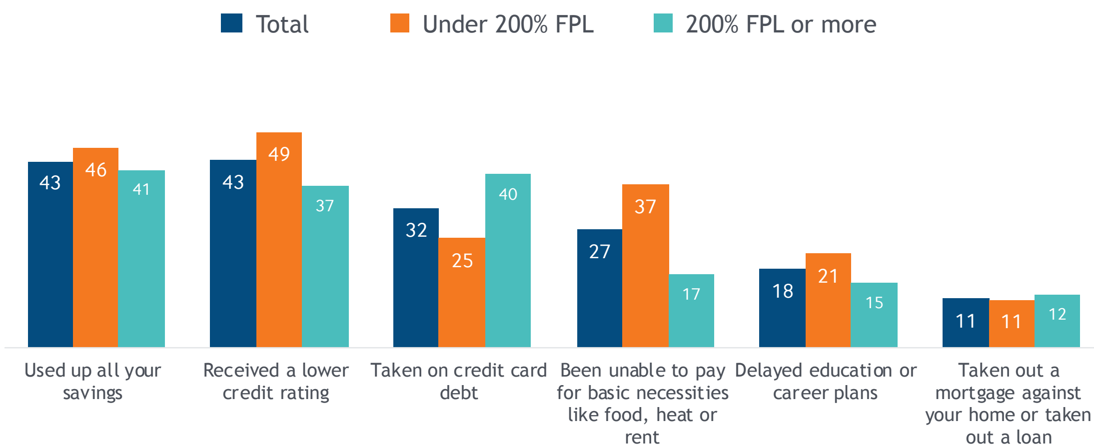
Data: Commonwealth Fund Biennial Health Insurance Survey (2018).

Paying off accumulated medical debt over time affects other aspects of people’s lives. Our survey research finds that many adults with medical bill or debt problems have serious subsequent financial problems as a result. In 2018, among all U.S. working-age adults who reported any medical bill or debt problems, 43 percent said they had used up all their savings to pay their bills, 43 percent had received a lower credit rating as a result of their medical debt, 32 percent racked up debt on their credit cards, and 18 percent said they had delayed education or career plans (Exhibit 14). People with lower incomes were particularly affected: 37 percent said they were unable to pay for basic necessities like food, heat, or rent as a result of their bills.

EXHIBIT 14

Adults with medical bill problems had lingering financial problems

*Percent adults ages 19-64 who reported the following happened in the past two years because of medical bill problems^*



The Commonwealth Fund

^ Base: Respondents who reported at least one of the following medical bill problems in the past 12 months: had problems paying medical bills, contacted by a collection agency for unpaid bills, had to change way of life in order to pay medical bills, or has outstanding medical debt.
Data: Commonwealth Fund Biennial Health Insurance Survey (2018).

One family's struggle to pay off accumulated medical debt

For about a year, reporters at Kaiser Health News (KHN) and National Public Radio (NPR) have been interviewing people about their experiences with medical bills and featuring their stories in a series called "Bill of the Month."[9] In December 2018, the series featured a story about Robert and Tiffany Cano of San Tan Valley, Arizona.[10]

Both Robert and Tiffany work full-time. Tiffany is a compliance officer at a regional bank and Robert is a manager at a large chain retail store. The couple has one-year-old son and have a combined income of $100,000 a year. At the time of the KHN story, the Canos were

[9] Kaiser Health News and National Public Radio, Bill of the Month, https://khn.org/news/tag/bill-of-the-month/
[10]JoNel Aleccia, "Insured But Still In Debt: 5 Jobs Pulling In $100K A Year No Match For Medical Bills; Kaiser Health News, December 28, 2018, https://khn.org/news/insured-but-still-in-debt-5-jobs-pulling-in-100k-a-year-no-match-for-medical-bills/.

insured by a family health plan through Robert's job. They were spending about $7,000 in premiums annually for a plan with a $3,000 deductible along with 40 percent coinsurance.

The birth of their son and some subsequent health problems have left the Canos with $12,000 in medical debt that they are struggling to pay off. The cost of the delivery at an in-network hospital was nearly $4,000 along with additional fees from the physician who performed the delivery and the anesthesiologist. At two months, their son was hospitalized for breathing problems related to asthma. The family has experienced other minor health problems and the bills have accumulated. As Tiffany told KHN, "It's been like $300 here, $700 there… We had a hospital bill for him being sick of $1,800."

The couple has payment arrangements with the doctors and hospitals they owe and keep track of it on a spreadsheet. Combined, the cost of these payments and their premiums are almost as much as their $1,300 monthly mortgage for their home, one hour outside Phoenix. Currently, they are spending 15 percent of their annual income on health care costs.

In addition to his full-time job, Robert has taken on three part-time jobs to help pay off the medical debt. He works as a substitute teacher, a nighttime security guard, and delivers sandwiches for a fast-food chain in Scottsdale. The couple projects it will take about two more years to pay off their medical debt.

Concerned about accumulating more debt, Robert and Tiffany have postponed needed health care for themselves and their baby. Tiffany has used a prosthetic limb most of her life because of a birth defect that required her leg to be amputated below the knee as a child. She now needs a replacement prosthesis to accommodate changes in her body since her pregnancy. Although she has difficulty walking and suffers from blisters, she is concerned about whether they could afford their share of the cost of a new prosthesis.

The couple has also decided to switch to the health plan offered by Tiffany's employer. Their premium costs will rise by $150 per month to about $7,800 a year but they will have a lower deductible ($1,500) and coinsurance (10%). As Tiffany told KHN, "It is going to be a lot more per paycheck, which is going to hurt us. But after what just happened, I want to make sure we are prepared in case anything does occur."

Conclusion

The personal pain and financial stress suffered by families coping with high medical costs present a fundamental dilemma for employers. To the extent that they are designing benefits to shift increasing amounts of their insurance costs to their employees, they are potentially undermining the productivity of their own workforces.

More broadly, the growing number of underinsured people in the United States could have long-term implications for the nation's economic health. Research indicates that human capital is key to countries' long-term economic growth.[11] In its landmark 2003 study, the Institute of Medicine (IOM) concluded that people who lack adequate health insurance all their lives have fundamentally different life experiences and less economic opportunity than those who are adequately insured, including lower educational attainment, lifetime earnings, and life expectancy.[12] At the time of the study, it estimated that the aggregate, annualized cost of uninsured people's lost capital and earnings from poor health and shorter lifespans fell between $65 billion and $130 billion annually.

The U.S. has insured 20 million more people since the IOM study through the Affordable Care Act's coverage expansions. But with 28 million people still uninsured and an estimated 44 million more underinsured, the country continues to squander billions of dollars every year in people's lost capital and earnings. The subcommittee is to be commended for investigating this timely issue.

Thank you.

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[11] Thomas Piketty, *Capital in the 21St Century*, The Belknap Press of Harvard University Press, 2014.
[12] Institute of Medicine, Committee on the Consequences of Uninsurance, *Hidden Costs, Value Lost: Uninsurance in America*, Washington, DC: National Academies Press, 2003, https://www.ncbi.nlm.nih.gov/pubmed/25057665

HEALTH CARE COST INSTITUTE

2017 Health Care Cost and Utilization Report

February 2019

2017 Health Care Cost and Utilization Report

I am pleased to present HCCI's 2017 Health Care Cost and Utilization Report. Drawing on the health care claims of more than 40 million Americans, one of the largest and most complete databases of its type, this report provides a one-of-a-kind view into health care spending, use, and prices for individuals under 65 covered by employer-sponsored insurance (ESI).

We find that spending per-person grew 4.2% in 2017, consistent with the Centers for Medicare and Medicaid estimates of spending by the privately insured. Average annual spending for this population rose to $5,641. Over the five-year period covered in the report, year-over-year spending growth averaged 3.9% per year. That slightly outpaced growth in per-capita GDP which grew at an average annual rate of 3.1% over the same period.

The report decomposes trends in spending, utilization, and average prices for medical care and prescription drugs from 2013 to 2017 into four categories: inpatient admissions; outpatient facility visits and procedures; professional services; and prescription drugs and medical devices obtained from pharmacies and suppliers. We further categorize spending and trends within each category into subcategories (e.g., inpatient surgical versus medical admissions). In addition, we present trends in total out-of-pocket spending by individuals, as well as an overview of spending by age and for individuals diagnosed with certain chronic conditions.

In response to feedback received on last year's report, I would like to note a key revision to the methodology in this year's report that affects the analysis of how changes in average prices and utilization of services affected spending growth. The measures of average prices presented here account for changes in the mix or intensity of services used for three of the four categories (the exception being prescription drugs, for which measures of intensity are not available). Correspondingly, measures of utilization for those three categories were adjusted to capture both changes in the number of services used and changes in the mix and intensity of services provided. Because we could not adjust for intensity for prescription drugs, our measures of prescription drug prices include both spending on the same drugs, as well as spending on new, potentially innovative products, adopted over the report period. Previously, the analysis of intensity-adjusted prices was presented separately or in an appendix. Because the mix of services used became slightly more resource-intensive over time, this revised approach attributes slightly more of the spending growth to growth in utilization and slightly less to growth in prices than the previous method. We made this change to better distinguish increases in average prices for the same services from changes in the mix of services used.

The report relies on claims data from four of the country's largest insurers – Aetna, Humana, Kaiser Permanente, and UnitedHealthcare. As we recently announced, we are sunsetting our data collaboration relationship agreement with United, however we plan to continue publishing annual reports of health care spending trends and have already begun preparations for the 2018 report, which will include data from all 4 current insurers. Note that because we rely on claims data, spending on prescription drugs reflects average point-of-sale prices, and do not account for manufacturer rebates provided through separate transactions, so readers should read and interpret the sections dealing with prescription drugs with this in mind. While others may disagree with our approach, I do not think the lack of rebate information should preclude HCCI or other organizations from examining trends of prescription drug prices. Should information on manufacturer rebates become more widely available we will gladly incorporate it into our analysis.

I would like to acknowledge Jeannie Fuglesten Biniek and John Hargraves, the authors of this year's report. They have taken a fresh look at the data and analyses powering this report, thoughtfully revised the methodology, and again produced a set of compelling visuals. In addition, I am grateful to Michael Chernew, Leemore Dafny, and Dale Yamamoto, who provided valuable feedback on the methodology and presentation of this year's report as part of a Technical Expert Panel.

Finally, in service of our mission to promote data transparency, we are again providing machine-readable downloads of all data used in this report. These data may be used by anyone wishing to perform their own analysis or create data visualizations. For those interested in state level spending trends and geographic variation be sure to check out our interactive supplement to this year's report.

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President and CEO, HCCI
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About HCCI

The Health Care Cost Institute was launched in 2011 to promote independent, nonpartisan research and analysis on the causes of the rise in U.S. health spending. HCCI holds one of the largest databases for the commercially insured population, and in 2014 became the first national Qualified Entity (QE) entitled to hold Medicare data.
For more information, visit healthcostinstitute.org, email us at info@healthcostinstititute.org, or follow us on Twitter @healthcostinst

Executive Summary

The 2017 Health Care Cost and Utilization Report examines medical and prescription drug spending, utilization, and average prices, and is based on health care claims data from 2013 through 2017 for Americans under the age of 65 who were covered by employer-sponsored insurance (ESI). The key findings are:

- In 2017, per-person spending reached $5,641, a new all-time high for this population. This total includes amounts paid for medical and pharmacy claims. While it reflects discounts negotiated from wholesale or list prices for prescription drugs, it does not account for manufacturer rebates provided in separate transactions, because these data are not available.

- Spending per-person grew at a rate above 4% for the second year in a row, rising 4.2% from 2016 to 2017. This year's spending growth was slower than the 4.9% growth from 2015 to 2016 (2016 spending estimate revised up from previous report).

- The overall use of health care services changed very little over the 2013 to 2017 period, declining 0.2%. In 2017, utilization grew 0.5% compared to 2016.

- Average prices increased 3.6% in 2017. Year-over-year price growth decelerated throughout the five-year period, rising 4.8% between 2013 and 2014 and slowing to 3.6% in 2016 and 2017. That trend reflects a slowing in the year-over-year changes in average point-of-sale prescription drug prices.

- Out-of-pocket spending per-person increased 2.6% in 2017. The growth was slower than the rise in total spending, resulting in out-of-pocket costs comprising a smaller share of spending by 2017.

This report also provides an overview of the ESI population and examines trends within four categories: inpatient admissions; outpatient facility visits and procedures; professional services; and prescription drugs. All data were weighted to reflect the age, gender, and geographic mix of the ESI population.

Definitions of Reported Measures

Spending per person: Total expenditures on medical and pharmacy claims, including payer and patient shares, divided by the number of people with ESI coverage. The prescription drug component reflects point of sale expenditures and does not include manufacturer rebates provided through separate transactions because these data are not available.

Utilization: Volume of health care services used per person, weighted by the service mix intensity of those services (prescription drug utilization is unweighted). Calculated as the count of inpatient admissions, outpatient facility visits, outpatient facility procedures, and professional services, divided by the number of people with ESI coverage, and weighted by intensity of services provided. Prescription drug utilization is the count of days covered by a filled prescription and is not weighted by intensity, because no such measures are available.

Average Price: Measure spending per service (admissions, visits, procedures, or days supplied depending on the service category). Spending and utilization (inclusive of volume and service mix intensity except in the case of prescription drugs) were aggregated across all services in a category. The average price per service in a category was then calculated by dividing total spending by total utilization.

Data

The report relies on de-identified commercial health insurance claim lines for the years 2013 through 2017. These claims are contributed by four major health insurers: Aetna, Humana, Kaiser Permanente, and UnitedHealthcare. The data reflect medical and pharmacy claims for individuals under the age of 65 covered by group insurance through an employer, including both fully insured and administrative services only. The claims data are compliant with the Health Insurance Portability and Accountability Act (HIPAA).

Methodology Updates

The methodology and presentation of the annual Health Care Cost and Utilization Report is reviewed and updated each year. The 2017 report reflects several revisions.

First, the utilization and average price measures now account for year-to-year changes in service-mix intensity for three of the four service categories (the exception is prescription drugs). Those revisions and their implications are described in further detail below. Previously, measures of intensity-adjusted prices were included as a separate analysis or in the Appendix tables. The methodology document contains a full description of all updates.

The service categories aggregate underlying claims data across groups of services. From year-to-year, the mix of services in a category can change. To facilitate comparisons across years, a service-mix weighting methodology was applied, so the measure of utilization presented incorporates changes in both volume and mix of the health care services used. In general, weights were applied based on the intensity of a service, reflecting the complexity of the service provided or the level of resources required for treatment. The specific weights varied by service category and included diagnosis related group (DRG), ambulatory service category (APC), and relative value unit (RVU) weights. These weights are developed and used by the Centers for Medicare and Medicaid Services (CMS) in their payments to providers for inpatient, outpatient and professional services. No corollary exists for prescription drugs, however, so no adjustment was made for this category.

Adjusting utilization for service-mix intensity carried over to the calculated average price. Average prices measure spending per unit. To calculate average prices, spending and utilization (inclusive of both volume and service-mix intensity) were aggregated across all services in a category. The average price per service was then determined by dividing total spending by total utilization. The Appendix provides the detailed data with respect to changes in utilization and intensity separately, as in prior reports.

Overall, including service-mix intensity in the measure of utilization increased the levels and growth of utilization during the 2013 to 2017 period. That is because While the volume of services generally declined, the intensity of those services was greater. Thus, slightly more of the spending growth is attributed to growth in utilization and slightly less to growth in average prices than under the previous method.

The second change is the addition of total utilization and total price trends. These were calculated by weighting the year-to-year change for each service category by its average share of total spending between 2013 and 2017 and summing.

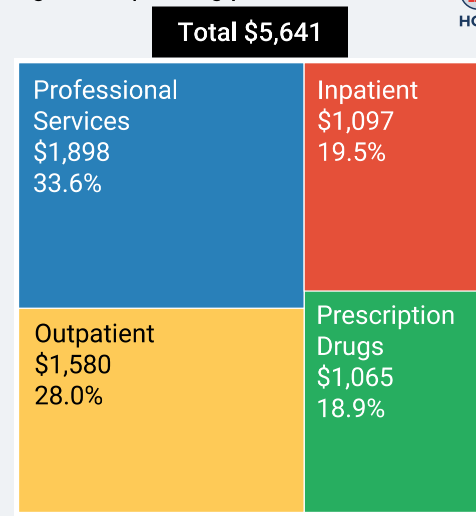
Third, this report reflects other updates and revisions described more fully in the methodology document. As a result of those changes, the top-line spending growth number for 2016 was revised up to 4.9% from 4.6%.

Finally, some information presented in previous reports does not appear this year. That includes the brand/generic split for prescription drugs and out-of-pocket spending by service category. These data are available in the Appendix.

Prices Drove Spending Growth from 2013 to 2017

In 2017, per-person spending reached $5,641, the highest spending for the ESI population since HCCI began publishing annual health care cost and utilization reports. This total includes $1,097 for inpatient admissions, $1,580 for outpatient visits and procedures, $1,898 for professional procedures, and $1,065 for prescription drugs [Figure 1]. Spending on prescription drugs reflects the amount paid on the pharmacy claim, which includes discounts from the wholesale or list price, but does not account for manufacturer rebates that are paid through separate transactions.

Figure 1: Spending per Person in 2017

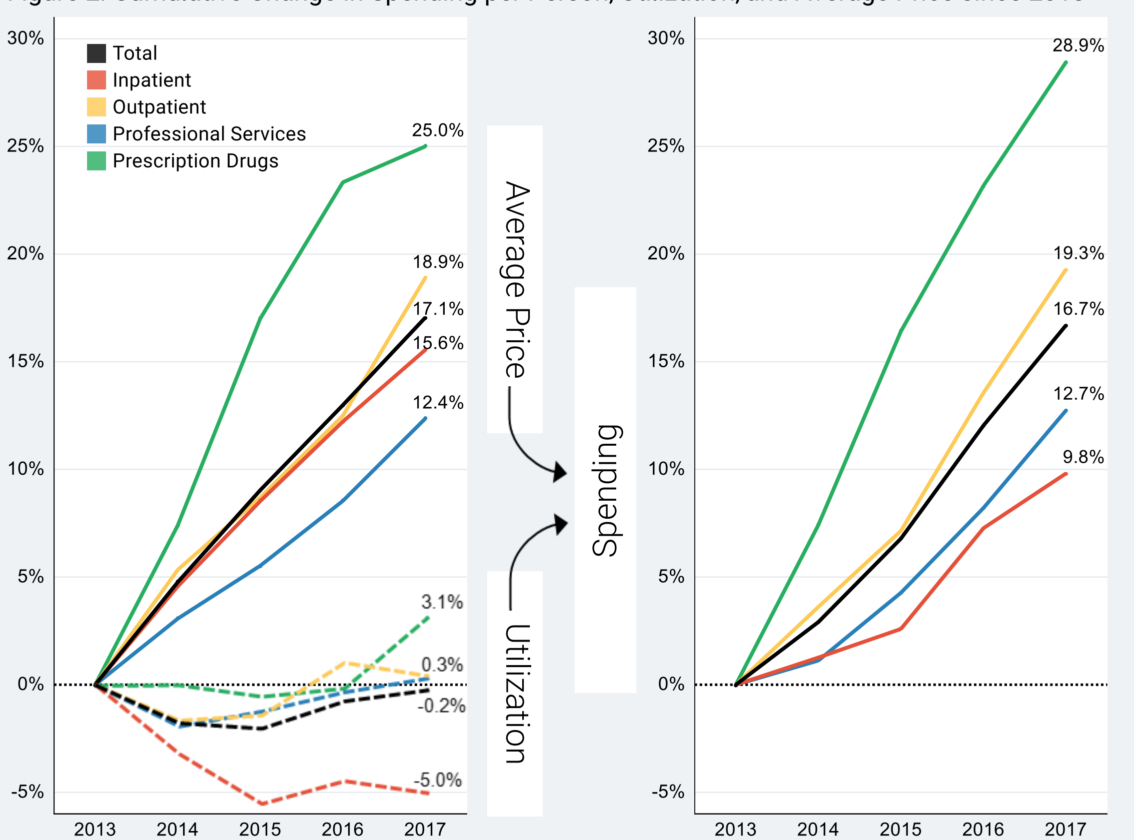


Total annual per-person spending increased 16.7% over the five-year period [Figure 2], rising from an average of $4,834 in 2013 to $5,641 in 2017. That is an average annual increase of 3.9%, which slightly outpaced the 3.1% average annual rate of growth in per-capita GDP over the same period. The estimate of spending includes the sum of payer spending and out-of-pocket payments by individuals.

Increases in spending can arise from increases in use, increases in average prices (spending per unit), or a combination of both. The change in the composition of services, which includes use of newly introduced procedures and technologies, as well as the discontinuation of specific practices and treatments, can also affect spending. After adjusting for changes in the mix of services for three of the four categories (the exception being prescription drugs), price increases drove per-person spending growth among the ESI population between 2013 and 2017 [Figure 2].

- **Utilization declined 0.2%** between 2013 and 2017.
- **Average prices increased 17.1%** between 2013 and 2017.

Figure 2: Cumulative Change in Spending per Person, Utilization, and Average Price since 2013



Note: Utilization and average prices account for changes in the type or intensity of services used, with the exception of prescription drugs. Prescription drug spending is the amount paid on the pharmacy claim, which reflects discounts from the wholesale price, but not manufacturer rebates.

Per-person Spending Increased Year-over-Year in Every Year from 2013 to 2017

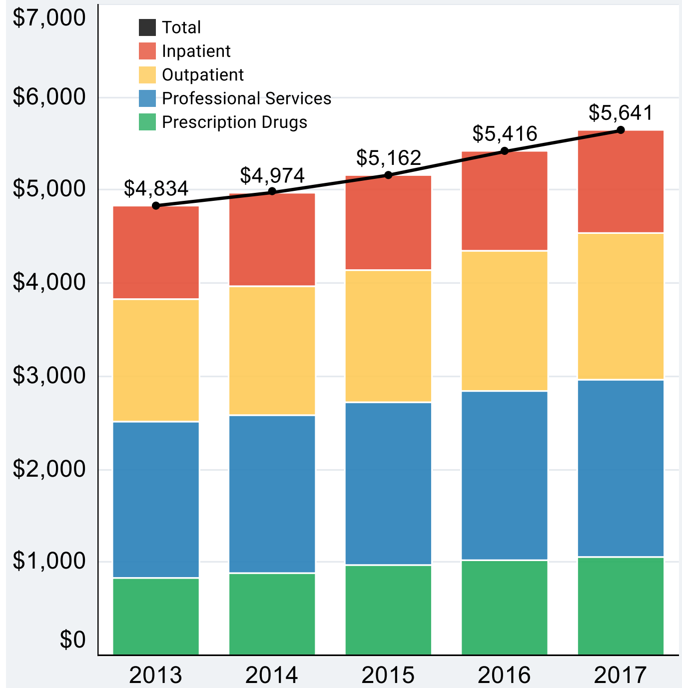
Spending per person for individuals with ESI increased in 2017, averaging $5,641 per person over the year [Figure 3].

The 2017 increase of $225 in spending per person [Figure 4] represents growth of 4.2% compared to the previous year [see Figure 5 on page 5 for percent changes]. That increase is consistent with estimates of private health spending in the National Health Expenditure data published by CMS. The increase in spending in 2017 is slightly lower than the $254 rise in spending per-person between 2015 and 2016 (4.9%, revised up from previous report), but higher than the annual increases observed in 2014 and 2015. As described earlier, because we rely on claims data, prescription drug spending reflects point-of-sale prices, which include discounts from the wholesale or list price, but do not account for manufacturer rebates provided in separate transactions.

For most service categories, per-person spending growth slowed in 2017 [Figure 4].

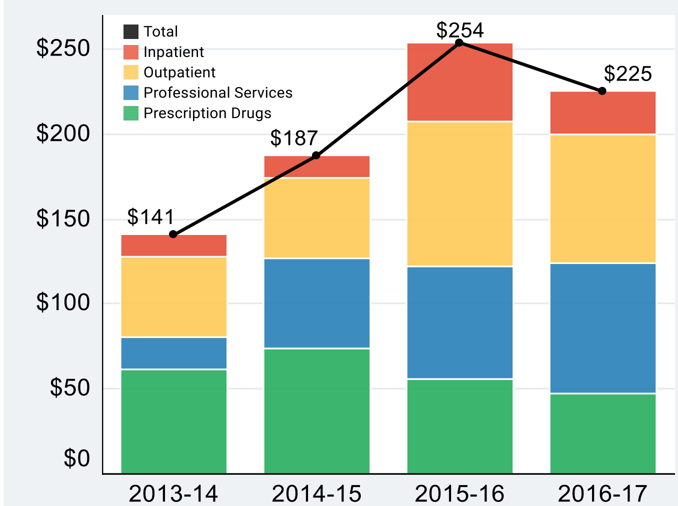
- After increasing $47 (4.6%) in 2016, per-person spending associated with **inpatient** admissions rose $25 (2.4%) in 2017.
- Spending per person on **outpatient** facility visits and procedures grew the fastest of any category, rising 5.1% in 2017, reflecting an increase of $76. But this was still lower than the 2016 rate of 6% (a $85 increase).
- Per-person spending on **prescription drugs** increased $47 in 2017, a growth of 4.7%, the lowest rate observed between 2013 and 2017. This spending does not reflect manufacturer rebates, which may reduce total spending.
- In contrast, per-person spending on **professional services** accelerated in 2017, as well as every other year between 2013 and 2017. In 2017, per-person spending on professional services increased $76 (4.2%). That followed year-over-year growth of $19 (1.1%), $53 (3.1%), and $66 (3.8%) in 2014, 2015, and 2016, respectively.

Figure 3: Annual Spending per Person, 2013-2017



Note: Prescription drug spending is the amount paid on the pharmacy claim, which reflects discounts from the wholesale price, but not manufacturer rebates.

Figure 4: Annual Change in Spending per Person



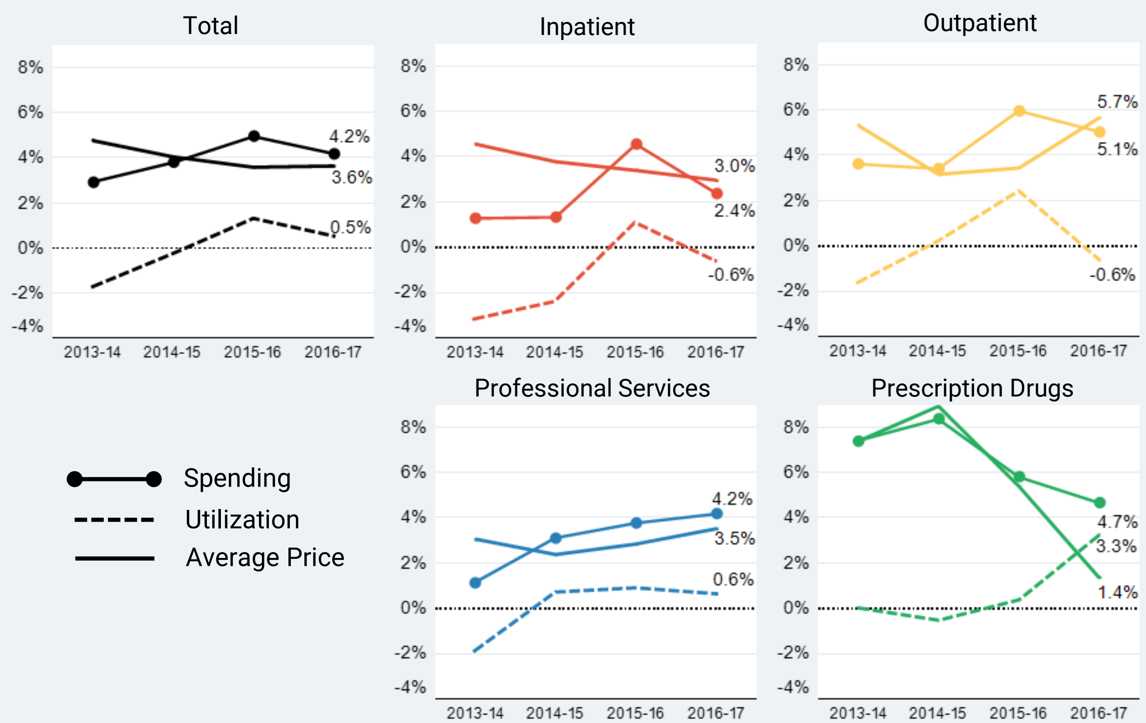
Note: Prescription drug spending is the amount paid on the pharmacy claim, which reflects discounts from the wholesale price, but not manufacturer rebates.

Annual Changes in Utilization and Average Price

Total health care utilization changed little over the five-year period, but trends varied across service categories.
Except for prescription drugs, utilization reflects year-to-year changes in both volume and intensity of the mix of services used (see complete methodology for more information). From 2016 to 2017, total health care utilization increased 0.5% [Figure 5]. However, from 2013 to 2017 total utilization changed little, with increases in 2016 and 2017 offsetting declines between 2013 and 2015 [for cumulative changes see Figure 2 on page 3]. Utilization trends varied across service categories.

- **Inpatient** admissions declined between 2013 and 2015 before leveling off through 2017.
- Declines in **outpatient** facility visits and procedures and **professional services** in the initial part of the period were offset by increases in later years, resulting in little cumulative change between 2013 and 2017.
- The number of filled **prescription** days was relatively flat from 2013 to 2016 before increasing 3.3% in 2017.

Figure 5: Annual Percent Change in Spending Per Person, Utilization, and Average Price



HCCI **Note:** Utilization and average prices account for changes in the type or intensity of services used, with the exception of prescription drugs. Prescription drug spending is the amount paid on the pharmacy claim, which reflects discounts from the wholesale price, but not manufacturer rebates.

Moderated price growth provided some restraint to spending increases in 2017.
Total average prices grew 3.6% in 2017, similar to the growth in 2016, and slower than the annual growth between 2013 and 2015 [Figure 5].

- **Inpatient** prices experienced their lowest growth of the period in 2017 at 3.0%.
- **Outpatient** prices increased 5.7% in 2017, their highest year-over-year growth since 2013.
- **Professional services** prices had their highest price growth in 2017 at 3.5%.
- **Prescription drugs** point-of-sale prices also had their lowest annual growth in 2017, increasing 1.4%.

The overall deceleration in average price growth primarily reflects the much slower growth of prescription drug point-of-sale prices in later years. Prescription drugs are not adjusted for changes in the mix of drugs used. Thus, year-to-year changes in average prices capture both increases in payment for the same drugs, as well as shifts in the mix of drugs used. Changes in mix include the adoption of newly approved novel products, as well as the substitution of generics for brand name drugs after patents expire. The data do not allow the decomposition of spending, use, and price trends by new versus existing products. In January 2019, Hernandez et al published a study in Health Affairs examining the drivers of rising prescription drug costs (based on data for wholesale costs). The authors found that increases in the cost of both new and existing products played a role in wholesale price increases for drugs.

Spending and Health Care Use Differed by Age

Spending per person and spending growth varied widely by age.
The ESI population includes individuals who receive health insurance coverage from their employer, as well as their dependents, such as spouses and eligible children. A quarter of the ESI population was 18 years old or younger in 2017 [Figure 6].

Per-person spending was lowest for the youngest age group and increased with age. In 2017, individuals 18 years old and under had average spending of $3,170. In comparison, those between 55 and 64 years old spent an average of $10,476 in the same year. Over the period, spending per person grew faster for younger age groups [Figure 7].

Differences in the use of health care contributed to differences in per-person spending by age.
Across the entire ESI population, 25.5% of individuals did not have any claims for health care services or prescription drugs in 2017 [Figure 8]. The share varied widely by age group. Among those aged 55 to 64, 15.8% had no claims, compared to 40.4% of individuals between 19 and 25 years old. These statistics reflect claims filed under ESI coverage only. If an individual had no services billed under their ESI coverage, they would be classified as a non-utilizer; non-utilizers may have received health care that did not result in a submitted claim or was covered by a different insurance plan.

Figure 6: 2017 ESI Age Distribution

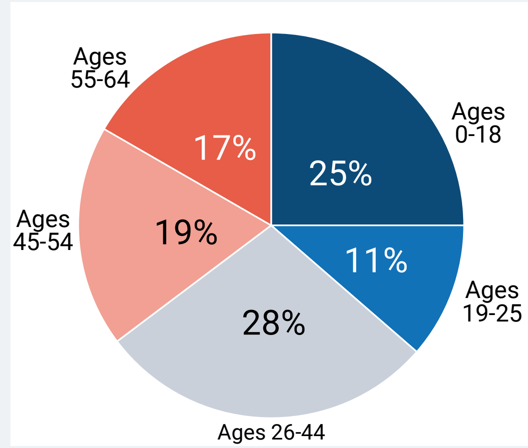


Figure 7: 2017 Spending per Person by Age

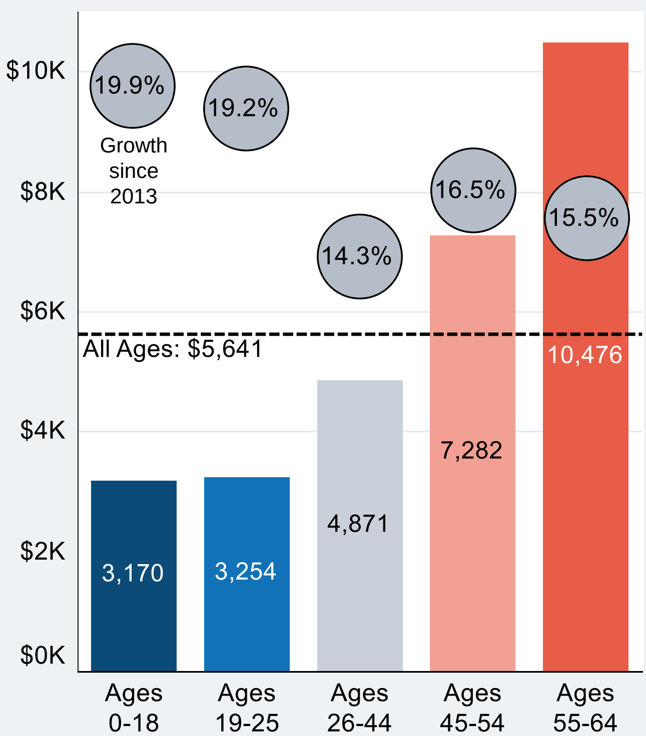
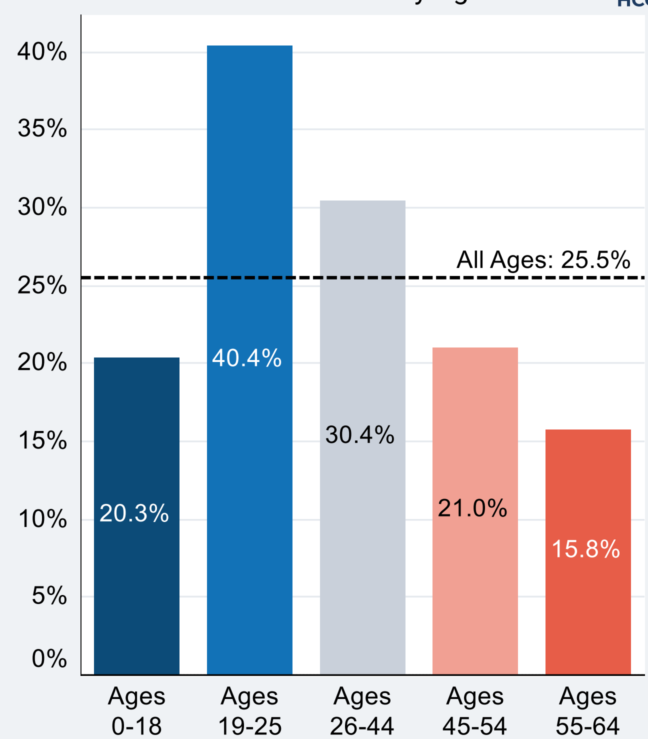


Figure 8: Percent of People with No Health Care Utilization in 2017 by Age



Methods Note
This report is based on medical and pharmacy claims data for 40 million Americans with ESI coverage in each year between 2013 and 2017. These data are weighted to reflect the age, gender, and geographic distribution of the entire ESI population (see methodology document for more detail). Over the period, the share of the ESI population that was in the youngest (18 and under) or oldest (55 to 64) age group increased slightly.

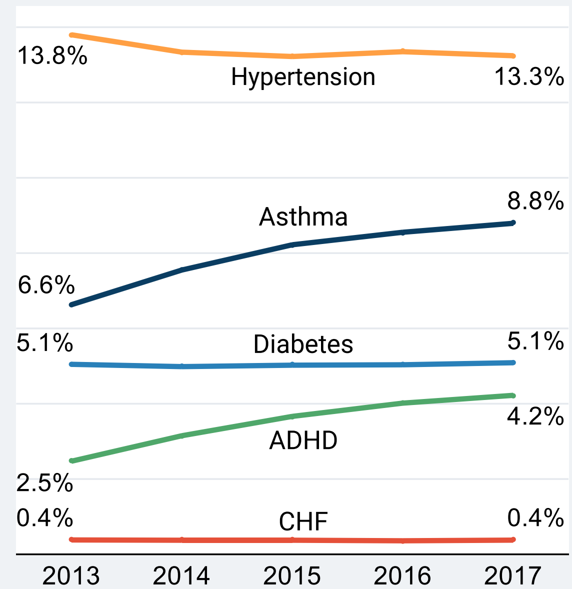
The proportion of the ESI population diagnosed with ADHD and asthma increased, while the share of the ESI population with hypertension declined.

The data indicate whether individuals have been diagnosed with one of five chronic conditions: hypertension, asthma, diabetes, attention-deficit/hyperactivity disorder (ADHD), and congestive heart failure (CHF).

- Between 2013 and 2017, the share of the ESI population diagnosed with **ADHD** increased from 2.5% to 4.2% [Figure 9].
- The proportion diagnosed with **asthma** increased from 6.6% in 2013 to 8.8% in 2017
- Over the same period, the proportion of the ESI population diagnosed in any given year with **hypertension** declined slightly from 13.8% to 13.3%.
- The share of the population diagnosed with **CHF** or **diabetes** remained stable at 0.4% and 5.1% respectively.

Each of these conditions are age-related. Estimates of the proportion of the population diagnosed with each chronic condition are not demographically adjusted, so some of the observed change may be explained by shifts in the age composition of the ESI population over the period.

Figure 9: Proportion of the ESI Population with Select Chronic Conditions



The share of the population diagnosed with at least one of the five selected chronic conditions increased slightly between 2013 and 2017.

In 2017, 19.8% of the ESI population was diagnosed with exactly one of the five conditions, up from 17.9% in 2013 [Figure 10]. The share with two or more diagnoses also increased, rising from 4.9% in 2013 to 5.6% in 2017.

Spending per person was substantially higher for individuals with at least one of the five chronic conditions. Per-person spending for individuals with one diagnosed chronic condition was $8,921 in 2017, compared to $3,603 per person with none. Those with two or more chronic conditions had even higher spending, averaging $20,257 in 2017 [Figure 11].

Figure 10: Proportion of the ESI Population with of Multiple Chronic Conditions

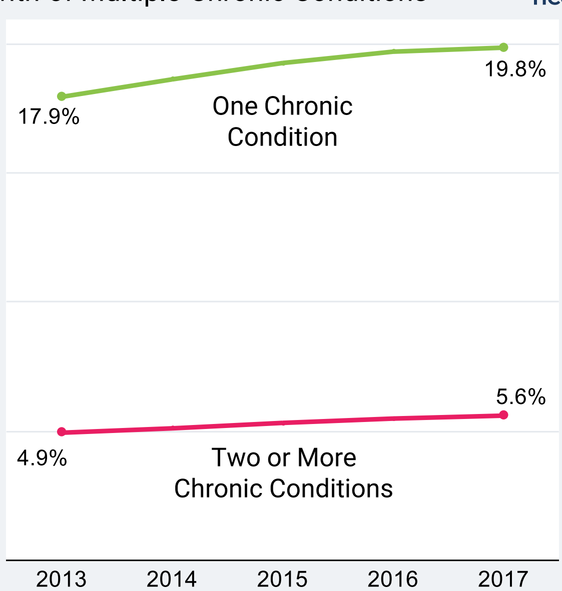
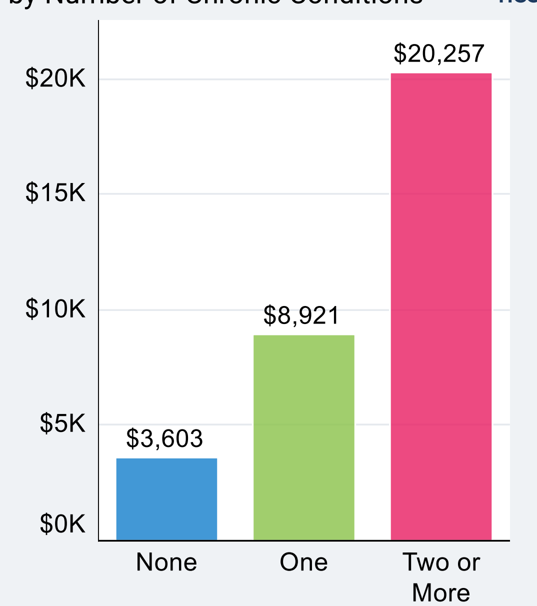


Figure 11: 2017 Spending per Person by Number of Chronic Conditions



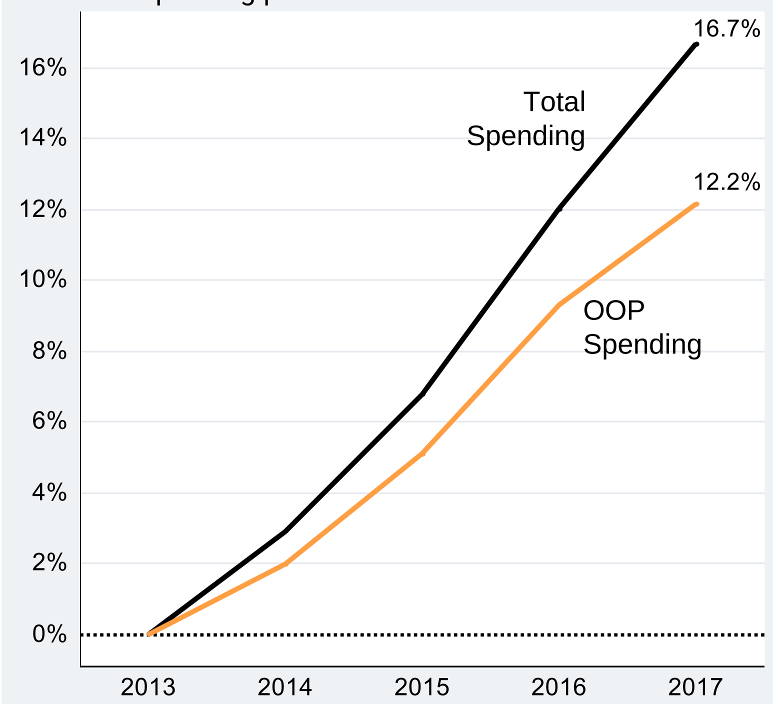
Out-of-pocket (OOP) spending increased steadily, but grew slower than total spending.

Out-of-pocket (OOP) spending includes payments made by patients for health care services and prescription drugs covered by insurance. This spending includes deductibles, co-payments, and co-insurance, but does not reflect coupons or patient assistance programs, which offset patient-cost sharing for some medications and conditions.

Total OOP spending per person rose each year between 2013 and 2017, rising a cumulative 12.2% ($94) over the five-year period [Figure 12]. These estimates do not include premiums paid for insurance coverage, and so do not reflect the full financial costs for individuals with ESI. Over the same period, the Kaiser Family Foundation (KFF) and Health Research & Educational Trust (HRET) 2017 Employer Benefits Survey reports premiums for ESI plans grew 14% for single coverage and 15% for family coverage.

The growth in OOP spending was lower than the growth in total per-person spending in each year [Figure 13]. As a result, the share of spending patients paid out-of-pocket decreased year-over-year in each year from 16.1% in 2013 to 15.4% in 2017 [Figure 14].

Figure 12: Cumulative Change in Out-of-Pocket and Total Spending per Person since 2013



There are several possible explanations for the slower growth in OOP spending compared to total spending. First, since 2013, an increasing share of the ESI population was covered by plans with out-of-pocket maximums. The KFF and HRET reports that the percentage of workers with ESI in a plan with an out-of-pocket maximum for single coverage increased by 11 percentage points from 2012 to 2017. In 2015, 2016, and 2017 that share was 98%. In addition, employers may be changing the plan design offerings to keep pace with spending trends less than in previous years. Information on plan design is not included in the medical and pharmacy claims used in this report.

Figure 13: Annual Percent Change in Out-of-Pocket and Total Spending per Person

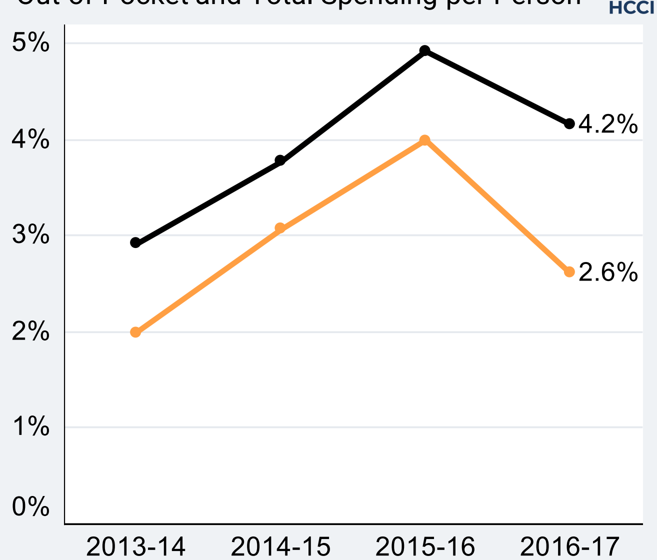
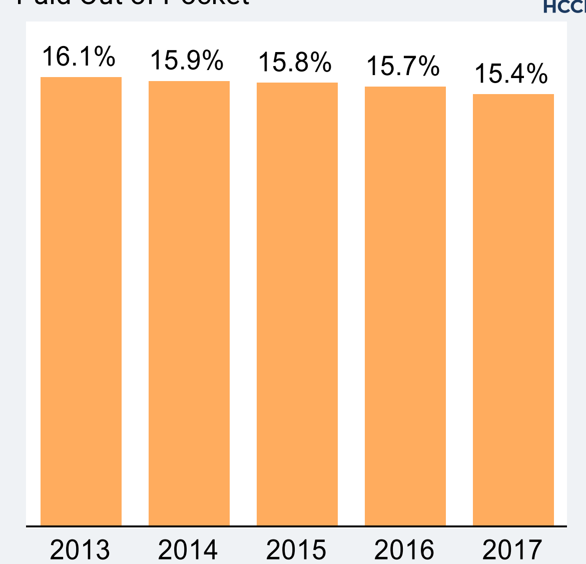


Figure 14: Share of Spending Paid Out of Pocket



Service Category and Subcategory Trends

The health care claims in the underlying data were categorized into four service categories: inpatient facility, outpatient facility, professional services, and prescription drugs. This classification reflects the way claims were processed and paid, and not necessarily how patients interacted with health care providers. In many cases, a single episode of care can have claims in multiple categories. It is also possible that the classification of claims for similar types of episodes vary by provider, or groups of providers, depending on how claims were submitted. Such variation can also occur across years within the same provider. See the accompanying methodology document for further detail.

Year-to-year changes in spending, use, and average price for each service category can reflect changes in the site of service for certain procedures. For example, if mammograms that had previously been performed in a physician's office, and therefore classified as a professional service, are shifted to an outpatient facility, the trends in spending, use, and price for the radiology subcategory in outpatient facility and professional services categories will be affected. These service-level shifts were not examined, but their possibility should be noted when interpreting the findings presented in the remainder of this report.

As stated before, prescription drug spending includes the amount paid for pharmacy claims. These point-of-sale prices reflect discounts from the wholesale or list prices of prescription drugs, but do not account for manufacturer rebates that occur in separate transactions.

Inpatient

Outpatient

Professional Services

Prescription Drugs

Inpatient Spending Trends

Between 2013 and 2017, per-person spending on inpatient admissions grew 10%, increasing $98 per person [Figure 16, see Figure 18 on page 11 for cumulative percent changes].

Total per-person spending on inpatient admissions was $1,097 in 2017 compared to $999 in 2013. Nearly half of the cumulative spending increase over the period occurred in 2016, when spending per person rose $47 [Figure 17]. Compared to the sharp increase in 2016, growth tapered off slightly in 2017, but remained higher than in the beginning of the period. The change from 2016 to 2017 ($26) was similar to the cumulative change between 2013 and 2015 ($25).

Figure 16: Cumulative Change in Inpatient Spending per Person since 2013

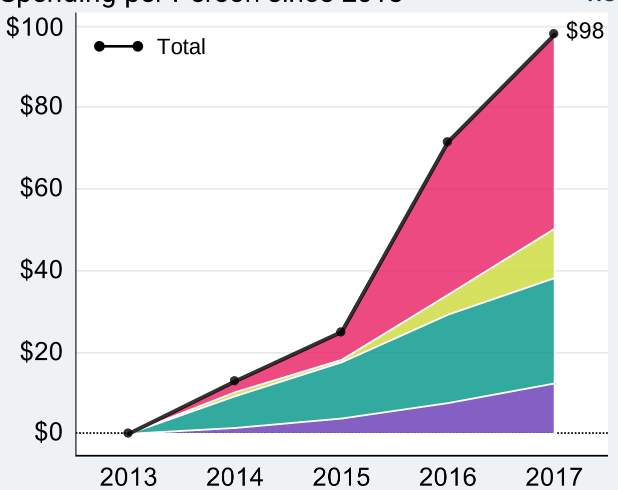


Figure 17: Annual Change in Inpatient Spending per Person

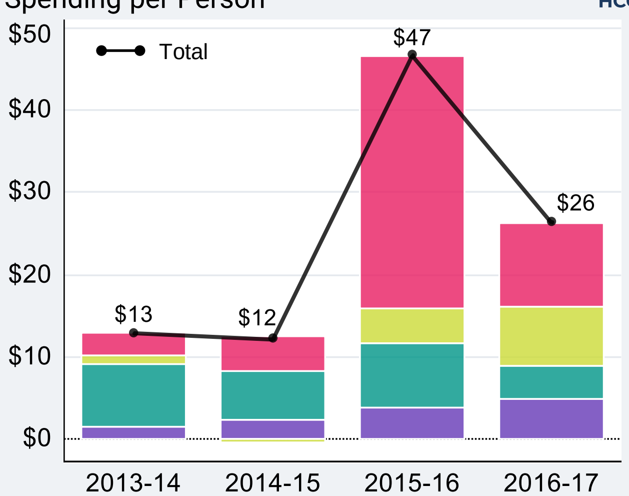
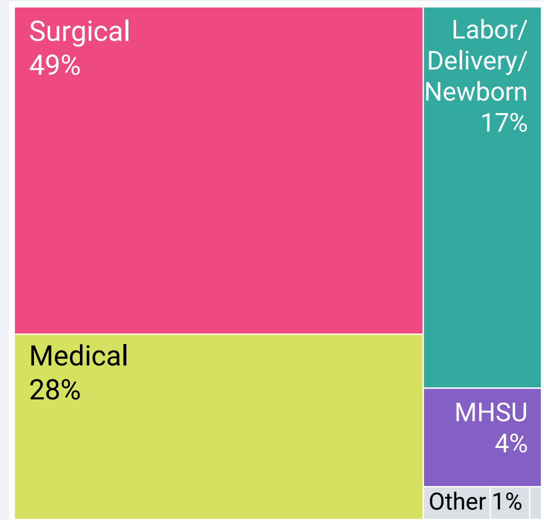


Figure 15: Share of 2017 Inpatient Spending by Service Subcategory



Surgical admissions accounted for highest share of inpatient spending and spending growth.

Per-person spending on **surgical admissions** accounted for 49% of inpatient spending in 2017 [Figure 15]. Spending on surgical admissions increased more than any other inpatient subcategory between 2013 and 2017, with much of the spending growth occurring between 2015 and 2016. While the increase in spending on surgical admissions per person in 2017 was larger than any other inpatient subcategory, it was substantially less than the increase in 2016. This deceleration contributed to the lower total inpatient spending growth in 2017 compared to 2016.

Medical admissions represented 28% of inpatient spending and had the second-largest increase in per-person spending in 2017. After remaining relatively flat between 2013 and 2015, spending on medical admissions accelerated in 2016 and 2017. Over the five-year period, per-person spending on medical inpatient admissions grew 4%, with most of that increase occurring in the last two years [Figure 17].

Labor/delivery/newborn spending per person increased steadily throughout the period and had the second largest cumulative growth ($26) [Figure 16]. Finally, spending on **mental health and substance use admissions (MHSU)** increased faster than other sub-categories between 2013 to 2017, but still accounted for a relatively small share of total spending in 2017 (4%) [see page 12 for more detail].

Contribution of utilization and average prices to overall spending varied across types of inpatient admissions.

Total inpatient utilization fell 5% between 2013 and 2017 [Figure 18]. The change was driven by declines in surgical and medical admissions. The number of labor/delivery/newborn and mental health and substance use admissions rose between 2013 and 2017, but these subcategories account for a smaller share of all inpatient admissions.

Overall price, or average spending per inpatient admission, increased 16% between 2013 and 2017 [Figure 18]. That increase reflects average price increases in each of the four subcategories of inpatient admissions.

Figure 18: Cumulative Change in Inpatient Spending per Person, Utilization, and Average Price since 2013

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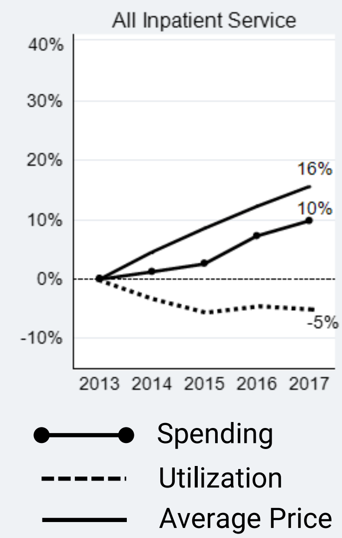
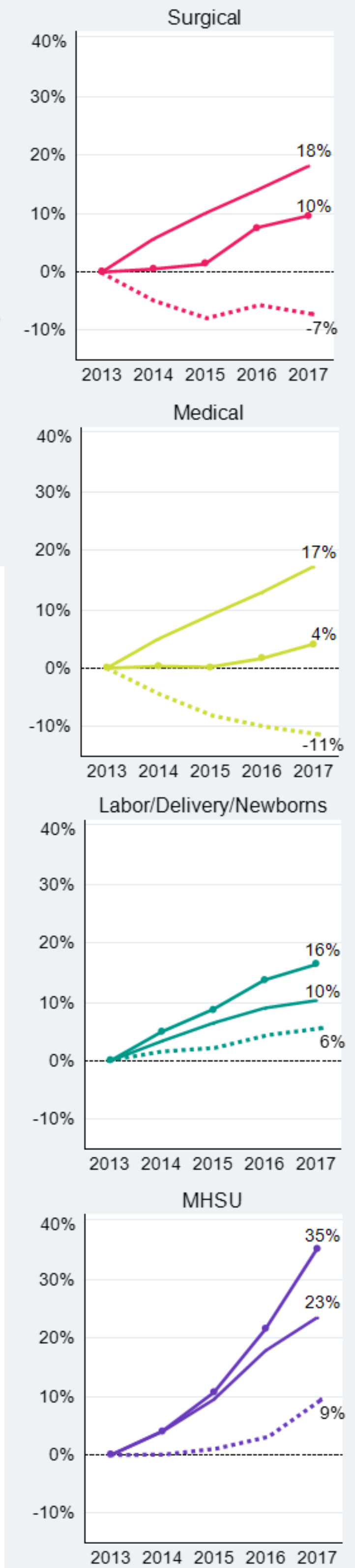




Surgical admissions:

- Utilization fell steadily between 2013 and 2015, before leveling off in the last two years of the period, for a cumulative decline of 7%.
- The average price of surgical admissions increased over the five-year-period, rising a cumulative 18%.
- In the first years of the period, declining utilization partially offset increases in price. Steady utilization in later years, combined with average prices that continued to increase led to larger changes in spending per person for surgical admissions. This was especially true in 2016.

Medical admissions:

- Utilization of medical admissions declined a total of 11% between 2013 and 2017. The decline in utilization of medical admissions was greater in earlier years of the period.
- The average price of a medical admission increased 17% between 2013 and 2017.

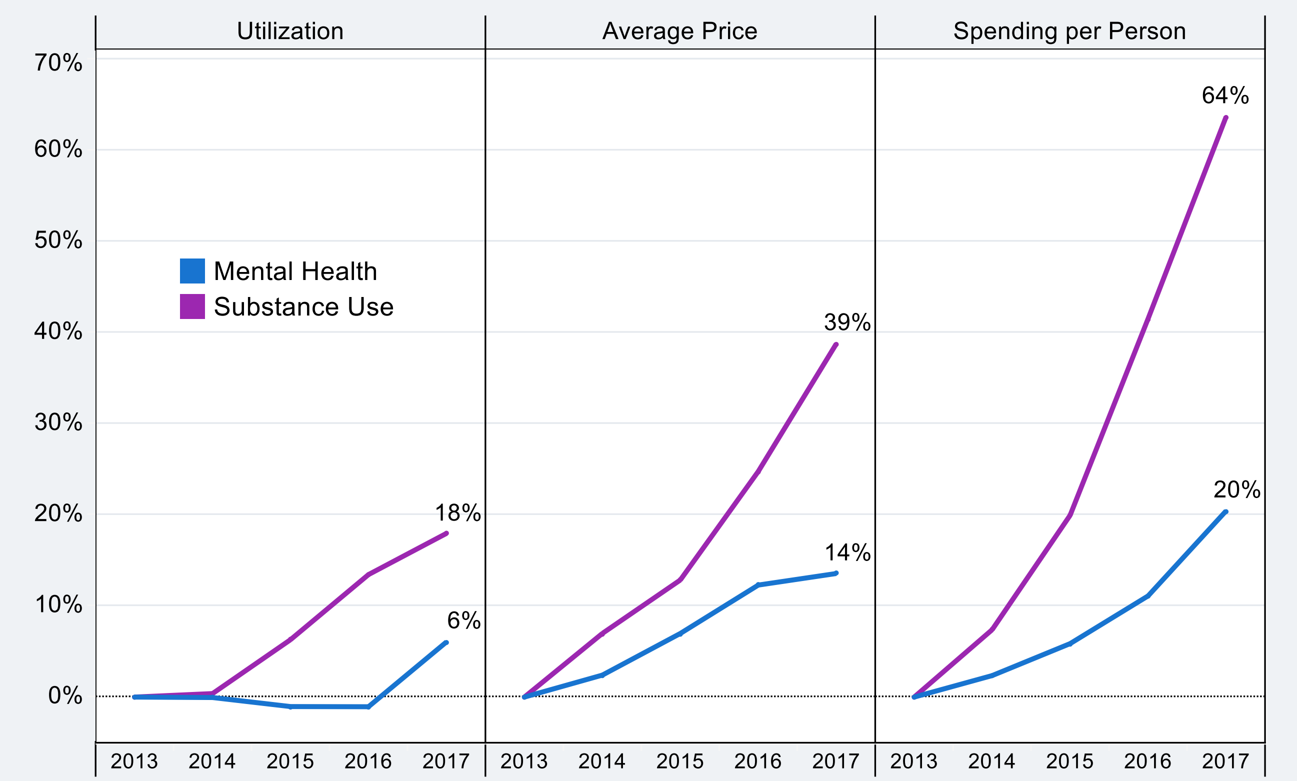
Labor/delivery/newborn admissions:

- Increases in both utilization and average prices contributed to growing spending on labor/delivery/newborn admissions.
- Utilization rose steadily, rising a cumulative 6%.
- The 10% increase in the average price of labor/delivery/newborn admissions was slower than the average price growth for the other subcategories between 2013 and 2017 .

Mental health and substance use (MHSU) admissions:

- Utilization of MHSU admissions was flat between 2013 and 2014, increased modestly between 2014 and 2016, and rose sharply in 2017. The total increase was 9% over the period .
- Year-over-year increases in the average price of mental health and substance use admissions tracked the other subcategories of inpatient admissions between 2013 and 2015. From 2015 to 2017, average prices rose more sharply, resulting in a cumulative increase of 23%, the largest in percentage terms of any subcategory.

Figure 19: Cumulative Change in Mental Health and Substance Use (MHSU) Spending per Person, Utilization, and Average Price since 2013



Spending, use, and average prices of inpatient admissions for mental health and substance use increased steadily between 2013 and 2017, but substance use admissions experienced greater growth.

Utilization of mental health and substance use admissions had the largest percentage increase over the five-year period. The growth was concentrated in the 2015 to 2017 period.

This subcategory combines two kinds of admissions for which the resources required are potentially very different – mental health and substance use. The overall use trends for this subcategory are driven by changes in substance use inpatient admissions; however, both types of admissions increased between 2016 and 2017 [Figure 19].

- **Substance use** admissions increased 18% between 2013 and 2017.
- **Mental health** admissions were flat between 2013 and 2016, before rising over 6% in 2017.

In addition, the average price (or spending per admission related to substance use) grew faster than the price of mental health admissions throughout the five-year period, accelerating even more between 2015 and 2017 [Figure 19].

- Overall, the average price of **substance use** admissions increased 39% from 2013 to 2017.
- The price of **mental health** admissions increased 14% over the period.

Outpatient Spending Trends

Spending on outpatient visits and procedures grew faster than other service categories.

Per-person spending on outpatient visits and procedures rose 5.1% in 2017. That rate of growth was the highest of any of the four service categories for the second year in a row. Outpatient spending also increased faster than spending on inpatient admissions or professional procedures between 2013 and 2015.

Outpatient surgery and **emergency room (ER)** visits accounted for the majority of outpatient spending, 36% and 24% respectively [Figure 20]. These subcategories also saw the largest growth, both year-over-year and cumulatively throughout the five-year period [Figures 21 and 22]. Outpatient surgery and ER visits represented 60% of outpatient spending in 2017 and 66% of the increase in per-person spending between 2013 and 2017.

Among outpatient procedures, **radiology** spending grew faster than other subcategories of procedures throughout the entire period; the cumulative rise between 2013 and 2017 was 10% [Figure 26 on page 15].

Figure 20: Share of 2017 Outpatient Spending by Service Subcategory

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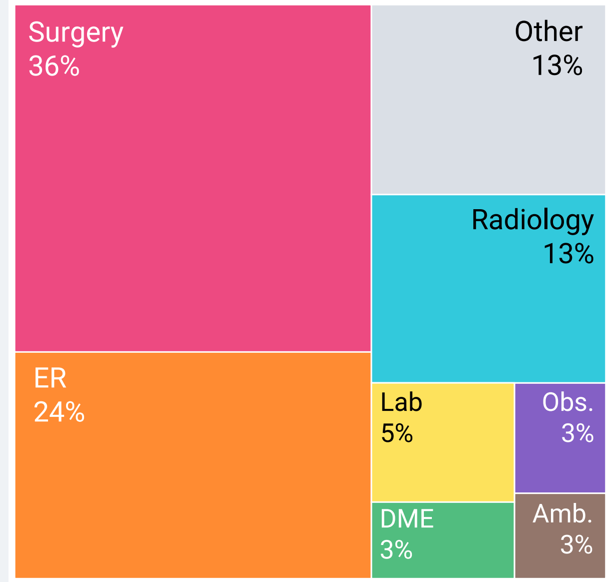

Figure 21: Cumulative Change in Outpatient Spending per Person since 2013

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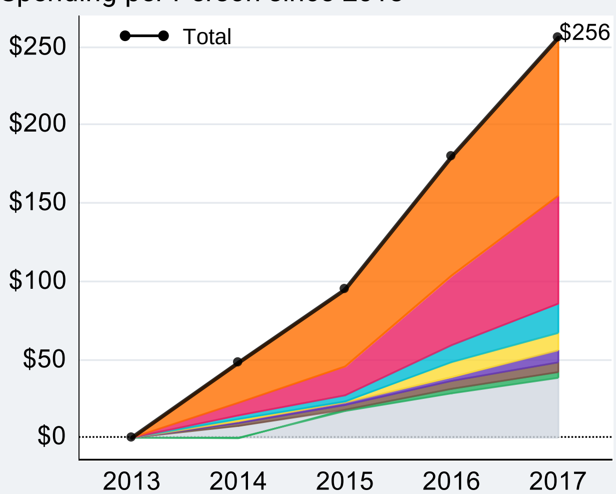

Figure 22: Annual Change in Outpatient Spending per Person

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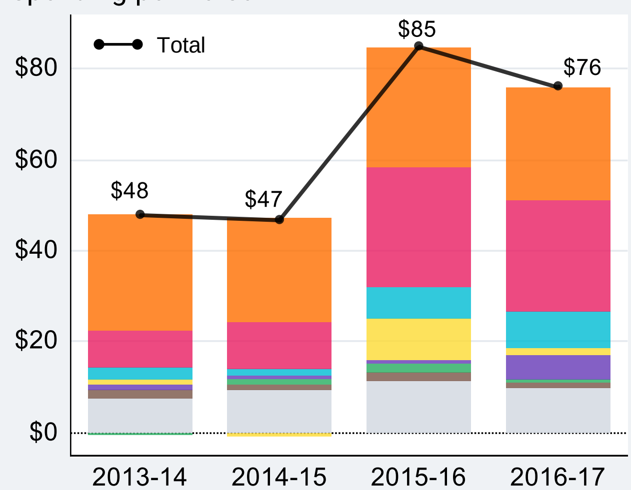


Methods Note

The unit of observation for the outpatient category depended on the site of service, as well as the set of services. Outpatient visits included those services provided in the emergency room, under observation status, as part of a surgery, or during an ambulance ride. In these cases, services on all individual claim lines were aggregated to a single visit. All other services provided by an outpatient facility were counted as individual procedures, and included radiology, laboratory/pathology, and durable medical equipment claims.

Outpatient Visit Trends

The roles of utilization and average prices in driving spending growth varied by type of visit.

All sub-categories of spending on outpatient visits grew steadily between 2013 and 2017. Trends in utilization varied substantially, while prices rose for all sub-categories of visits [Figure 24].

Outpatient surgery visits:

- Use of outpatient surgeries declined slightly between 2013 and 2014, then remained relatively constant through 2017 [Figure 23].
- Consistent growth in average prices drove year-over-year spending growth that totaled 14% between 2013 and 2017 [Figure 24].

Emergency room visits:

- Throughout the five-year period, spending on emergency room visits grew steadily, rising a cumulative 36% between 2013 and 2017 [Figure 24].
- The increase in spending was primarily driven by growth in average prices, which rose 24%, and to a lesser extent growth in utilization, which increased 10%.
- ER visits were the only type of outpatient visits to have increases in utilization every year between 2013 and 2017 [Figure 23].

Observation visits:

- Spending on outpatient observation visits increased 6% cumulatively between 2013 and 2016, before jumping 13% in 2017, which resulted in 20% spending growth between 2013 and 2017 [Figure 24].
- The sharp increase in 2017 reflects upticks in both use and average price.

Ambulance:

- Spending on ambulance services increased 21% from 2013 to 2017, while utilization remained relatively unchanged.

Figure 24: Cumulative Change in Outpatient Visit Spending per Person, Utilization, and Average Price since 2013

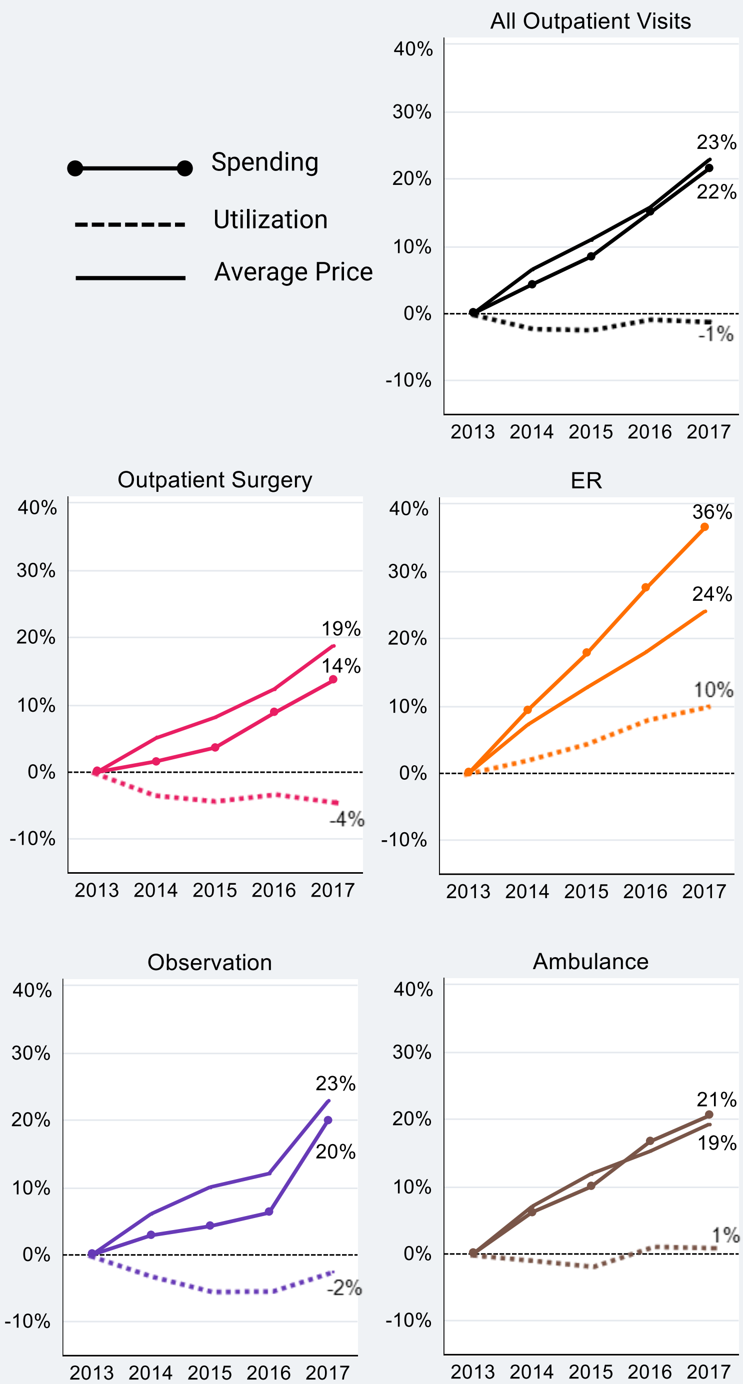
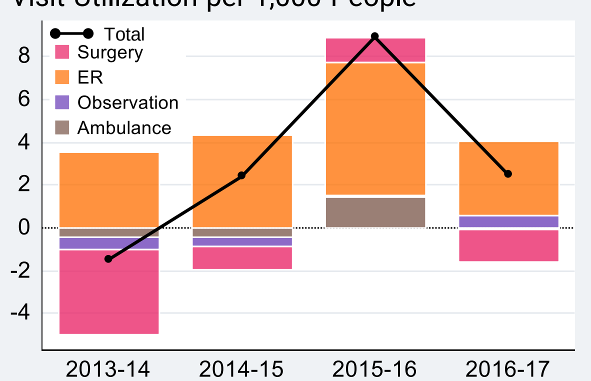


Figure 23: Annual Change in Outpatient Visit Utilization per 1,000 People



Utilization and average price trends varied by outpatient procedure subcategory.

Radiology procedures:

- Between 2013 and 2017, spending on outpatient radiology increased 10% [Figure 26].
- Utilization and prices moved in opposite directions throughout the period, diverging especially sharply in 2017. That divergence coincides with a change in the service-level codes for mammography screening and diagnostics. Beginning January 1, 2017, five codes associated with mammography with computer-aided detection were condensed into three codes, as noted in Radiology Today. This resulted in fewer procedures, and a higher average price (which measures spending per procedure).

Laboratory/pathology:

- Per-person spending on outpatient laboratory/pathology rose 16% from 2013 to 2017 [Figure 26].
- Utilization of outpatient laboratory and pathology increased 15% between 2013 and 2017, the largest cumulative increase in utilization of any outpatient procedure subcategory.
- Average price growth varied year-over-year, increasing a cumulative 2% by 2017.

Durable medical equipment (DME):

- Spending per person on durable medical equipment increased 8% between 2013 and 2017, the smallest change in spending for any outpatient procedure subcategory.
- Increases in utilization between 2015 and 2016 drove this overall change.

Figure 25: Annual Change in Outpatient Procedure Utilization per 1,000 People

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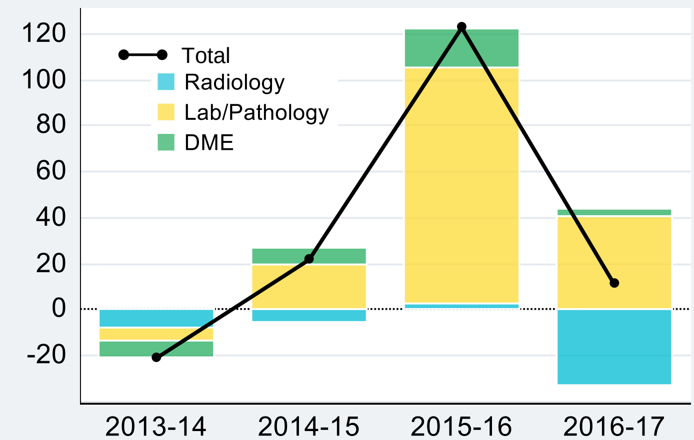

Figure 26: Cumulative Change in Outpatient Procedure Spending per Person, Utilization, and Average Price since 2013

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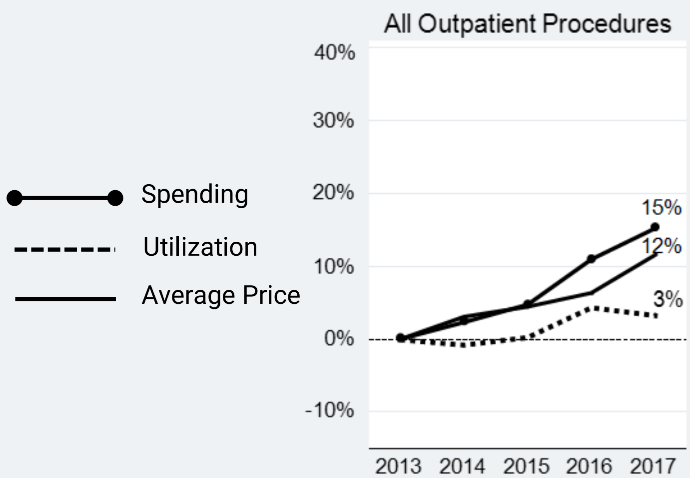
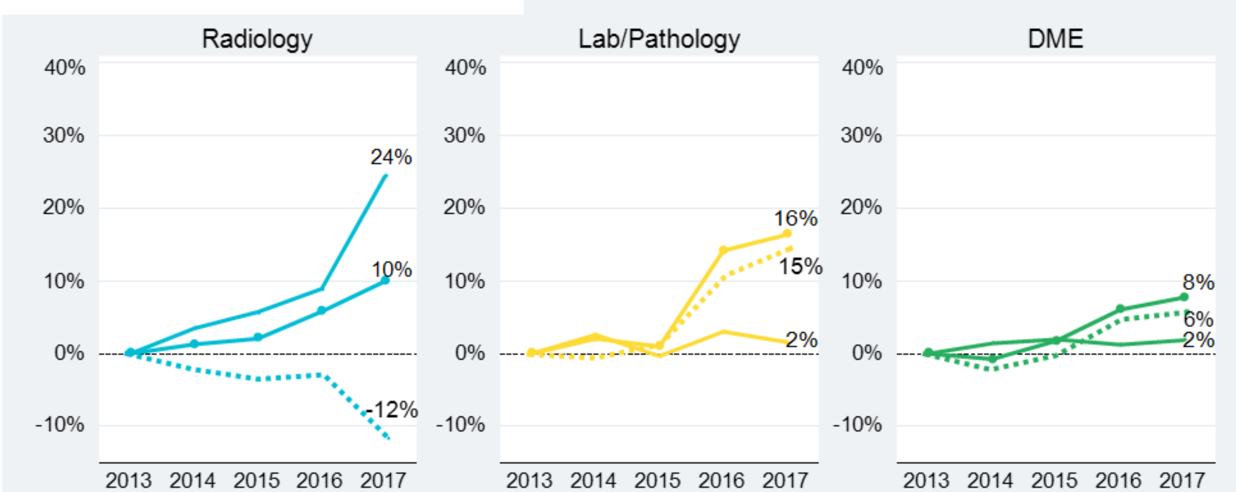




Spending on professional services accelerated steadily.

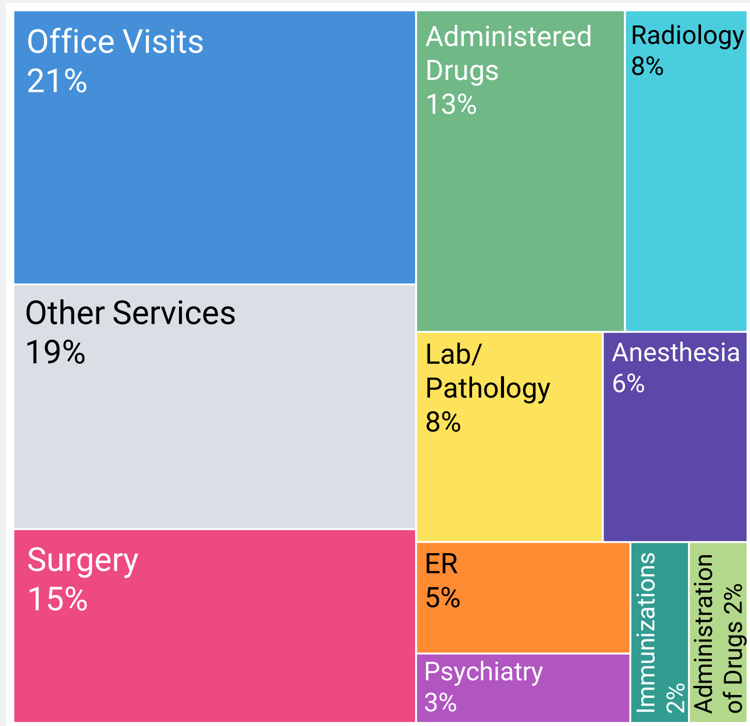
Per-person spending on professional services increased 13% ($214) between 2013 and 2017 [Figure 28]. The year-over-year change grew in each year of the period, rising from an increase of $19 in 2013 to an increase of $76 in 2017 [Figure 29]. Office visits and administered drugs, which represent two of the three largest professional services subcategories, accounted for more than half the cumulative increase over the period.

Office visits were largest category of professional spending.

In every year between 2013 and 2017, office visits accounted for the largest share of professional services spending. In 2017, office visits represented 21% of the total per-person spending [Figure 27]. The year-over-year increase in spending per person on office visits grew steadily, rising an average of $9 a year between 2013 and 2017 [Figure 28].

Administered drugs accounted for an increasing share of professional services spending

Figure 27: Share of 2017 Professional Services Spending by Subcategory



In each year between 2013 and 2017, spending on administered drugs grew at a faster rate than any other professional services subcategory. This includes the amount paid for chemotherapy agents and other drugs administered by a physician. The year-over-year change grew over the period. Between 2013 and 2014 the increase in spending per person on administered drugs increased $7. Between 2016 and 2017 the increase had grown to $27 [Figure 29].

Figure 28: Cumulative Change in Professional Services Spending per Person since 2013

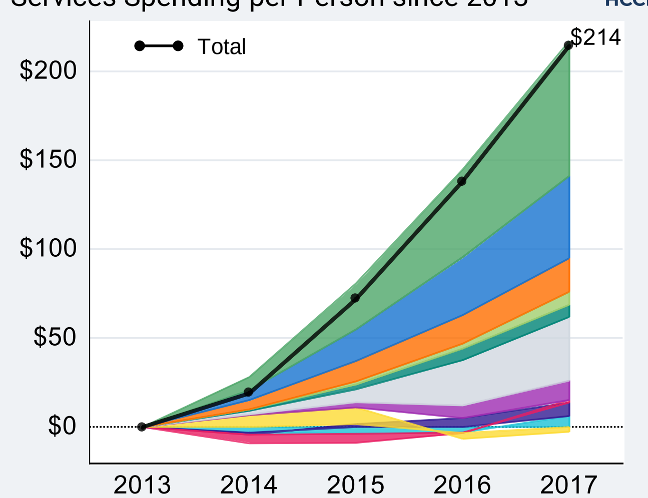
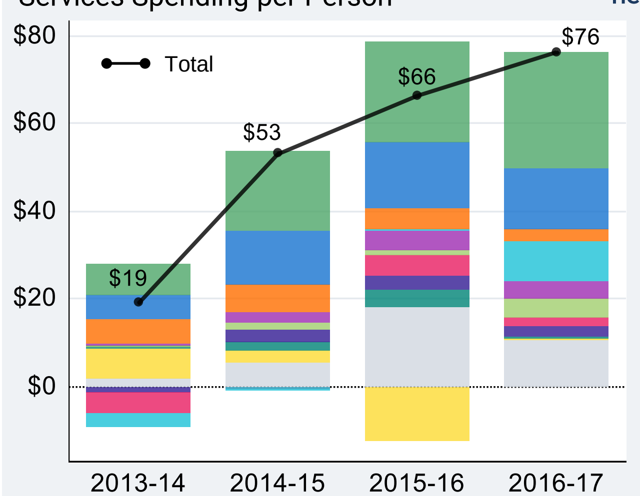
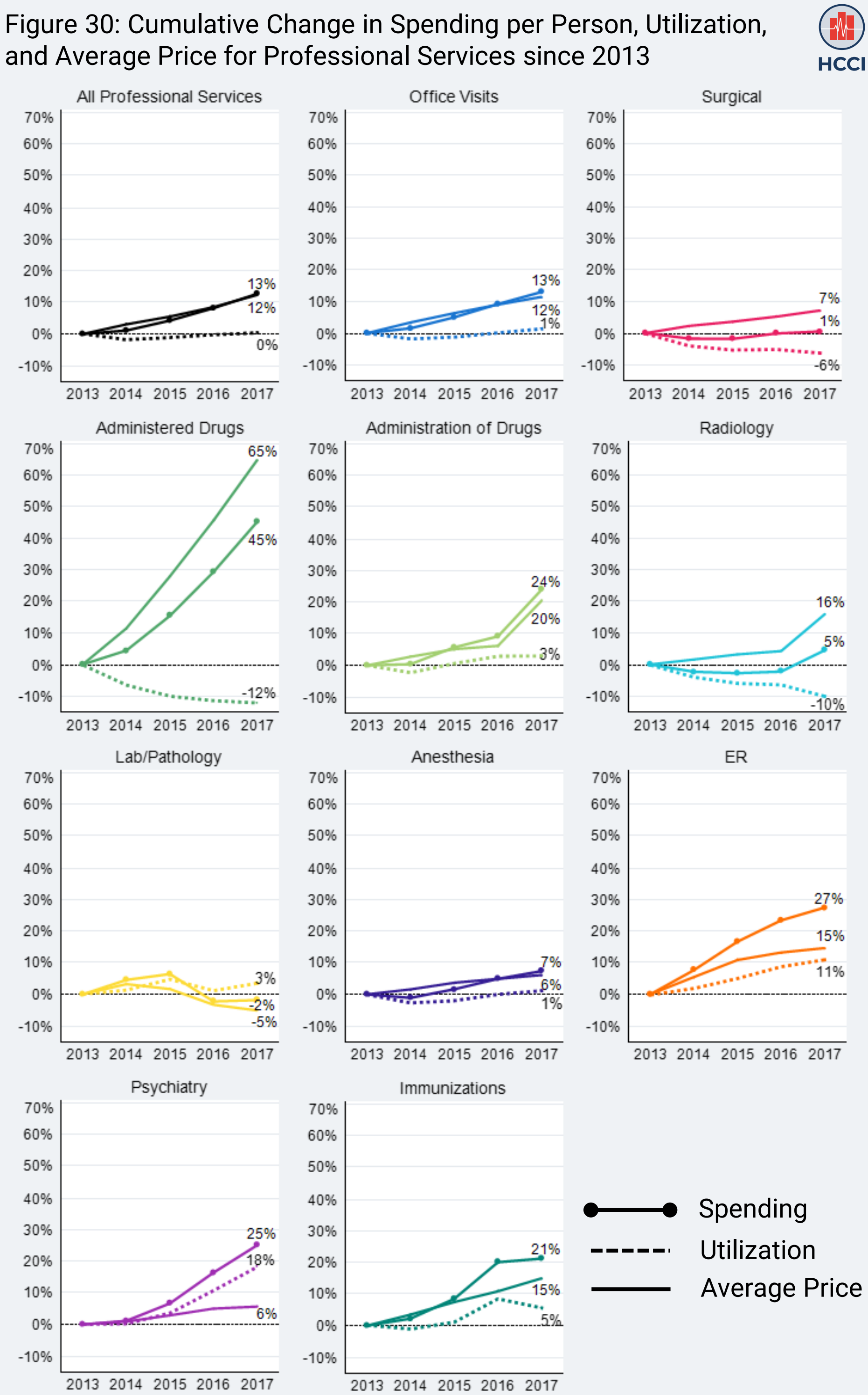


Figure 29: Annual Change in Professional Services Spending per Person



Professional Services Utilization and Average Price Trends

Figure 30: Cumulative Change in Spending per Person, Utilization, and Average Price for Professional Services since 2013



Rising prices drove spending increase

Utilization of professional procedures was flat overall, though changes varied substantially by subcategory of service over the five-year period. The average price for services in each subcategory increased across all subcategories except laboratory/pathology.

Administered drugs had the highest price growth, with the average price for all drugs in the subcategory rising 65% between 2013 and 2017 [Figure 30].

Psychiatry:
The utilization of psychiatry services rose by 18% between 2013 and 2017. Use was flat between 2013 and 2014, ticked up slightly in 2015, and then accelerated in the last two years of the period. This increase is approximately three times the growth in prices over the same period, which increased a cumulative 6% by 2017. Total spending rose 25%.

Radiology:
As noted in the outpatient procedures section, there were coding changes to mammography screening and diagnostic studies using computer aided detection. The number of codes was consolidated from 5 to 3 beginning in January 2017, as reported in Radiology Today. This resulted in fewer procedures in 2017. The price per procedure increases, as the newly coded procedures incorporated broader services.

Prescription Drug Spending

Per-person spending on prescription drugs, based on payments at point-of-sale, totaled $1,065 in 2017, of which $807 was spent on brand prescriptions and $246 on generics [Figure 31].

In 2017, spending on prescription drugs and medical devices obtained at pharmacies was 29% higher than in 2013 [Figure 32]. The increase in spending includes increases in expenditures for the same drugs, as well as increases in expenditures that result from the adoption of newly approved medications.

The trends in per-person spending were not uniform across all subcategories of prescription drugs [Figure 32 on page 19].

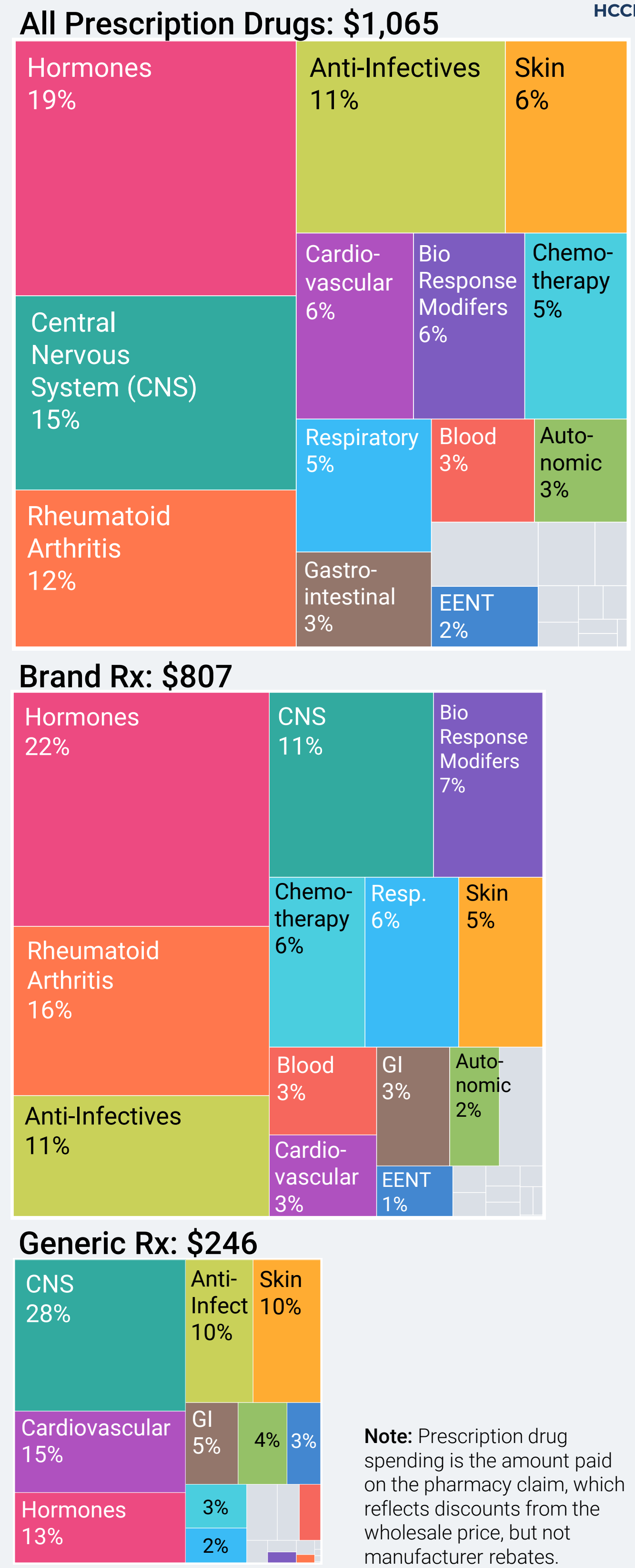
- Spending declined for **cardiovascular** (-34%), **central nervous system (CNS)** (-11%), **gastrointestinal (GI)** (-12%), and **ears, eyes, nose, and throat (EENT)** (-15%) prescription drugs.
- Notable spending increases occurred between 2013 and 2017 for **hormones** (55%), **rheumatoid arthritis** (156%), **skin** (70%), and **chemotherapy/antineoplastic agents** (95%) prescription drugs.

Further, these estimates reflect amounts paid at time of purchase, and therefore, do not include manufacturer rebates. Recent analyses by the Department of Health and Human Services Office of the Inspector General and Medicare Trustees of the effect of rebates in the Medicare Part D program found that rebates offset approximately 20% of spending increases from 2011 to 2015 and accounted for between 11.7% (2012) and 19.9% (2016) of total drug costs. The Prescription Drug Cost Transparency Report published by the California Department of Managed Health Care reports that manufacturer rebates totaled just over 10% of prescription drug spending for commercial health plans regulated by the state in both 2016 and 2017.

Methods Note:
These estimates do not reflect manufacturer rebates, coupons, or other discount programs, because those data are not available. They do, however, include negotiated discounts from the wholesale or "list" price, and are the amounts that appear on the pharmacy claim. Thus, the term, "point-of-sale" price is used to describe the spending per filled day. Any additional manufacturer rebates occur through separate transactions. The degree to which rebates offset point-of-sale spending varies across types of drugs, as well as across specific products, depending on details of the negotiations between manufacturers and pharmacy benefit managers (PBM). Further, how the value of the rebates is distributed across PBMs, insurers, and consumers also varies. Information on these aspects of manufacturer rebates are not available in pharmacy claims data. The change in point-of-sale prices estimated in this report reflects a combination of higher point-of-sale prices for the same drugs and shifts in use to more expensive products, including those introduced during the period.

Additionally, not all drugs are dispensed by retail and mail-in pharmacies. Certain drugs are administered by physicians or other health care providers in outpatient facilities or doctor's offices and are included in the "Administered Drug" subcategory of Professional Services.

Figure 31: Share of 2017 Prescription Spending



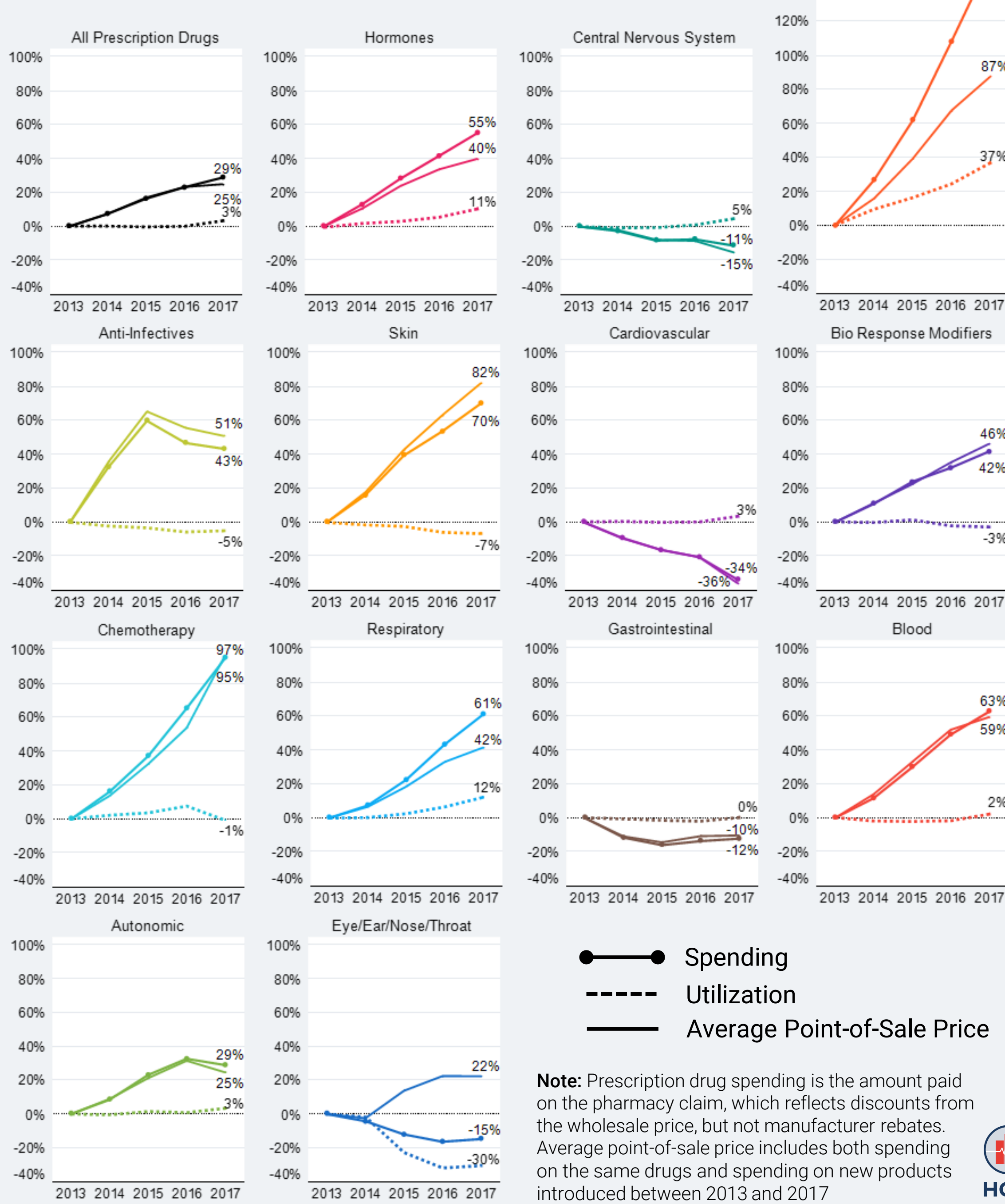
Note: Prescription drug spending is the amount paid on the pharmacy claim, which reflects discounts from the wholesale price, but not manufacturer rebates.

Prescription Drug Utilization and Average Price Trends

Utilization, the number of filled days per person, was constant throughout most of the period, but rose 3.3% in 2017. Some subcategories showed different trends. From 2013 to 2017, the use of **rheumatoid arthritis** drugs increased 37%, while use of **EENT** drugs declined 30% [Figure 32]. Some of the change in utilization may reflect the transition from requiring a prescription, to being available over-the-counter. For example, the decline in EENT drug use coincides with availability of over-the-counter Flonase®.

The average point-of-sale price per filled day across all prescriptions rose 25% between 2013 and 2017. The slower growth in recent years is partly explained by a shift in utilization from brand to generic drugs that have lower point-of-sale prices per filled day. This was particularly notably in the subcategories **cardiovascular** and **central nervous system**, which had average point-of-sale price declines of 36% and 15% respectively. Both of these subcategories contain commonly prescribed brand drugs that went off patent during the period.

Figure 32: Cumulative Change in Prescription Drug Spending per Person, Utilization, and Average Point-of-Sale Price since 2013



Note: Prescription drug spending is the amount paid on the pharmacy claim, which reflects discounts from the wholesale price, but not manufacturer rebates. Average point-of-sale price includes both spending on the same drugs and spending on new products introduced between 2013 and 2017

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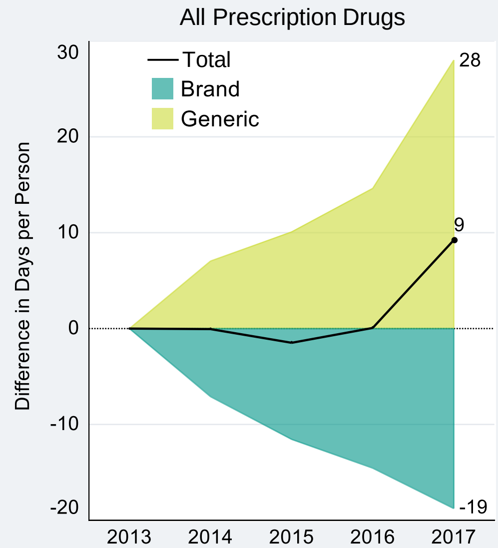
Utilization of Brand and Generic Prescription Drugs

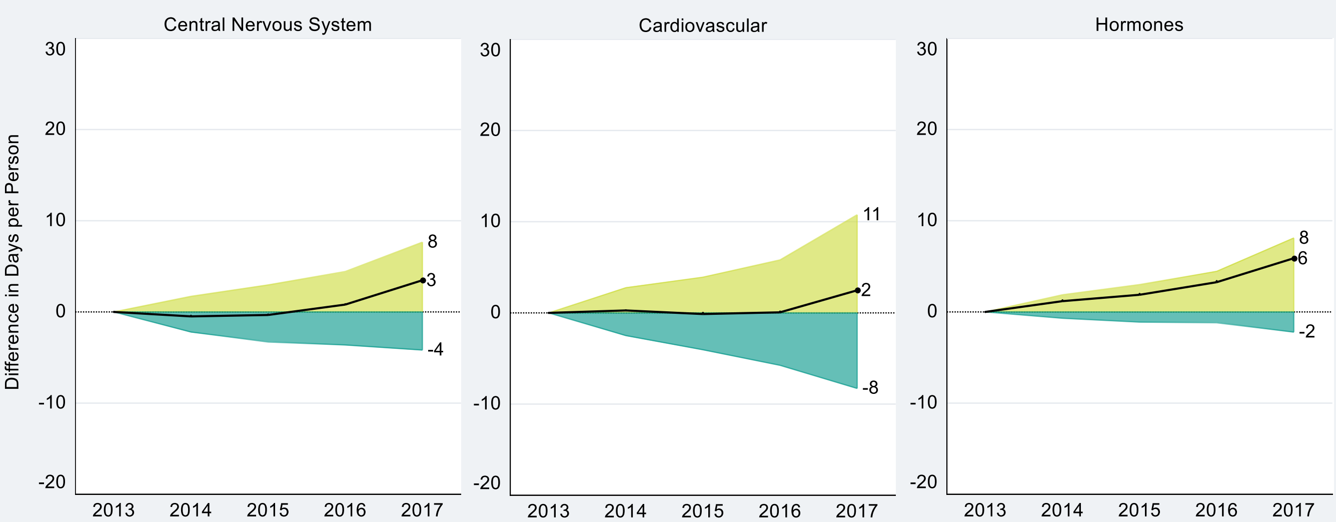
The increase in the utilization of prescription drugs was driven by an increase in the number of filled-days covered by generic prescriptions

In 2017, the number of days per person covered by a filled prescription was 9 more (3%) than in 2013. Over that period, the increase in the number of days covered by generic drugs more than offset the decrease in number of days covered by brand drugs. Between 2013 and 2017, the cumulative change was 28 more days per person covered by generics and 19 fewer day per person covered by brands.

The utilization trend was consistent among the three most commonly prescribed categories of drugs – central nervous system (CNS), cardiovascular, and hormones. Overall utilization rose for each of these categories, with increases in generic use more than offsetting declines in brand use, particularly in 2017. The total increase in number of days filled per person rose by 3 days (5%) for CNS drugs, 2 days (3%) for cardiovascular, and 6 days (11%) for hormones.

Figure 33: Cumulative Change in Days-Filled of Brand and Generic Prescription Drugs since 2013





Methods Note:

Utilization of prescription drugs is measured as the number of days per person covered by prescriptions filled at pharmacies (including mail in) during the year. Changes in utilization can reflect one of several underlying changes in the composition of those prescriptions:

- A change in the number of people who filled any prescriptions during the year. This would occur when there is a change in the prevalence of chronic conditions or a change in the occurrence of acute conditions that require medication (for example, a particularly bad year for strep throat would increase the number of people with an antibiotic prescription in that year).
- A change in the number of prescriptions each person fills. This would occur when the number of chronic conditions per person changes (co morbidities become more or less common) or the severity of particular conditions changes on average. In addition, changes in the use of combination therapies (which combine multiple medications into a single pill, thereby reducing the number of prescriptions required) would have an effect.
- A change in the duration of the prescriptions filled.

See Our Related Work:

Interactive State Tool

Complete Methodology

Appendix Tables

Downloadable Data

HCCI Service Category Crosswalk

Previous Health Care Cost and Utilization Reports

Works Referenced in the *2017 Health Care Cost and Utilization Report:*

1. Centers for Medicare and Medicaid Services, "National Health Expenditure Data Tables," December 6, 2018

2. Hernandez et al. “The Contribution of New Product Entry Versus Existing Product Inflation in the Rising Costs of New Drugs,” Health Affairs, 38:1, January 2019.

3. Kaiser Family Foundation and Health Research & Educational Trust, “2017 Employer Health Benefits Survey.” http://files.kff.org/attachment/Report-Employer-Health-Benefits-Annual-Survey-2017

4. Aubry, Barbara and John Verhovshek, “Billing and Coding: BPT 2017 Updates Mammography Codes, but CMS Does Not,” Radiology Today, Vol. 18, No. 5, p. 6, available at: https://www.radiologytoday.net/archive/rt0517p6.shtml

5. U.S. Department of Health & Human Services Office of the Inspector General, “Increases in Reimbursement for Brand-Name Drugs in Part D.”

6. The Board of Trustees, Federal Hospital Insurance and Federal Supplementary Medical Insurance Trust Funds, “2018 Annual Report of the Board of Trustees of Federal Hospital Insurance and Federal Supplementary Medical Insurance Trust Funds.” June 5, 2018.

7. Department of Managed Health Care, State of California, “Prescription Drug Cost Transparency Report, Measurement Year 2017,” December 2018.

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February 6, 2019

Impact of the Administration's Policies Affecting the Affordable Care Act

Testimony of Aviva Aron-Dine, Vice President for Health Policy, Before the House Appropriations Subcommittee on Labor, Health and Human Services, Education, and Related Agencies

Chairwoman DeLauro, Ranking Member Cole, and members of the committee, thank you for the opportunity to testify before you today. My name is Aviva Aron-Dine. I am the Vice President for Health Policy at the Center on Budget and Policy Priorities, a non-profit, non-partisan policy institute located here in Washington. The Center conducts research and analysis on a range of federal and state policy issues affecting low- and moderate-income families. Previously, I served in government in a number of roles, including as the chief economist at the White House Office of Management and Budget (OMB), as Acting Deputy Director of OMB, and as a Senior Counselor at the Department of Health and Human Services (HHS), where my portfolio included Affordable Care Act (ACA) implementation and Medicaid, Medicare, and delivery system reform policy.

From the start of his presidency, President Trump has been clear that his goal is to repeal the ACA. While Congress considered and rejected a series of repeal plans in 2017, the Administration, and HHS in particular, has continued to pursue the overarching policy goals of those bills through administrative actions. In my testimony, I provide an overview of the progress made in expanding coverage and access to care under the ACA and recent HHS policies that have undermined the law. I then discuss why the ACA has so far proved relatively resilient in the face of these attacks, and why they may pose even greater risks going forward.

Progress Under the Affordable Care Act

The most recent National Health Interview Survey (NHIS) data show that the uninsured rate in the first half of 2018 remained stable at its lowest level in history: 8.8 percent, compared to 16.0 percent when the ACA was enacted in 2010.[1] NHIS data also show that these dramatic coverage gains have been broadly shared across non-elderly Americans (seniors already had near-universal coverage through Medicare). As shown in Figure 1, as the ACA's major provisions took effect

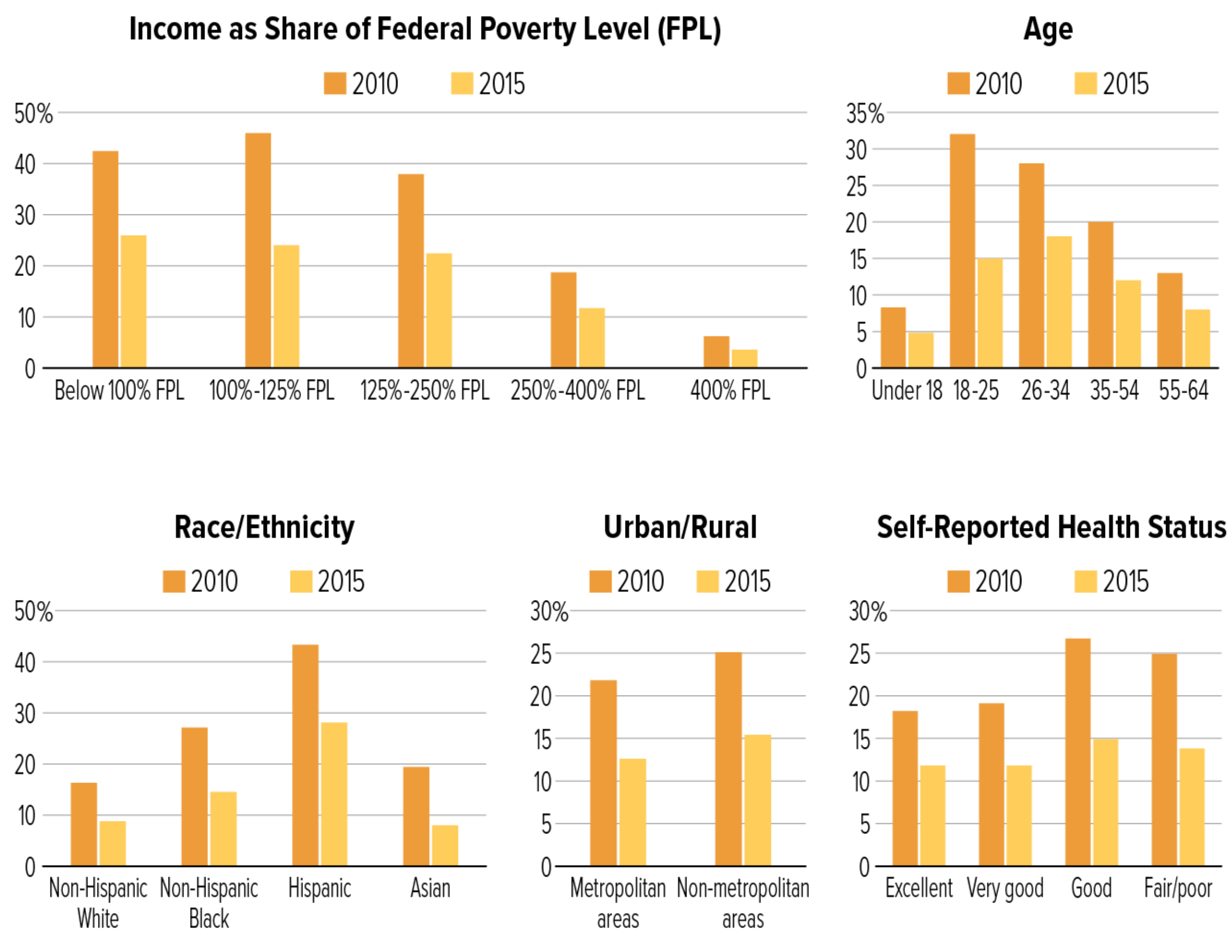
[1] The most recent NHIS data are for the first half of 2018, when the uninsured rate stood at 8.8 percent. Data through 2018 are available at https://www.cdc.gov/nchs/data/nhis/earlyrelease/insur201811.pdf. For long-term historical comparisons, see Council of Economic Advisers, "2017 Economic Report of the President," December 15, 2016, https://obamawhitehouse.archives.gov/administration/eop/cea/economic-report-of-the-President/2017.

between 2010 and 2015, uninsured rates fell by 35 percent or more for low-, moderate-, and middle-income Americans; for all age groups and racial and ethnic groups; across both urban and rural areas; and for people in both good and poor health.[2] These gains reflect the combined effects of the ACA's coverage provisions, including the expansion of Medicaid to low-income adults, the creation of the health insurance marketplaces and subsidies for individual market coverage, allowing young adults to remain on their parents' plans until age 26, individual market reforms such as prohibiting insurers from denying coverage or charging higher premiums based on health status, and the individual mandate requiring most people to have health insurance or pay a penalty (although the individual mandate penalty was repealed effective this year).

FIGURE 1

Coverage Gains Under the ACA Have Been Widely Shared

Non-elderly uninsured rates



Source: U.S. Department of Health and Human Services calculations based on National Health Interview Survey data

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[2] Tabulations of NHIS data for subgroups are from Kelsey Avery, Kenneth Finegold, and Amelia Whitman, "Affordable Care Act Has Led to Historic, Widespread Increase in Health Insurance Coverage," Assistant Secretary for Planning and Evaluation, Department of Health and Human Services, September 29, 2016, https://aspe.hhs.gov/system/files/pdf/207946/ACAHistoricIncreaseCoverage.pdf.

The quality of health insurance has also improved, including for people already covered through their jobs. For example, as of 2009, 59 percent of people with employer coverage had plans with lifetime limits on benefits, while almost 20 percent had plans with no limit on out-of-pocket costs, exposing them to catastrophic costs in the event of serious illness.[3] The ACA prohibits lifetime (and annual) limits on coverage and requires plans to cap consumers' annual out-of-pocket costs.

In the individual market, quality improvements have been even greater. As of 2013, before the ACA's major individual market reforms took effect, 75 percent of individual market health plans excluded maternity care, 45 percent excluded substance use treatment, 38 percent excluded mental health services, and up to 17 percent excluded various categories of prescription drugs.[4] Today, all plans subject to ACA rules — the large majority of individual market policies (although the Administration is expanding the exceptions, as discussed below) — are required to cover these essential health benefits. The ACA also ended pre-existing conditions exclusions, which meant that even when people with pre-existing health conditions were able to obtain individual market coverage, that coverage often excluded treatment related to their pre-existing condition. And individual market insurance now offers greater financial protection. Among families with individual market coverage, average out-of-pocket costs (counting premiums, deductibles, co-pays, and co-insurance) fell by 25 percent in 2014, when the ACA's major individual market reforms and marketplace subsidies took effect.[5]

There is growing evidence that the expansion of and improvements in coverage under the ACA are translating into improved access to care, financial security, and health. Nationwide, from 2010 to 2016, the share of non-elderly adults with problems paying medical bills fell 21 percent, and the share who didn't fill a prescription or skipped treatment due to cost fell nearly 30 percent.[6]

Some of the most in-depth research on the effects of the ACA has focused on those gaining coverage through Medicaid expansion. As shown in Figure 2, research on expansion's effects in Kentucky and Arkansas has found sizable increases in the share of people with a personal physician, getting check-ups, getting regular care for chronic conditions, and reporting excellent health, as well

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[3] Kaiser Family Foundation and Health Research and Educational Trust, "Employer Health Benefits: 2009 Annual Survey," https://kaiserfamilyfoundation.files.wordpress.com/2013/04/7936.pdf.

[4] Gary Claxton *et al.*, "Would States Eliminate Key Benefits if AHCA Waivers Are Enacted?" Kaiser Family Foundation, June 14, 2017, http://www.kff.org/health-reform/issue-brief/would-states-eliminate-key-benefits-if-ahca-waivers-are-enacted/.

[5] State Health Access Data Assistance Center tabulations from Current Population Survey, available at http://www.chcf.org/aca-411/explore-the-data#trend%2Caffordability%2Cfinancialburden%2Cfmoop%2CBars%20(InsuranceType)%2C2014%2Cindividual.

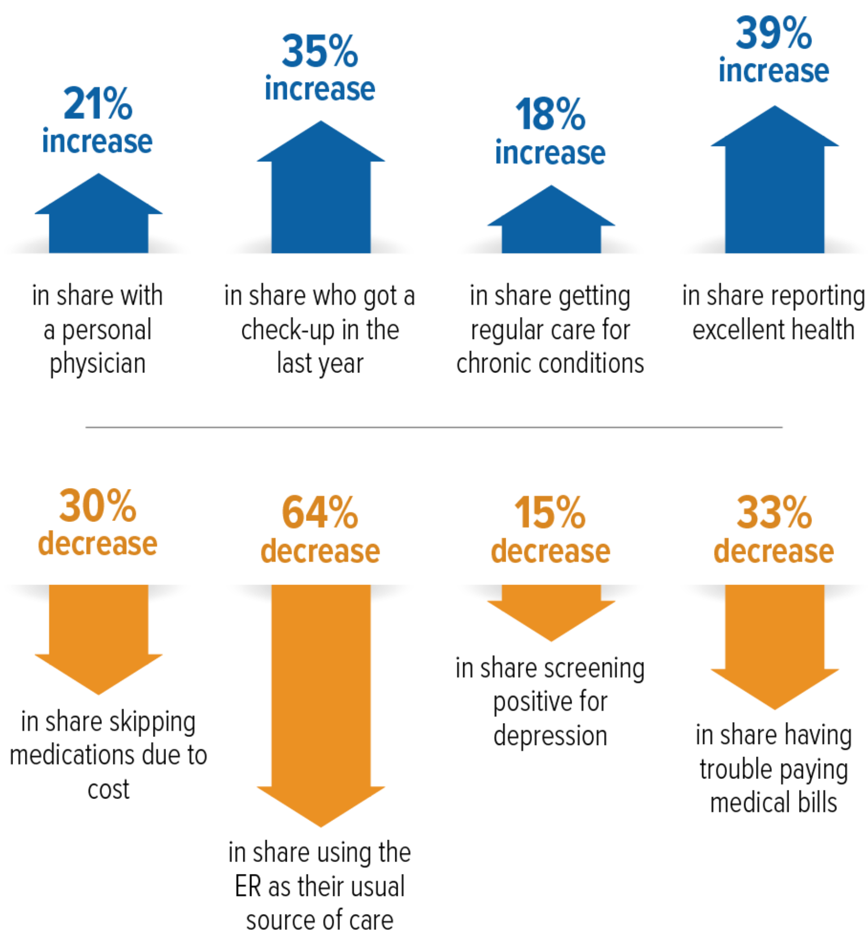
[6] Sara R. Collins *et al.*, "How the Affordable Care Act Has Improved Americans' Ability to Buy Health Insurance on Their Own: Findings from the Commonwealth Fund Biennial Health Insurance Survey, 2016," The Commonwealth Fund, February 2017, https://www.commonwealthfund.org/sites/default/files/documents/___media_files_publications_issue_brief_2017_feb_1931_collins_biennial_survey_2016_ib.pdf.

as decreases in the share relying on the emergency room for care, skipping medications due to cost, struggling to pay medical bills, and screening positive for depression.[7]

FIGURE 2

Affordable Care Act's Medicaid Expansion Helping Low-Income People in Kentucky & Arkansas

Estimated effect



Note: Study estimates changes in outcomes in Kentucky and Arkansas relative to changes in Texas, which did not expand Medicaid.

Source: CBPP calculations from Sommers, et al., Journal of the American Medical Association, 2016

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These expansions in coverage and access to care have coincided with a marked slowdown in per-enrollee health care cost growth — a slowdown to which the ACA has contributed, although it is

[7] Benjamin D. Sommers *et al.*, "Changes in Utilization and Health Among Low-Income Adults After Medicaid Expansion or Expanded Private Insurance," *Journal of the American Medical Association,* October 2016, http://jamanetwork.com/journals/jamainternalmedicine/article-abstract/2542420.

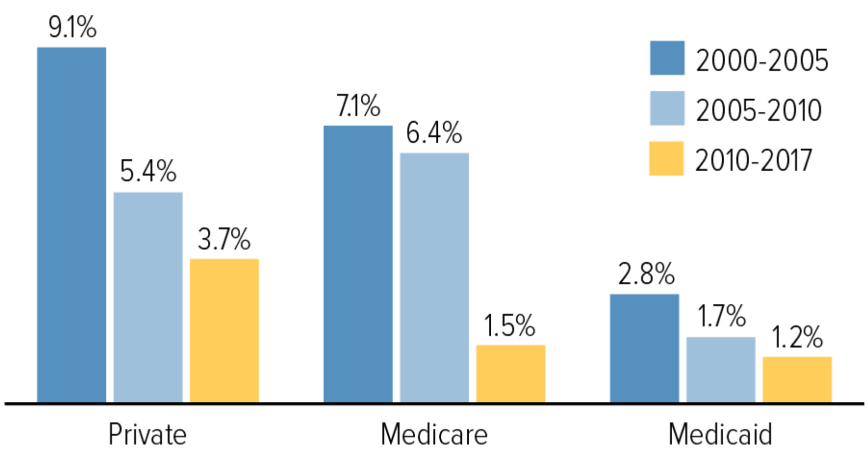
certainly not the sole cause. As shown in Figure 3, per-enrollee spending growth since 2010 has been slower than over the previous decade in private insurance, Medicare, and Medicaid. This unexpected slowdown is yielding substantial savings for the federal government as well as for consumers. For example, annual growth in family premiums for employer-sponsored coverage has averaged 4.5 percent since 2010, compared to 7.9 percent over the previous decade.[8]

While the ACA is sometimes criticized for having focused on coverage expansions to the exclusion of cost, it contributed in important ways to this slowdown in health care cost growth. Most directly, the ACA instituted reforms to Medicare payment rates to more closely align them with costs; these reforms likely also had "spillover" impacts on health care cost growth for private payers.[9] The ACA also established incentives for hospitals to avoid unnecessary readmissions and prevent hospital-acquired conditions (such as infections); these programs have contributed to large declines in these adverse outcomes, improving care and reducing costs.[10]

FIGURE 3

Health Care Spending Growth Has Slowed Since 2010

Average annual per-enrollee spending growth, by insurance type



Source: Centers for Medicare and Medicaid Services' National Health Expenditures data

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8 Calculations are based on data from the Kaiser Family Foundation Employee Health Benefits Survey, October 3, 2018, https://www.kff.org/health-costs/report/2018-employer-health-benefits-survey/.

9 See Chapin White, "Contrary to Cost-Shift Theory, Lower Medicare Hospital Payment Rates for Inpatient Care Lead to Lower Private Payment Rates," *Health Affairs,* May 2013, http://content.healthaffairs.org/content/32/5/935.full; and Jeffrey Clemens and Joshua D. Gottlieb, "In the Shadow of a Giant: Medicare's Influence on Private Physician Payments," working paper, August 31, 2016, http://econweb.ucsd.edu/~j1clemens/pdfs/ShadowOfAGiant.pdf.

10 Rachael B. Zuckerman *et al.*, "Readmissions, Observation, and the Hospital Readmissions Reduction Program," *New England Journal of Medicine*, April 21, 2016, http://www.nejm.org/doi/full/10.1056/NEJMsa1513024; and Agency for Healthcare Research and Quality, "National Scorecard on Rates of Hospital-Acquired Conditions," https://www.ahrq.gov/professionals/quality-patient-safety/pfp/index.html.

Harder to quantify, but likely more important over the long run, the ACA created mechanisms for ongoing payment reform and experimentation in Medicare. Between the Medicare Shared Savings Program (the statutory accountable care organization program created as part of the ACA) and payment models developed through the ACA's Center for Medicare and Medicaid Innovation, more than 30 percent of Medicare payments are now tied to "alternative payment models" that reward efficient delivery of high-quality care, rather than being made on a purely fee-for-service basis.[11] Medicare's leadership has also helped catalyze similar efforts by private insurers and employers and state Medicaid programs, a number of which are engaged in large-scale shifts toward population- or episode-based payment.

Of course, health care costs remain a challenge for families, the federal budget, and states, with additional reforms needed to deliver better care at lower cost. But the ACA put in place a foundation for payment reforms that are beginning to achieve results.

HHS' Recent Record Administering the ACA

From the start of his presidency, President Trump has been clear that his goal is to repeal the ACA. The Administration supported the various ACA repeal bills debated and ultimately rejected by Congress, and it has continued to propose a version of repeal in its budget. All of these repeal proposals have key elements in common, including: effectively ending the ACA's expansion of Medicaid to low-income adults and capping and cutting federal funding for other beneficiaries; ending or weakening protections for people with pre-existing conditions; cutting or eliminating financial assistance for ACA marketplace consumers; and taking other steps to reduce the federal role in promoting access to coverage. And all would cause millions of people to lose health insurance, while making coverage worse or less affordable for millions more.

With legislative repeal of the ACA off the table for now, the Administration has sought to achieve a version of repeal through the courts, declining to defend the ACA against litigation from state attorneys general in the *Texas v. Azar* lawsuit and instead asking the courts to invalidate the ACA's major protections for people with pre-existing conditions. Especially relevant to this committee's oversight role, the Administration has also continued to pursue some of the major policy objectives of the repeal bills through a range of administrative actions by HHS (as well as the Departments of Labor and Treasury). Table 1 summarizes these actions, a few of which I particularly want to bring to your attention.

- **A proposed rule that will cut premium tax credits and raise premiums or out-of-pocket costs for millions of people (January 2019).[12]** A seemingly minor change included in the Administration's recently released proposed rule setting ACA marketplace standards for 2020 would raise premiums for at least 7.3 million marketplace consumers by cutting their premium tax credits. The higher premiums — for example, $196 more for a family of four with income

[11] Department of Health and Human Services, "HHS Reaches Goal of Tying 30 Percent of Medicare Payments to Quality Ahead of Schedule," March 3, 2016.

[12] Patient Protection and Affordable Care Act; HHS Notice of Benefit and Payment, January 17, 2019, https://s3.amazonaws.com/public-inspection.federalregister.gov/2019-00077.pdf. For further discussion of the effects of the rule, see Aviva Aron-Dine and Matt Broaddus, "Change to Insurance Payment Formula Would Raise Costs for Millions with Marketplace or Employer Plans," Center on Budget and Policy Priorities, January 18, 2019, https://www.cbpp.org/research/health/change-to-insurance-payment-formulas-would-raise-costs-for-millions-with-marketplace.

of $80,000 — would cause 100,000 people to drop marketplace coverage each year, according to the Administration's estimates. The same proposal would also raise the ACA's limits on total out-of-pocket costs (deductibles, co-payments, and co-insurance); such limits apply to employer as well as individual market plans and disproportionately protect people with pre-existing conditions, who are more likely to have health care costs high enough to reach the out-of-pocket limit. Both changes are the result of the Administration's proposal to change how premium growth would be measured for purposes of certain ACA formulas, a change the rule acknowledges is discretionary, not required by any statute.

The proposed 2020 marketplace rule also reduces the federal marketplace user fee, potentially shortchanging basic marketplace operations, and it encourages navigators (federally funded in-person enrollment assistance programs) to enroll people through private web brokers (which often market plans not subject to ACA consumer protections) instead of through HealthCare.gov. It also suggests that the Administration is considering two even more harmful changes for future years: ending or limiting automatic re-enrollment, which lets returning marketplace consumers who don't actively select a new plan maintain coverage for the next year, and attempting to end "silver loading," a practice described below that lowers premiums, out-of-pocket costs, or both for millions of people.

- **Guidance encouraging states to pursue 1332 waivers that incorporate major elements of the congressional ACA repeal bills (October/November 2018).**[13] The waivers allowed under section 1332 of the ACA are intended to let states experiment with alternative ways of providing coverage, subject to statutory "guardrails" that require the alternatives to cover as many people — with coverage as affordable and comprehensive — and at no higher cost to the federal government. Last October, HHS and Treasury issued guidance reinterpreting these guardrails to permit waivers that would result in people having coverage much less comprehensive than under the ACA or in large coverage losses among vulnerable groups. HHS then issued a discussion paper describing the types of waiver proposals it would like to see: proposals incorporating major elements of the 2017 ACA repeal bills. For example, the discussion paper invites proposals to replace the ACA's tax credits, which adjust based on income and the cost of available coverage, with flat tax credits that would result in higher premiums for lower-income and older people. It also invites proposals to allow tax credits to be used to purchase plans that are exempt from the ACA's protections for people with pre-existing conditions, an approach that could cause a death spiral in the portion of the health insurance market subject to these protections.

  There is considerable doubt as to whether the ideas outlined in the HHS discussion paper meet even the modified guardrails from the October guidance, much less whether the proposed guardrails comply with the requirements of the statute. Nonetheless, if any states take up the Administration's invitation to submit such waivers, it would put coverage and access to care for many thousands of people at risk. Also noteworthy, the HHS/Treasury guidance makes clear that the Administration is not interested in state proposals to expand public coverage, even if those proposals meet the section 1332 guardrails and notwithstanding the departments' stated commitment to providing states with more flexibility.

[13] For further discussion, see Sarah Lueck, "Commentary: Trump Administration Rules on Health Waivers Weaken Pre-Existing Condition Protections," Center on Budget and Policy Priorities, November 2, 2018, https://www.cbpp.org/health/commentary-trump-administration-rules-on-health-waivers-weaken-pre-existing-condition.

- **Rules making health plans exempt from the ACA's pre-existing conditions protections widely available (July/August 2018).** Jointly with the Departments of Labor and Treasury, HHS issued a rule that allows a parallel health insurance market to operate selling plans that are not subject to the ACA's consumer protections — plans allowed to deny coverage or charge higher premiums based on health status, impose annual and lifetime limits on coverage, and exclude essential health benefits. Where these "short-term, limited duration" plans were previously limited to three months, the new rule allows them to last up to one year and be renewed. People who enroll in these plans may face benefit gaps and be exposed to high costs if they get sick and need care, and troubling new research shows that short-term plans are frequently marketed to consumers without adequate information about their limitations.[14] Meanwhile, because the plans can offer lower premiums to healthy people (because they can vary premiums based on health status and offer reduced benefits), they will likely pull healthier enrollees out of the ACA individual market. (A separate rule issued by the Department of Labor expands the availability of association health plans, with similar consequences primarily for the small group market.)

  Some states have acted to block the expansion of short-term plans, or already banned or limited them before the new rule. But in states where these plans are allowed to proliferate, middle-income individual market consumers who need comprehensive coverage — including those with pre-existing conditions — will pay higher premiums as a result. Lower-income consumers will be protected from these higher premiums, because premium tax credits will increase to compensate, but the result will be higher federal costs.[15] While the Administration has argued that the expansion of short-term plans is needed to provide more affordable options for people with incomes too high to qualify for subsidies, the additional federal dollars being used to protect subsidized consumers from the adverse effects of the rule could instead be used to help middle-income people (both those who are healthy and those who are not) afford comprehensive coverage.

- **Medicaid waivers that could cause hundreds of thousands of low-income adults to lose coverage (beginning January 2018).** After Congress rejected legislation rolling back the ACA's expansion of Medicaid to low-income adults, HHS began approving Medicaid waivers that, if implemented, will take coverage away from hundreds of thousands of expansion enrollees. The first of these waivers — Kentucky's proposal to take coverage away from people who don't meet monthly work requirements, pay premiums, or submit certain paperwork on time — was halted by a federal judge, who found that HHS had not shown how a waiver taking Medicaid coverage away from nearly 100,000 people could be consistent with the objectives of the Medicaid program. The first waiver actually implemented, Arkansas'

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14 Sabrina Corlette *et al.*, "The Marketing of Short-Term Health Plans: An Assessment of Industry Practices and State Regulatory Responses," Georgetown University Health Policy Institute, January 31, 2019, https://www.rwjf.org/en/library/research/2019/01/the-marketing-of-short-term-health-plans.html.

15 The Administration estimates that the expansion of short-term plans will increase tax credit costs by about $3 billion per year. See Department of Health and Human Services, Short-Term, Limited Duration Insurance, February 20, 2018, https://s3.amazonaws.com/public-inspection.federalregister.gov/2018-03208.pdf.

work requirement proposal, has already led more than 18,000 people — more than 1 in 5 of those subject to the new policy — to lose coverage.[16]

The coverage losses in Arkansas exceed estimates of how many beneficiaries subject to the new rules are neither working nor exempt. That strongly suggests working people and people whose disabilities or health problems should qualify them for exemptions are losing coverage, presumably due to problems completing new reporting and paperwork requirements. The data from Arkansas led the Medicaid and CHIP Payment and Access Commission (MACPAC), Congress's independent, non-partisan advisory panel on Medicaid policy, to urge HHS to halt Arkansas' waiver and pause in approving similar policies in other states.[17] Instead, since MAPCAC issued its recommendation in November, HHS has approved four additional work requirement proposals (and re-approved Kentucky's).

- **Outreach cuts that make it harder for consumers to learn about marketplace and Medicaid coverage (beginning January 2017).** Immediately upon taking office, the Trump Administration stopped planned television advertising during the 2017 open enrollment period, which was still under way. The next fall, it cut the marketplace advertising budget by 90 percent. It also made large cuts to in-person consumer assistance (navigator) programs, which are especially important to vulnerable groups such as people with disabilities or other special needs, people with limited English proficiency, and people with limited access to or comfort using the Internet. Combined with additional cuts the following year, HHS has now cut the navigator program budget by more than 80 percent. It has also weakened the program in other ways, for example by eliminating requirements that navigators have a physical presence in the state they are paid to serve and that they be consumer-focused nonprofit organizations.[18] And, for the first time, navigators are encouraged to talk to consumers not just about marketplace options but about short-term and association health plans not subject to ACA rules.

  Advertising and navigators are funded out of federal marketplace user fees. Funding for advertising and navigators could be restored either by directing HHS to spend the money out of user fees or by providing an appropriation for these purposes that would restore the amount the Administration has cut, close to $150 million. Legislation would also need to direct HHS how to use the funds, to make sure they are spent in a timely manner and to promote enrollment in comprehensive coverage.

It's worth noting that the Administration has also taken actions undermining the ACA's provider payment reforms. It withdrew a Center for Medicare & Medicaid Innovation (CMMI) demonstration testing bundled payments for certain cardiac procedures, shrank a demonstration testing bundled payments for joint and knee replacements, and urged Congress to rescind $800 million in CMMI funding. More recently, however, HHS' statements and actions have suggested a

[16] Jennifer Wagner, "Medicaid Coverage Losses Mounting in Arkansas From Work Requirement," Center on Budget and Policy Priorities, January 17, 2019, https://www.cbpp.org/blog/medicaid-coverage-losses-mounting-in-arkansas-from-work-requirement.

[17] Medicaid and CHIP Payment and Access Commission, Letter to Secretary Azar, November 8, 2018, https://www.macpac.gov/wp-content/uploads/2018/11/MACPAC-letter-to-HHS-Secretary-Regarding-Work-Requirements-Implementation.pdf.

[18] Halley Cloud, "Navigator Funding Cuts Will Leave Many Marketplace Consumers on Their Own," Center on Budget and Policy Priorities, September 13, 2018, https://www.cbpp.org/blog/navigator-funding-cuts-will-leave-many-marketplace-consumers-on-their-own.

more supportive posture toward payment reforms and CMMI demonstrations. Its policy in this area bears watching.

TABLE 1

Summary of HHS Actions Undermining the ACA

Major Outcomes of ACA Repeal Bills	HHS Actions Advancing Similar Objectives
Ending the ACA's expansion of Medicaid	Encouraging and approving Medicaid waivers that include eligibility restrictions, such as work requirements, that will cause large drops in coverage among low-income adults
Ending or undermining various protections for people with pre-existing conditions	Broadening availability of "short-term" and other plans exempt from key protections (joint with Labor/Treasury); offering states options to weaken essential health benefits and the risk adjustment program; proposing to raise limits on out-of-pocket costs (including for employer plans); encouraging states to adopt 1332 waivers further undermining protections
Sharply cutting marketplace financial assistance	Proposing a change that will raise premiums, by cutting premium tax credits, for at least 7.3 million consumers; encouraging states to adopt 1332 waivers making large cuts to premium tax credits for lower-income people; considering trying to end "silver loading," a practice that lowers premiums, out-of-pocket costs, or both for millions of marketplace consumers
Weakening or eliminating the federal role in promoting access to coverage	Cut advertising by 90 percent and in-person consumer assistance by more than 80 percent; shortened open enrollment by half; created new obstacles to maintaining marketplace coverage and enrolling in coverage through special enrollment periods; considering ending or limiting automatic re-enrollment for returning marketplace consumers

Factors That Have Sustained Coverage Gains and Challenges Going Forward

Given the Administration's actions, as well as the repeal of the ACA individual mandate penalty as part of the 2017 tax bill and the uncertainty created by a year's debate about repealing the ACA, many expected more deterioration in marketplace enrollment and overall uninsured rates than has so far occurred. HealthCare.gov enrollment is down 1.2 million since its peak in 2016, but when the final tally is in for 2019, it seems that close to 11.5 million people will be signed up for coverage nationwide (across HealthCare.gov and state marketplaces). And, as noted above, federal surveys show the uninsured rate remained at its post-ACA historic low through the first half of 2018.[19]

Of course, this doesn't address the counterfactual: in a more favorable policy environment, uninsured rates might have continued to fall, particularly given the declining unemployment rate.

[19] Gallup data show an uptick in uninsured rates relative to their 2016 low, but these data are less reliable than the federal surveys, which have higher response rates, and have diverged from them in the past.

But there are also several important forces that have helped sustain coverage gains so far, but that could be undermined by the Administration's actions or other actions it has said it might take.

First, the ACA's tax credit structure makes the marketplaces highly robust. Marketplace consumers with incomes below 400 percent of the poverty line (about $100,000 for a family of four, or $50,000 for a single adult) pay a fixed percentage of income to purchase the benchmark (second-lowest-cost silver) plan available to them where they live. Premium tax credits adjust as needed to make up the difference between that percentage of income and sticker price premiums. This means that most consumers — more than 60 percent of all people purchasing individual market policies that are subject to ACA rules — are shielded from premium increases, including those resulting from Administration policies.[20] The large majority of these subsidized consumers have plan options with premiums (after tax credits) of less than $100 per month, which means marketplace coverage should remain more attractive than short-term plans, even for those who are healthy.[21]

So far, the Administration's actions have left premium tax credits largely unscathed. In fact, one of the Administration's major efforts to undermine the marketplaces — its decision to stop reimbursing insurers for cost sharing reductions (CSRs) — ended up making premium tax credits more generous. President Trump was clear that his intent in stopping CSR payments was to destabilize the ACA marketplaces.[22] But, partly thanks to state regulators who acted quickly to protect their markets, it instead resulted in a mostly smooth transition to "silver loading," or insurers building the cost of CSRs into marketplace silver plan premiums. That approach results in larger premium tax credits, lowering premiums, deductibles, or both for about 2 million moderate-income HealthCare.gov consumers in 2018 (likely more this year).[23] It also allows unsubsidized consumers to avoid the higher premiums from non-payment of CSRs by buying non-silver plans. Overall, the Congressional Budget Office (CBO) now estimates that the President's decision not to pay CSRs is increasing coverage by 500,000 to 1 million people per year.[24] In other words, the Administration's likely unintended increase in premium tax credits has helped counterbalance its other actions undermining the ACA.

The crucial role premium tax credits have played in sustaining coverage to date is part of why it's so concerning to see HHS apparently looking for administrative options to cut premium tax credits. As discussed above, the proposed rule setting 2020 marketplace standards includes a discretionary

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[20] Ashley Semanskee, Larry Levitt, and Cynthia Cox, "Data Note: Changes in Enrollment in the Individual Health Insurance Market," Kaiser Family Foundation, July 31, 2018, https://www.kff.org/health-reform/issue-brief/data-note-changes-in-enrollment-in-the-individual-health-insurance-market/.

[21] Assistant Secretary for Planning and Evaluation, "Health Plan Choice and Premiums in the 2018 Federal Health Insurance Exchange," Department of Health and Human Services, October 30, 2017, https://aspe.hhs.gov/system/files/pdf/258456/Landscape_Master2018_1.pdf.

[22] "Transcript: Interview with Donald Trump," *Economist*, May 11, 2017, https://www.economist.com/united-states/2017/05/11/transcript-interview-with-donald-trump.

[23] For a more detailed explanation of silver loading, see Aviva Aron-Dine, "Individual Market Stabilization Proposals Should Avoid Raising Costs for Consumers," Center on Budget and Policy Priorities, March 9, 2018, https://www.cbpp.org/research/health/individual-market-stabilization-proposals-should-avoid-raising-costs-for-consumers.

[24] Congressional Budget Office, "Appropriation of Cost-Sharing Reduction Subsidies," March 19, 2018, https://www.cbo.gov/publication/53664.

formula change the effect of which is to cut tax credits and raise premiums for subsidized consumers. In the same proposed rule, HHS noted that it had considered even larger cuts to premium tax credits, and it expressed interest in ending silver loading in future years, although it is not clear it can do so administratively. Meanwhile, HHS's 1332 waiver discussion paper encourages states to develop waiver proposals that would upend the structure of premium tax credits altogether, by delinking them from income and the cost of coverage or allowing them to be used for plans not subject to ACA rules (although, as noted, such waivers likely could not comply with the statutory 1332 guardrails).

A second factor sustaining marketplace enrollment is that, by the start of the Administration, the marketplaces had a strong base of returning consumers. More than 80 percent of these consumers report that they are satisfied with their coverage, and they remain enrolled at high rates.[25] This has helped sustain overall marketplace enrollment. It's therefore very troubling to see the Administration suggest (as discussed above) that it is considering ending or limiting automatic re-enrollment for returning consumers. While a high fraction of returning marketplace consumers do come back and actively select a plan, a sizable minority depend on having coverage automatically continue from year to year, much as many people with employer plans do.

Moreover, there is always churn in individual market enrollment: there should be, as people find and leave jobs with employer coverage or see their incomes fall below or rise above Medicaid income limits. Stable marketplace enrollment therefore requires enrolling millions of new consumers each year. But new consumers are the ones less likely to visit HealthCare.gov and check out options without advertising and without the incentive provided by the individual mandate penalty. Consistent with that, while HealthCare.gov returning consumer enrollment is actually up from last year, new consumer enrollment is down more than 15 percent. Over time, challenges attracting new consumers will compound into increasingly large drops in returning consumer and total enrollment.

A third important force sustaining overall coverage rates is that enrollment in Medicaid expansion has remained strong. And going forward, enrollment will increase further as new states expand. Despite the Administration's efforts to discourage states from adopting expansion,[26] Maine and Virginia are newly implementing expansion this year; voters in Idaho, Nebraska, and Utah adopted ballot initiatives directing their states to expand; and additional states such as Kansas, North Carolina, and Wisconsin are seriously considering expansion. But the Medicaid eligibility restrictions newly allowed by HHS under this Administration threaten to offset these coverage gains. The coverage losses projected under Kentucky's waiver alone, for example, are greater than the coverage gains projected to result from expansion in Maine or Nebraska.[27]

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[25] Sara R. Collins, Munira Z. Gunja, and Michelle M. Doty, "Following the ACA Repeal-and-Replace Effort, Where Does the U.S. Stand on Insurance Coverage?" Commonwealth Fund, September 7, 2017, http://www.commonwealthfund.org/publications/issue-briefs/2017/sep/post-aca-repeal-and-replace-health-insurance-coverage; and Commonwealth Fund, "Affordable Care Act Tracking Survey," http://acatracking.commonwealthfund.org/.

[26] See for example OMB Press, "Director @MickMulvaneyOMB's statement on the Obamacare Medicaid Expansion in Virginia" Twitter, March 1, 2018, https://twitter.com/ombpress/status/969217323746897920?lang=en; and Robert Pear, "Trump Spurns Medicaid Proposal After Furious White House Debate," *New York Times*, July 30, 2018, https://www.nytimes.com/2018/07/30/us/politics/trump-medicaid-partial-expansion.html.

[27] See Judith Solomon, "Kentucky Waiver Will Harm Medicaid Beneficiaries," Center on Budget and Policy Priorities, January 16, 2018, https://www.cbpp.org/research/health/kentucky-waiver-will-harm-medicaid-beneficiaries; and

Given the large risks recent HHS actions pose to programs that cover millions of Americans, this committee's oversight role is crucial. Thank you for holding this hearing, and I hope you will continue to closely examine the impact of HHS policy toward the marketplaces and the ACA Medicaid expansion. Almost nine years after passage of the ACA, and five years after the initial implementation of its major coverage reforms, there are many opportunities to learn from federal and state experience with the law, and to move forward to close remaining gaps in coverage and make coverage and care more affordable. But an important first step is to stop moving backward.

Matthew Buettgens, "The Implications of Medicaid Expansion in the Remaining States: 2018 Update," Urban Institute, May 17, 2018, https://www.urban.org/research/publication/implications-medicaid-expansion-remaining-states-2018-update.

NATIONAL CENTER FOR HEALTH STATISTICS

National Health Interview Survey Early Release Program

Health Insurance Coverage: Early Release of Estimates From the National Health Interview Survey, January–September 2018

by Emily P. Terlizzi, M.P.H., Robin A. Cohen, Ph.D., and Michael E. Martinez, M.P.H., M.H.S.A.
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What's new?

This report presents health insurance estimates from the first 9 months of the 2018 National Health Interview Survey.

Highlights

- In the first 9 months of 2018, 29.7 million persons of all ages (9.2%) were uninsured at the time of interview—not significantly different from 2017, but 18.9 million fewer persons than in 2010.
- In the first 9 months of 2018, among adults aged 18–64, 13.0% were uninsured at the time of interview, 19.7% had public coverage, and 69.0% had private health insurance coverage.
- In the first 9 months of 2018, among children aged 0–17 years, 4.9% were uninsured, 42.5% had public coverage, and 54.1% had private health insurance coverage.
- Among adults aged 18–64, 69.0% (136.7 million) were covered by private health insurance plans at the time of interview in the first 9 months of 2018. This includes 4.2% (8.2 million) covered by private health insurance plans obtained through the Health Insurance Marketplace or state-based exchanges.
- The percentage of persons under age 65 with private health insurance enrolled in a consumer-directed health plan (a high-deductible health plan with a health savings account) increased, from 18.2% in 2017 to 20.6% in the first 9 months of 2018.

Introduction

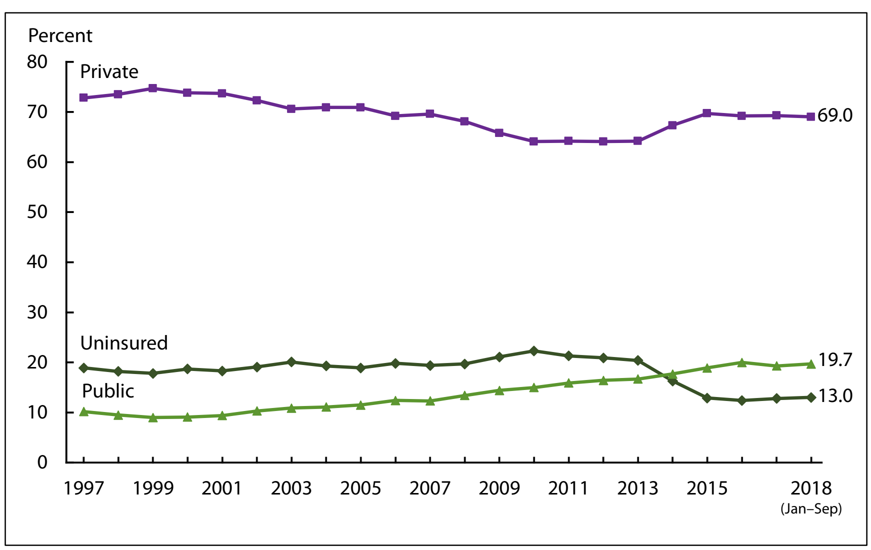
This report from the National Center for Health Statistics (NCHS) presents selected estimates of health insurance coverage for the civilian noninstitutionalized U.S. population based on data from the 2018 National Health Interview Survey (NHIS), along with comparable estimates from previous calendar years. Estimates for the first 9 months of 2018 are based on data for 61,484 persons.

Three estimates of lack of health insurance coverage are provided: (a) uninsured at the time of interview, (b) uninsured at least part of the year prior to interview (which includes persons uninsured for more than 1 year), and (c) uninsured for more than 1 year at the time of interview. Estimates of public and private coverage, coverage through exchanges, and enrollment in high-deductible health plans (HDHPs) and consumer-directed health plans (CDHPs) are also presented. Detailed appendix tables at the end of this report show estimates by selected demographics. Definitions are provided in the Technical Notes at the end of this report.

This report is updated quarterly and is part of the NHIS Early Release (ER) Program, which releases updated selected estimates that are available from the NHIS website at: https://www.cdc.gov/nchs/nhis.htm.

Estimates for each calendar quarter, by selected demographics, are also available as a separate set of tables through the ER Program. For more information about NHIS and the ER Program, see Technical Notes and Additional Early Release Program Products at the end of this report.

Figure 1. Percentage of adults aged 18–64 who were uninsured or had private or public coverage at the time of interview: United States, 1997–September 2018



NOTE: Data are based on household interviews of a sample of the civilian noninstitutionalized population.
SOURCE: NCHS, National Health Interview Survey, 1997–2018, Family Core component.

Results

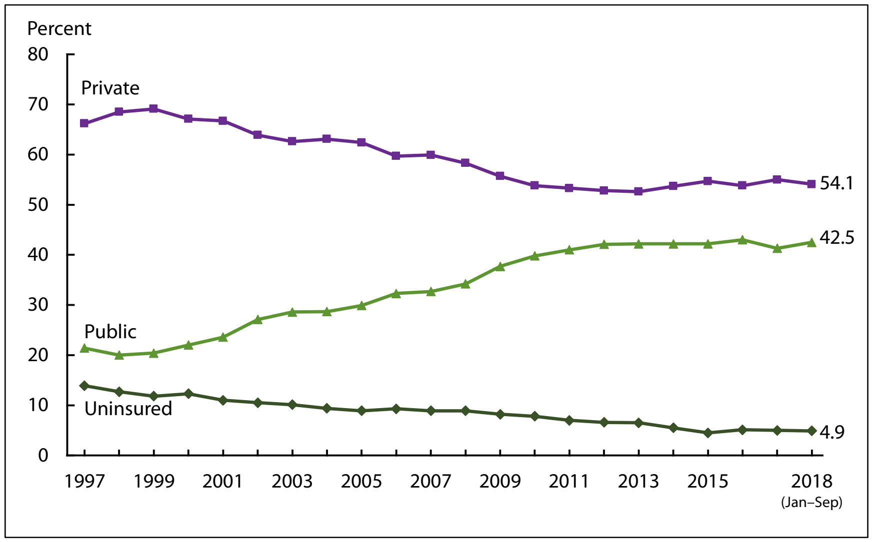
In the first 9 months of 2018, the percentage of persons of all ages who were uninsured at the time of interview was 9.2% (29.7 million). There was no significant change from the 2017 uninsured rate of 9.1% (29.3 million). A total of 18.9 million fewer persons lacked health insurance coverage in the first 9 months of 2018 compared with 2010 (48.6 million or 16.0%).

Long-term trends

In the first 9 months of 2018, among adults aged 18–64, 13.0% were uninsured at the time of interview, 19.7% had public coverage, and 69.0% had private health insurance coverage (Figure 1). After generally increasing, more recently, the percentage of adults aged 18–64 who were uninsured at the time of interview decreased and then stabilized. After generally decreasing, more recently, the percentage of adults aged 18–64 with private coverage increased, and has also stabilized. The percentage of adults aged 18–64 with public coverage, while generally increasing over this time period, has stabilized more recently.

In the first 9 months of 2018, among children aged 0–17 years, 4.9% were uninsured, 42.5% had public coverage, and 54.1% had private health insurance coverage (Figure 2). After generally decreasing, more recently, the percentage of children who were uninsured at the time of interview has stabilized. While the percentage of children with private health insurance coverage has decreased and public coverage has increased over time, more recently, the percentage of children with public or private coverage has also leveled off.

Figure 2. Percentage of children aged 0–17 years who were uninsured or had private or public coverage at the time of interview: United States, 1997–September 2018



NOTE: Data are based on household interviews of a sample of the civilian noninstitutionalized population.
SOURCE: NCHS, National Health Interview Survey, 1997–2018, Family Core component.

Figure 3. Percentage of adults aged 18–64 who were uninsured at the time of interview, by age group: United States, 2010–September 2018

NOTE: Data are based on household interviews of a sample of the civilian noninstitutionalized population.
SOURCE: NCHS, National Health Interview Survey, 2010–2018, Family Core component.

Short-term trends by age

In the first 9 months of 2018, adults aged 25–34 were the most likely to lack health insurance coverage (17.1%) compared with the other age groups examined in Figure 3. Adults aged 45–64 were the least likely to be uninsured at the time of interview (9.9%).

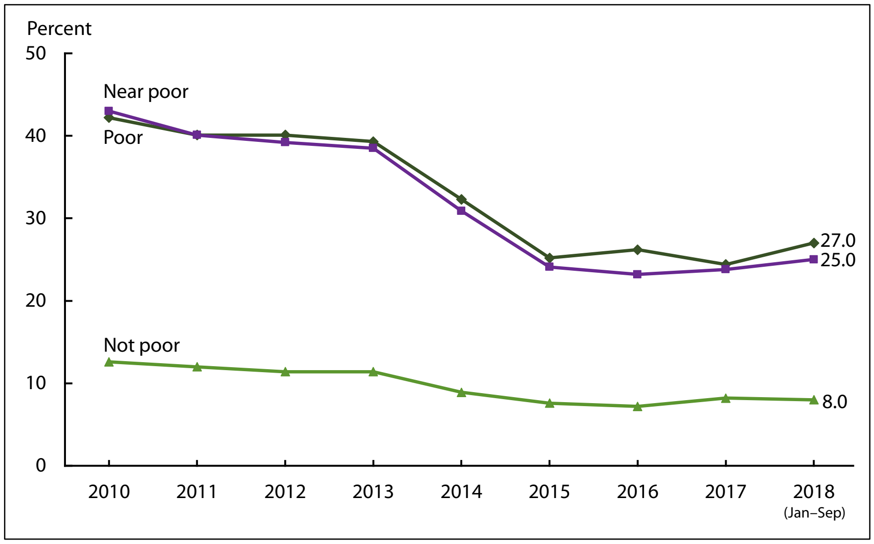
The percentage of those uninsured at the time of interview remained relatively stable from 2010 through 2013 for all age groups except adults aged 18–24 (Figure 3). Among adults aged 18–24, the percentage who were uninsured decreased, from 31.5% in 2010 to 25.9% in 2011, and then remained stable through 2013. For all age groups, the percentage who were uninsured decreased significantly from 2013 through the first 9 months of 2018. The magnitude of the decreases ranged from −5.5 percentage points for adults aged 45–64 to −10.2 percentage points for adults aged 18–24. For adults aged 18–24, 25–34, 35–44, and 45–64, the percentage of those uninsured at the time of interview did not change significantly from 2017 through the first 9 months of 2018. However, among adults aged 45–64, the percentage who were uninsured increased from 2015 through the first 9 months of 2018.

Short-term trends by poverty status

In the first 9 months of 2018, among adults aged 18–64, 27.0% of those who were poor, 25.0% of those who were near poor, and 8.0% of those who were not poor lacked health insurance coverage at the time of interview (Figure 4). A decrease was observed in the percentage of uninsured adults from 2010 through the first 9 months of 2018 among all three poverty status groups. However, the greatest decreases in the uninsured rate since 2013 were among adults who were poor or near poor. More recently, among adults who were poor, near poor, or not poor, there was no significant change in the percentage who were uninsured from 2015 through the first 9 months of 2018.

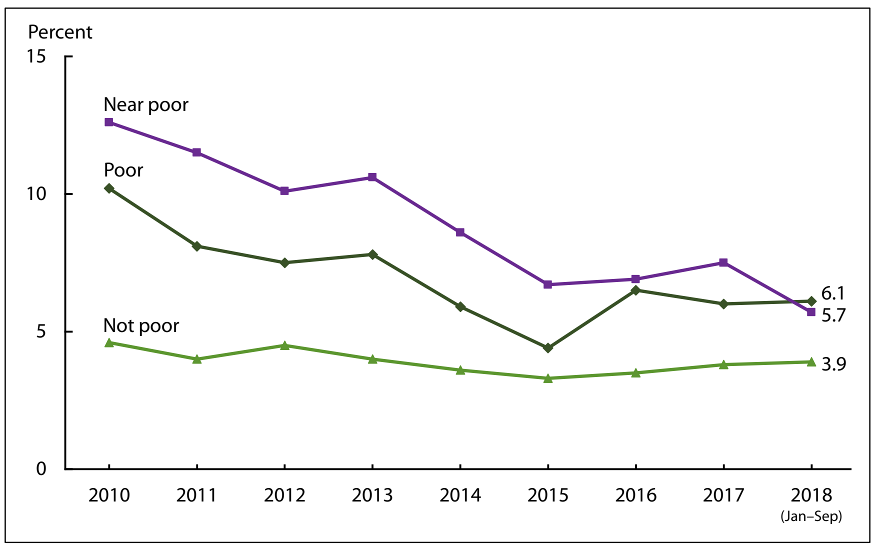
In the first 9 months of 2018, among children aged 0–17 years, 6.1% of those who were poor, 5.7% of those who were near poor, and 3.9% of those who were not poor lacked health insurance coverage at the time of interview (Figure 5). A general decrease in the percentage of uninsured children was observed among the poor, near poor, and not poor from 2010 through 2015. More recently, among children who were not poor, there was no significant change in the percentage who were uninsured from 2015 through the first 9 months of 2018. Among poor children, the percentage who were uninsured increased from 4.4% in 2015 to 6.5% in 2016 and has stayed relatively stable between 2016 and the first 9 months of 2018. Among near poor children, the observed decrease in the percentage who were uninsured from 7.5% in 2017 to 5.7% in the first 9 months of 2018 was not statistically significant.

Figure 4. Percentage of adults aged 18–64 who were uninsured at the time of interview, by poverty status: United States, 2010–September 2018



NOTE: Data are based on household interviews of a sample of the civilian noninstitutionalized population.
SOURCE: NCHS, National Health Interview Survey, 2010–2018, Family Core component.

Figure 5. Percentage of children aged 0–17 years who were uninsured at the time of interview, by poverty status: United States, 2010–September 2018



NOTE: Data are based on household interviews of a sample of the civilian noninstitutionalized population.
SOURCE: NCHS, National Health Interview Survey, 2010–2018, Family Core component.

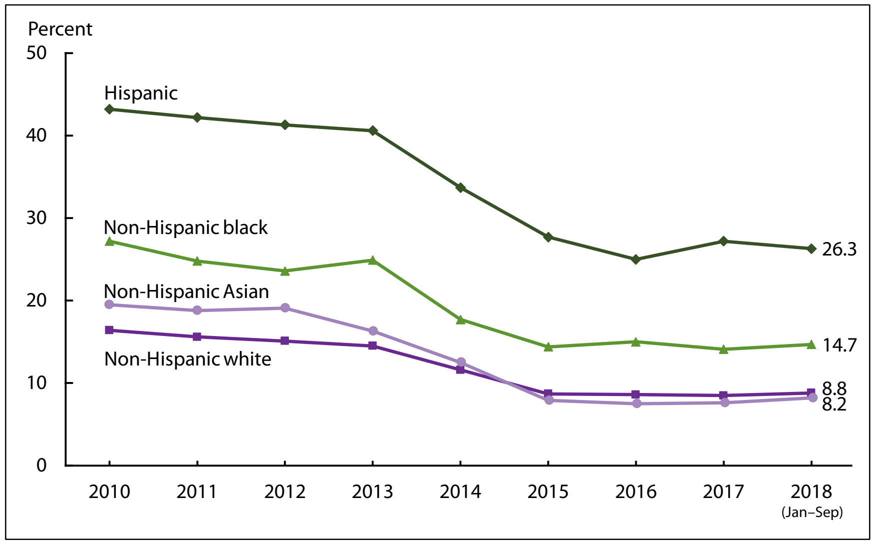
Short-term trends by race and ethnicity

In the first 9 months of 2018, 26.3% of Hispanic, 14.7% of non-Hispanic black, 8.8% of non-Hispanic white, and 8.2% of non-Hispanic Asian adults aged 18–64 lacked health insurance coverage at the time of interview (Figure 6). Significant decreases in the percentage of uninsured adults were observed from 2013 through the first 9 months of 2018 for Hispanic, non-Hispanic black, non-Hispanic white, and non-Hispanic Asian adults. Hispanic adults had the greatest percentage point decrease in the uninsured rate from 2013 (40.6%) through the first 9 months of 2018 (26.3%). For all groups shown in Figure 6, the percentage of persons who were uninsured at the time of interview did not change significantly from 2017 through the first 9 months of 2018.

Periods of noncoverage

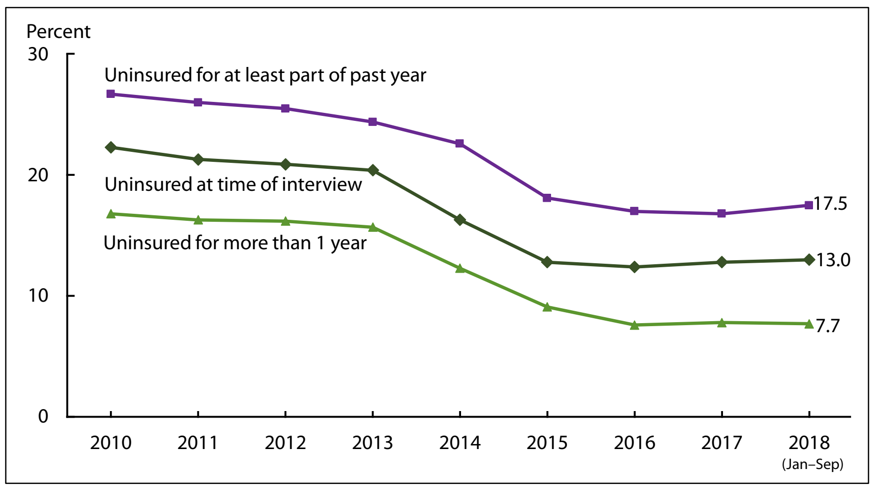
Among adults aged 18–64, the percentage of those who were uninsured at the time of interview decreased, from 22.3% (42.5 million) in 2010 to 13.0% (25.8 million) in the first 9 months of 2018 (Figure 7). The percentage of adults who were uninsured for at least part of the past year decreased, from 26.7% (51.0 million) in 2010 to 17.5% (34.6 million) in the first 9 months of 2018. The percentage of adults who were uninsured for more than 1 year decreased, from 16.8% (32.0 million) in 2010 to 7.7% (15.2 million) in the first 9 months of 2018. More recently, for all three measures of noncoverage, there were no significant changes from 2017 through the first 9 months of 2018.

Figure 6. Percentage of adults aged 18–64 who were uninsured at the time of interview, by race and ethnicity: United States, 2010–September 2018



NOTE: Data are based on household interviews of a sample of the civilian noninstitutionalized population.
SOURCE: NCHS, National Health Interview Survey, 2010–2018, Family Core component.

Figure 7. Percentage of adults aged 18–64 without health insurance, by three measures of uninsurance: United States, 2010–September 2018



NOTES: Beginning in 2016, answer categories for those who were currently uninsured concerning the length of noncoverage were modified. Therefore, starting in 2016, estimates of "uninsured for at least part of past year" and "uninsured for more than 1 year" may not be completely comparable with previous years. For more information on this change, see the Technical Notes in this report. Data are based on household interviews of a sample of the civilian noninstitutionalized population.
SOURCE: NCHS, National Health Interview Survey, 2010–2018, Family Core component.

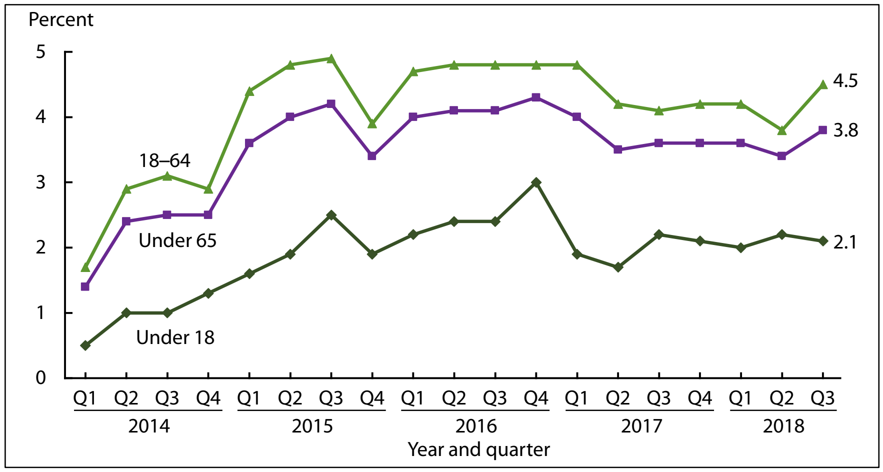
Private exchange coverage

Among persons under age 65, 64.9% (176.4 million) were covered by private health insurance plans at the time of interview in the first 9 months of 2018. This includes 3.6% (9.8 million) covered by private plans obtained through the Health Insurance Marketplace or state-based exchanges. The percentage of persons under age 65 who were enrolled in exchange plans did not change significantly from 3.6% (9.7 million) in the third quarter of 2017 to 3.8% (10.4 million) in the third quarter of 2018 (Figure 8).

Among adults aged 18–64, 69.0% (136.7 million) were covered by private health insurance plans at the time of interview in the first 9 months of 2018. This includes 4.2% (8.2 million) covered by private health insurance plans obtained through the Health Insurance Marketplace or state-based exchanges. The percentage of persons aged 18–64 who were enrolled in exchange plans did not change significantly from 4.1% (8.1 million) in the third quarter of 2017 to 4.5% (8.9 million) in the third quarter of 2018 (Figure 8).

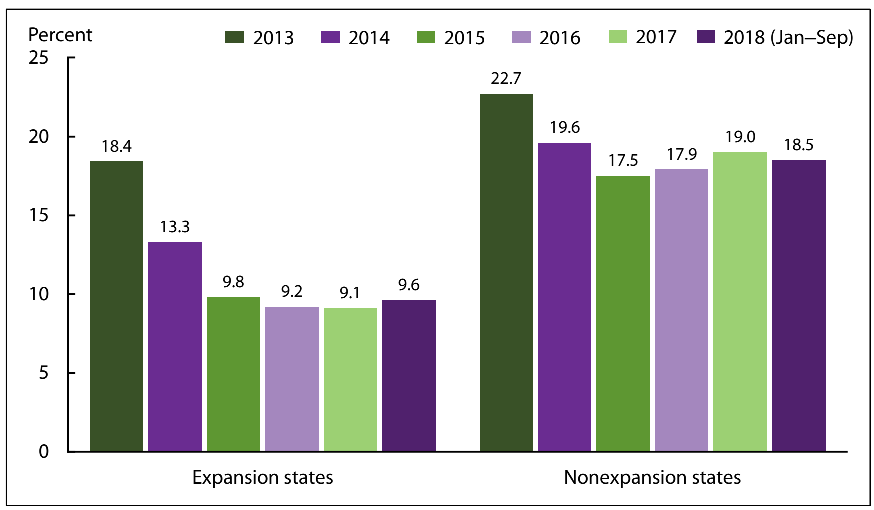
Among children aged 0–17 years, 54.1% (39.7 million) were covered by private health insurance at the time of interview in the first 9 months of 2018. This includes 2.1% (1.5 million) covered by plans obtained through the Health Insurance Marketplace or state-based exchanges. The percentage of children enrolled in exchange plans did not change significantly from 2.2% (1.6 million) in the third quarter of 2017 to 2.1% (1.5 million) in the third quarter of 2018 (Figure 8).

Figure 8. Percentage of persons under age 65 with private health insurance obtained through the Health Insurance Marketplace or state-based exchanges, by age group and quarter: United States, January 2014–September 2018



NOTES: Includes persons who had purchased a private health insurance plan through the Health Insurance Marketplace or state-based exchanges that were established as part of the Affordable Care Act of 2010 (P.L. 111–148, P.L. 111–152). 2014 is the first year that all states had exchange-based coverage. All persons who have exchange-based coverage are considered to have private health insurance. Data are based on household interviews of a sample of the civilian noninstitutionalized population.
SOURCE: NCHS, National Health Interview Survey, 2014–2018, Family Core component.

Figure 9. Percentage of adults aged 18–64 who were uninsured at the time of interview, by year and state Medicaid expansion status: United States, 2013–September 2018



NOTES: For 2013 and 2014, there were 26 Medicaid expansion states. For 2015, there were 29 Medicaid expansion states. For 2016–2018, there were 32 Medicaid expansion states. Data are based on household interviews of a sample of the civilian noninstitutionalized population.
SOURCE: NCHS, National Health Interview Survey, 2013–2018, Family Core component.

Health insurance coverage by state Medicaid expansion status

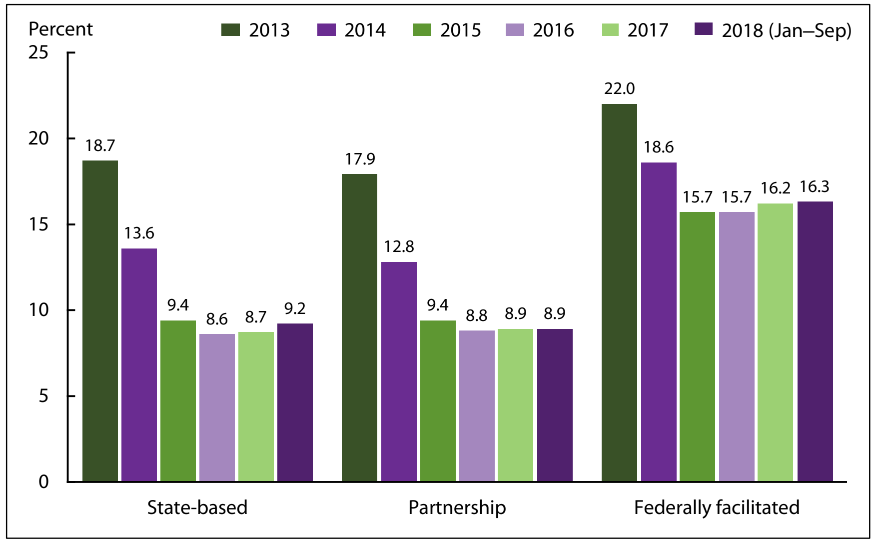
Under provisions of the Affordable Care Act (ACA) of 2010, states have the option to expand Medicaid coverage to those with low income. In the first 9 months of 2018, adults aged 18–64 residing in Medicaid expansion states were less likely to be uninsured than those residing in nonexpansion states (Figure 9). In Medicaid expansion states, the percentage of uninsured adults decreased, from 18.4% in 2013 to 9.6% in the first 9 months of 2018. In nonexpansion states, the percentage of uninsured adults decreased, from 22.7% in 2013 to 17.5% in 2015. There was a significant increase in the percentage who were uninsured, from 17.5% in 2015 to 19.0% in 2017, and no significant change between 2017 and the first 9 months of 2018 (18.5%).

Health insurance coverage by state Health Insurance Marketplace type

Under provisions of ACA, each state has the option to set up and operate its own Health Insurance Marketplace, rely on a Federally Facilitated Marketplace operated solely by the federal government, or have a hybrid partnership Marketplace that is operated by the federal government but where the state runs certain functions and makes key decisions. In the first 9 months of 2018, adults aged 18–64 in states with a Federally Facilitated Marketplace were more likely to be uninsured than those in states with a state-based Marketplace or states with a partnership Marketplace (Figure 10).

Among adults aged 18–64, significant decreases were observed in the uninsured rates from 2013 through the first 9 months of 2018 in states with a state-based Marketplace, a partnership Marketplace, and a Federally Facilitated Marketplace. For all three Marketplace types, the percentage of adults aged 18–64 who were uninsured at the time of interview has remained stable from 2015 through the first 9 months of 2018 (Figure 10).

Figure 10. Percentage of adults aged 18–64 who were uninsured at the time of interview, by year and state Health Insurance Marketplace type: United States, 2013–September 2018

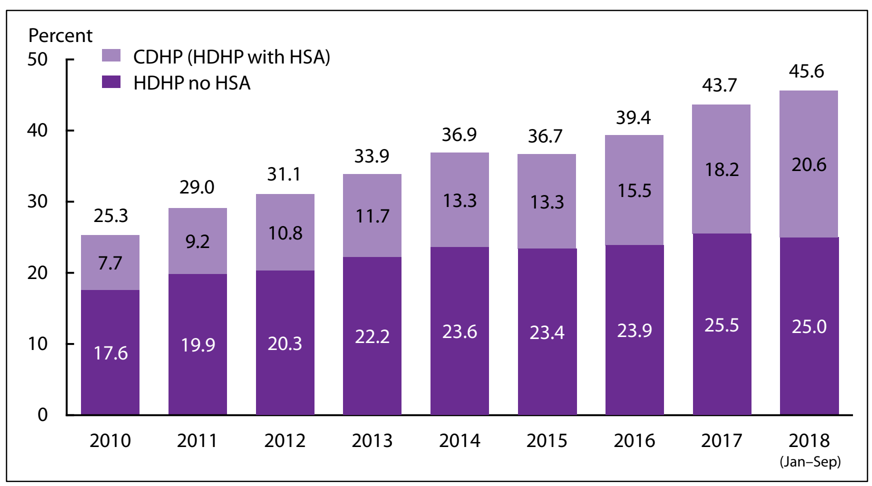


NOTE: Data are based on household interviews of a sample of the civilian noninstitutionalized population.
SOURCE: NCHS, National Health Interview Survey, 2013–2018, Family Core component.

Estimates of enrollment in HDHPs and CDHPs

In the first 9 months of 2018, 45.6% of persons under age 65 with private health insurance were enrolled in an HDHP, including 20.6% who were enrolled in a CDHP (an HDHP with a health savings account [HSA]) and 25.0% who were enrolled in an HDHP without an HSA (Figure 11) (see Technical Notes for definitions of HDHP, CDHP, and HSA). Among those with private health insurance, enrollment in HDHPs has generally increased since 2010. The percentage of persons enrolled in an HDHP increased 20.3 percentage points, from 25.3% in 2010 to 45.6% in the first 9 months of 2018. More recently, the observed increase in the percentage of those enrolled in an HDHP from 43.7% in 2017 to 45.6% in the first 9 months of 2018 was not statistically significant. The percentage of persons enrolled in a CDHP almost tripled, from 7.7% in 2010 to 20.6% in the first 9 months of 2018.

Figure 11. Percentage of persons under age 65 enrolled in a high-deductible health plan without a health savings account or in a consumer-directed health plan, among those with private health insurance coverage: United States, 2010–September 2018



NOTES: CDHP is consumer-directed health plan, which is a high-deductible health plan (HDHP) with a health savings account (HSA). HDHP no HSA is a high-deductible health plan without an HSA. The individual components of HDHPs may not add up to the total due to rounding. Data are based on household interviews of a sample of the civilian noninstitutionalized population.
SOURCE: NCHS, National Health Interview Survey, 2010–2018, Family Core component.

More recently, the percentage of those enrolled in a CDHP increased, from 18.2% in 2017 to 20.6% in the first 9 months of 2018. The percentage of those enrolled in an HDHP without an HSA did not change significantly from 25.5% in 2017 to 25.0% in the first 9 months of 2018.

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Technical Notes

The National Center for Health Statistics (NCHS) is releasing selected estimates of health insurance coverage for the civilian noninstitutionalized U.S. population based on data from the first three quarters of the 2018 National Health Interview Survey (NHIS), along with comparable estimates from previous calendar years.

To reflect different policy-relevant perspectives, three measures of lack of health insurance coverage are provided: (a) uninsured at the time of interview, (b) uninsured for at least part of the year prior to interview (which also includes persons uninsured for more than 1 year), and (c) uninsured for more than 1 year at the time of interview. The three time frames are defined as:

- *Uninsured at the time of interview*—Provides an estimate of persons who, at the given time, may have experienced barriers to obtaining needed health care.
- *Uninsured for at least part of the past year*—Provides an annual caseload of persons who may experience barriers to obtaining needed health care. This measure includes persons who have insurance at the time of interview but who had a period of noncoverage in the year prior to interview, as well as those who are currently uninsured and who may have been uninsured for a long period of time.
- *Uninsured for more than 1 year*—Provides an estimate of those with a persistent lack of coverage who may be at high risk of not obtaining preventive services or care for illness and injury.

These three measures are not mutually exclusive, and a given individual may be counted in more than one of the measures. Estimates of enrollment in public and private coverage are also provided.

Persons who were uninsured at the time of interview were asked the following question (HILAST): *Not including Single Service Plans, about how long has it been since [you/Alias] last had health care coverage?* In 2016, the answer categories for the HILAST question were modified to align NHIS responses to those of other national federal surveys. Therefore, starting in 2016, estimates of "uninsured for at least part of the past year" and "uninsured for more than 1 year" may not be completely comparable with previous years. Prior to 2016, the answer categories for the HILAST question were: 6 months or less; More than 6 months, but not more than 1 year ago; More than 1 year, but not more than 3 years ago; More than 3 years; and Never. Beginning in 2016, the answer categories for the HILAST question are: 6 months or less; More than 6 months, but less than 1 year; 1 year; More than 1 year, but less than 3 years; 3 years or more; and Never.

This report also includes estimates for three types of consumer-directed private health care. Consumer-directed health care may enable individuals to have more control over when and how they access care, what types of care they use, and how much they spend on health care services. National attention to consumer-directed health care increased following enactment of the Medicare Prescription Drug, Improvement, and Modernization Act of 2003 (P.L. 108–173), which established tax-advantaged health savings accounts (HSAs) (1). In 2007, three questions were added to the health insurance section of NHIS to monitor enrollment in consumer-directed health care among persons with private health insurance. Estimates are provided for enrollment in high-deductible health plans (HDHPs), plans with high deductibles coupled with HSAs (i.e., consumer-directed health plans or CDHPs), and being in a family with a flexible spending account (FSA) for medical expenses not otherwise covered. For a more complete description of consumer-directed health care, see Definitions of selected terms.

The 2018 health insurance estimates are being released prior to final data editing and final weighting to provide access to the most recent information from NHIS. Differences between estimates calculated using preliminary data files and final data files are typically less than 0.1 percentage point. However, preliminary estimates of persons without health insurance coverage are generally 0.1–0.3 percentage points lower than the final estimates due to the editing procedures used for the final data files.

Estimates for the first 9 months of 2018 are stratified by age group, sex, race and ethnicity, poverty status, marital status, employment status, region, and educational attainment.

Data source

NHIS is a multistage probability sample survey of the civilian noninstitutionalized population of the United States and is the source of data for this report. The survey is conducted continuously throughout the year by NCHS through an agreement with the U.S. Census Bureau.

NHIS is a comprehensive health survey that can be used to relate health insurance coverage to health outcomes and health care utilization. It has a low item nonresponse rate (about 1%) for the health insurance questions. Because NHIS is conducted throughout the year—yielding a nationally representative sample each month—data can be analyzed monthly or quarterly to monitor trends in health insurance coverage.

A new sample design was implemented with the 2016 NHIS. Sample areas were reselected to take into account changes in the distribution of the U.S. population since 2006, when the previous sample design was first implemented. Commercial address lists were used as the main source of addresses, rather than field listing; and the oversampling procedures for black, Hispanic, and Asian persons that were a feature of the previous sample design were not implemented in 2016. Some of the differences between estimates for 2016 and beyond and estimates for earlier years may be attributable to the new sample design. Visit the NHIS website at: https://www.cdc.gov/nchs/nhis.htm for more information on the design, content, and use of NHIS.

The data for this report are derived from the Family Core component of the 1997–2018 NHIS, which collects information on all family members in each household. Data analyses for the 2018 NHIS were based on 61,484 persons in the Family Core.

Data on health insurance status were edited using a system of logic checks. Information from follow-up questions, such as plan name(s), were used to reassign insurance status and type of coverage to avoid misclassification. The analyses excluded persons with unknown health insurance status (about 1% of respondents each year).

Data points for all figures can be found in the detailed appendix tables at the end of this report, appendix tables from previous reports, and quarterly tables available separately through the Early Release (ER) program.

Estimation procedures

NCHS creates survey weights for each calendar quarter of the NHIS sample. The NHIS data weighting procedure is described in more detail at: https://www.cdc.gov/nchs/data/series/sr_02/sr02_165.pdf. Estimates were calculated using NHIS survey weights, which are calibrated to census totals for sex, age, and race and ethnicity of the U.S. civilian noninstitutionalized population. Weights for 2010 and 2011 were derived from 2000 census-based population estimates. Beginning with 2012 NHIS data, weights were derived from 2010 census-based population estimates.

Point estimates and estimates of their variances were calculated using SUDAAN software (RTI International, Research Triangle Park, N.C.) to account for the complex sample design of NHIS, taking into account stratum and primary sampling unit (PSU) identifiers. The Taylor series linearization method was chosen for variance estimation.

Trends in coverage were generally assessed using joinpoint regression (2), which characterizes trends as joined linear segments. A joinpoint is the year where two segments with different slopes meet. Joinpoint software uses statistical criteria to determine the fewest number of segments necessary to characterize a trend and the year(s) when segments begin and end. A limitation of using aggregated data and joinpoint software alone for trend analysis of NHIS is that this approach does not account for year-to-year correlation or use the recommended degrees of freedom for statistical testing. Trends from 2010 through the first 9 months of 2018 were also evaluated using logistic regression analysis.

Beginning with the 2017 NHIS, all estimates shown meet the NCHS standards of reliability as specified in "National Center for Health Statistics Data Presentation Standards for Proportions" (3), unless otherwise noted. Current state estimates as well as other estimates based on the 2016 and earlier NHIS meet the former NCHS standard of having less than or equal to 30% relative standard error, unless otherwise noted. Differences between percentages or rates were evaluated using two-sided significance tests at the 0.05 level. All differences discussed are significant unless otherwise noted. Lack of comment regarding the difference between any two estimates does not necessarily mean that the difference was tested and found to be not significant.

Definitions of selected terms

Private health insurance coverage—Includes persons who had any comprehensive private insurance plan (including health maintenance and preferred provider organizations). These plans include those obtained through an employer, purchased directly, purchased through local or community programs, or purchased through the Health Insurance Marketplace or a state-based exchange. Private coverage excludes plans that pay for only one type of service, such as accidents or dental care.

Public health plan coverage—Includes Medicaid, Children's Health Insurance Program (CHIP), state-sponsored or other government-sponsored health plans, Medicare, and military plans. A small number of persons were covered by both public and private plans and were included in both categories.

Uninsured—A person was defined as uninsured if he or she did not have any private health insurance, Medicare, Medicaid, CHIP, state-sponsored or other government-sponsored health plan, or military plan at the time of interview. A person was also defined as uninsured if he or she had only Indian Health Service coverage or had only a private plan that paid for one type of service, such as accidents or dental care.

Directly purchased coverage—Private insurance that was originally obtained through direct purchase or other means not related to employment.

Employment-based coverage—Private insurance that was originally obtained through a present or former employer, union, or professional association.

Exchange-based coverage—A private health insurance plan purchased through the Health Insurance Marketplace or state-based exchanges that were established as part of the Affordable Care Act (ACA) of 2010 (P.L. 111–148, P.L. 111–152). In response to ACA, several questions were added to NHIS to capture health care plans obtained through exchange-based coverage.

In general, if a family member is reported to have coverage through the exchange, that report is considered accurate unless there is other information (e.g., plan name or information about premiums) that clearly contradicts that report. Similarly, if a family member is not reported to have coverage through the exchange, that report is considered accurate unless other information clearly contradicts that report. For a more complete discussion of the procedures used in classifying exchange-based coverage, see https://www.cdc.gov/nchs/nhis/insurance.htm.

Based on these classification procedures, an average of 3.6% (standard error [SE] 0.15) of persons under age 65, 4.2% (SE 0.17) of adults aged 18–64, 2.1% (SE 0.21) of children under age 18 years, and 3.2% (SE 0.32) of adults aged 19–25 had exchange-based private health insurance coverage in the first 9 months of 2018. This equates to 9.8 million persons under age 65, 8.2 million adults aged 18–64, 1.5 million children, and 1.0 million adults aged 19–25. If these procedures had not been used and reports of coverage through the exchanges (or lack thereof) had been taken at face value, the estimates would have been higher. For example, an average of 4.7% (12.9 million) of persons under age 65 would have been reported to have obtained their coverage through exchanges in the first 9 months of 2018.

High-deductible health plan (HDHP)—For persons with private health insurance, a question was asked regarding the annual deductible of each private health insurance plan. HDHP was defined in 2018 as a private health plan with an annual deductible of at least $1,350 for self-only coverage or $2,700 for family coverage. The deductible is adjusted annually for inflation. For 2015 through 2017, the annual deductible was $1,300 for self-only coverage and $2,600 for family coverage. For 2013 and 2014, the annual deductible was $1,250 for self-only coverage and $2,500 for family coverage. For 2010 through 2012, the annual deductible was $1,200 for self-only coverage and $2,400 for family coverage.

Consumer-directed health plan (CDHP)—An HDHP with a special account to pay for medical expenses. Unspent funds are carried over to subsequent years. For plans that are considered HDHPs, a follow-up question was asked regarding these special accounts. A person is considered to have a CDHP if there is a "yes" response to the following question: *With this plan, is there a special account or fund that can be used to pay for medical expenses? The accounts are sometimes referred to as Health Savings Accounts (HSAs), Health Reimbursement Accounts (HRAs), Personal Care accounts, Personal Medical funds, or Choice funds, and are different from Flexible Spending Accounts.*

Health savings account (HSA)—A tax-advantaged account or fund that can be used to pay medical expenses. It must be coupled with an HDHP. The funds contributed to the account are not subject to federal income tax at the time of deposit. Unlike flexible spending accounts (FSAs), HSA funds roll over and accumulate year to year if not spent. HSAs are owned by the individual. Funds may be used to pay qualified medical expenses at any time without federal tax liability. HSAs may also be referred to as health reimbursement accounts (HRAs), personal care accounts, personal medical funds, or choice funds. The term "HSA" in this report includes accounts that use these alternative names.

Flexible spending account (FSA) for medical expenses—Persons are considered to be in a family with an FSA if there is a "yes" response to the following question: *[Do you/Does anyone in your family] have a Flexible Spending Account for health expenses? These accounts are offered by some employers to allow employees to set aside pretax dollars of their own money for their use throughout the year to reimburse themselves for their out-of-pocket expenses for health care. With this type of account, any money remaining in the account at the end of the year, following a short grace period, is lost to the employee.*

The measures of HDHP enrollment, CDHP enrollment, and being in a family with an FSA for medical expenses are not mutually exclusive; a person may be counted in more than one measure.

Medicaid expansion status—Under provisions of ACA, states have the option to expand Medicaid eligibility to cover adults who have income up to and including 138% of the federal poverty level. There is no deadline for states to choose to implement the Medicaid expansion, and they may do so at any time. As of October 31, 2013, 26 states and the District of Columbia were moving forward with Medicaid expansion. As of January 1, 2016, 32 states and the District of Columbia were moving forward with Medicaid expansion.

Health Insurance Marketplace—A resource where individuals, families, and small businesses can learn about their health coverage options; compare health insurance plans based on cost, benefits, and other important features; choose a plan; and enroll in coverage. The Marketplace also provides information on programs that help people with low-to-moderate income and resources pay for coverage. There are three types of Health Insurance Marketplaces: (a) a state-based Marketplace set up and operated solely by the state; (b) a hybrid partnership Marketplace in which the state runs certain functions, makes key decisions, and may tailor the Marketplace to local needs and market conditions but is operated by the federal government; and (c) the Federally Facilitated Marketplace operated solely by the federal government.

Education—Categories are based on the years of school completed or highest degree obtained for persons aged 18 and over.

Employment—Employment status is assessed at the time of interview and is obtained for persons aged 18 and over. In this report, it is presented only for persons aged 18–64.

Hispanic or Latino origin and race—Hispanic or Latino origin and race are two separate and distinct categories. Persons of Hispanic or Latino origin may be of any race or combination of races. Hispanic or Latino origin includes persons of Mexican, Puerto Rican, Cuban, Central and South American, or Spanish origin. Race is based on the family respondent's description of his or her own racial background, as well as the racial background of other family members. More than one race may be reported for a person. For conciseness, the text, tables, and figures in this report use shorter versions of the 1997 Office of Management and Budget terms for race and Hispanic or Latino origin. For example, the category "not Hispanic or Latino, black or African American, single race" is referred to as "non-Hispanic black, single race" in the text, tables, and figures. Estimates for non-Hispanic persons of races other than white only, black only, and Asian only, or of multiple races, are combined into the "non-Hispanic, other races and multiple races" category.

Poverty status—Poverty categories are based on the ratio of the family's income in the previous calendar year to the appropriate poverty threshold (given the family's size and number of children), as defined by the U.S. Census Bureau for that year (4–14). Persons categorized as "poor" have a ratio less than 1.0 (i.e., their family income is below the poverty threshold); "near poor" persons have incomes of 100% to less than 200% of the poverty threshold; and "not poor" persons have incomes that are 200% of the poverty threshold or greater. The remaining group of respondents is coded as "unknown" with respect to poverty status. The percentage of respondents with unknown poverty status (19.1% in 1997, 28.9% in 2005, 12.2% in 2010, 11.5% in 2011, 11.4% in 2012, 10.2% in 2013, 8.8% in 2014, 8.8%

in 2015, 7.8% in 2016, 7.5% in 2017, and 7.1% in the first three quarters of 2018) is disaggregated by age and insurance status in Tables IV, V, and VI.

For more information on unknown income and unknown poverty status, see the NHIS Survey Description documents for 1997–2017 (available from: https://www.cdc.gov/nchs/nhis/quest_data_related_1997_forward.htm).

NCHS imputes income for approximately 30% of NHIS records. The imputed income files are released a few months after the annual release of NHIS microdata and are not available for the ER updates. Therefore, ER health insurance estimates stratified by poverty status are based on reported income only and may differ from similar estimates produced later (e.g., in *Health, United States* [15]) that are based on both reported and imputed income.

Region—In the geographic classification of the U.S. population, states are grouped into the following four regions used by the U.S. Census Bureau:

Region	*States included*
Northeast	Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont
Midwest	Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin
South	Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia
West	Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming

Expanded regions—Based on a subdivision of the four regions into nine divisions. For this report, the nine Census divisions were modified by moving Delaware, the District of Columbia, and Maryland into the Middle Atlantic division. This approach was used previously by Holahan et al. (16).

Additional Early Release Program Products

Two additional periodical reports are published through the NHIS ER Program. “Early Release of Selected Estimates Based on Data From the National Health Interview Survey” (17) is published quarterly and provides estimates of 14 selected measures of health including estimates of having a usual place to go for medical care, obtaining needed medical care, influenza vaccination, pneumococcal vaccination, obesity, leisure-time physical activity, current smoking, alcohol consumption, HIV testing, general health status, personal care needs, serious psychological distress, diagnosed diabetes, and asthma episodes and current asthma. Starting with the June 2018 release, this report has an online dynamic report format.

“Wireless Substitution: Early Release of Estimates From the National Health Interview Survey” (18) is published semiannually and provides selected estimates of telephone coverage in the United States.

Other ER reports and tabulations on special topics are released as needed (available from: https://www.cdc.gov/nchs/nhis/releases.htm.)

In addition to these reports, preliminary microdata files containing selected NHIS variables are produced as part of the ER Program. For each data collection year (January through December), these variables are made available four times approximately 5–6 months following the completion of data collection. NHIS data users can analyze these files through the NCHS Research Data Centers (https://www.cdc.gov/rdc/) without having to wait for the final annual NHIS microdata files to be released.

New measures and products may be added as work continues and in response to changing data needs. Feedback on these releases is welcome (nhislist@cdc.gov).

Announcements about ERs, other new data releases, and publications, as well as corrections related to NHIS, will be sent to members of the HISUSERS electronic mailing list. To join, visit the Centers for Disease Control and Prevention (CDC) website at: https://www.cdc.gov/nchs/products/nchs_listservs.htm, click on the “National Health Interview Survey (NHIS) Researchers” button, and follow the directions on the page.

Suggested Citation

Terlizzi EP, Cohen RA, Martinez ME. Health insurance coverage: Early release of estimates from the National Health Interview Survey, January–September 2018. National Center for Health Statistics. February 2019. Available from: https://www.cdc.gov/nchs/nhis/releases.htm.

Table I. Percentages (and standard errors) of persons who lacked health insurance coverage at the time of interview, for at least part of the past year, and for more than 1 year, by age group and selected years: United States, 1997–September 2018

Age group and year	Uninsured[1] at time of interview	Uninsured[1] for at least part of the past year[2]	Uninsured[1] for more than 1 year[2]
All ages			
1997	15.4 (0.21)	19.5 (0.24)	10.4 (0.18)
2005	14.2 (0.21)	17.6 (0.23)	10.0 (0.18)
2010	16.0 (0.27)	19.8 (0.29)	11.7 (0.22)
2011	15.1 (0.25)	19.2 (0.29)	11.2 (0.21)
2012	14.7 (0.23)	18.6 (0.27)	11.1 (0.22)
2013	14.4 (0.26)	17.8 (0.27)	10.7 (0.23)
2014	11.5 (0.23)	16.5 (0.25)	8.4 (0.19)
2015	9.1 (0.19)	13.2 (0.23)	6.2 (0.15)
2016	9.0 (0.27)	12.5 (0.29)	5.2 (0.23)
2017	9.1 (0.25)	12.4 (0.28)	5.4 (0.18)
2018 (Jan–Sep)	9.2 (0.27)	12.7 (0.30)	5.2 (0.21)
Under 65 years			
1997	17.4 (0.24)	21.9 (0.28)	11.8 (0.21)
2005	16.0 (0.24)	19.9 (0.26)	11.3 (0.21)
2010	18.2 (0.30)	22.5 (0.33)	13.3 (0.24)
2011	17.3 (0.29)	21.8 (0.33)	12.7 (0.25)
2012	16.9 (0.27)	21.3 (0.31)	12.7 (0.24)
2013	16.6 (0.30)	20.4 (0.32)	12.4 (0.27)
2014	13.3 (0.26)	19.0 (0.29)	9.7 (0.22)
2015	10.5 (0.22)	15.3 (0.27)	7.2 (0.17)
2016	10.4 (0.31)	14.5 (0.33)	6.1 (0.26)
2017	10.7 (0.29)	14.5 (0.32)	6.3 (0.21)
2018 (Jan–Sep)	10.8 (0.32)	14.9 (0.35)	6.1 (0.25)
0–17 years			
1997	13.9 (0.36)	18.1 (0.41)	8.4 (0.29)
2005	8.9 (0.29)	12.6 (0.33)	5.3 (0.24)
2010	7.8 (0.32)	11.6 (0.37)	4.5 (0.23)
2011	7.0 (0.27)	10.9 (0.36)	3.7 (0.19)
2012	6.6 (0.27)	10.4 (0.35)	3.7 (0.19)
2013	6.5 (0.26)	10.0 (0.33)	3.6 (0.20)
2014	5.5 (0.27)	9.4 (0.40)	3.0 (0.19)
2015	4.5 (0.24)	7.7 (0.32)	2.3 (0.16)
2016	5.1 (0.31)	8.0 (0.31)	2.2 (0.22)
2017	5.0 (0.40)	8.2 (0.43)	2.4 (0.28)
2018 (Jan–Sep)	4.9 (0.23)	7.9 (0.32)	1.9 (0.20)
18–64 years			
1997	18.9 (0.23)	23.6 (0.26)	13.3 (0.21)
2005	18.9 (0.26)	22.8 (0.28)	13.8 (0.23)
2010	22.3 (0.35)	26.7 (0.37)	16.8 (0.30)
2011	21.3 (0.34)	26.0 (0.37)	16.3 (0.31)
2012	20.9 (0.31)	25.5 (0.34)	16.2 (0.29)
2013	20.4 (0.37)	24.4 (0.38)	15.7 (0.34)
2014	16.3 (0.31)	22.6 (0.34)	12.3 (0.27)
2015	12.8 (0.27)	18.1 (0.33)	9.1 (0.22)
2016	12.4 (0.36)	17.0 (0.38)	7.6 (0.31)
2017	12.8 (0.32)	16.8 (0.36)	7.8 (0.24)
2018 (Jan–Sep)	13.0 (0.41)	17.5 (0.44)	7.7 (0.31)

See footnotes at end of table.

Table I. Percentages (and standard errors) of persons who lacked health insurance coverage at the time of interview, for at least part of the past year, and for more than 1 year, by age group and selected years: United States, 1997–September 2018—Con.

Age group and year	Uninsured[1] at time of interview	Uninsured[1] for at least part of the past year[2]	Uninsured[1] for more than 1 year[2]
19–25 years			
1997	31.4 (0.63)	39.2 (0.67)	20.8 (0.51)
2005	31.2 (0.65)	37.9 (0.68)	21.6 (0.54)
2010	33.9 (0.73)	41.7 (0.78)	24.1 (0.61)
2011	27.9 (0.71)	36.1 (0.77)	20.1 (0.61)
2012	26.4 (0.72)	33.0 (0.72)	19.6 (0.62)
2013	26.5 (0.71)	31.3 (0.79)	19.8 (0.61)
2014	20.0 (0.65)	26.9 (0.73)	14.2 (0.56)
2015	15.8 (0.58)	22.2 (0.68)	10.2 (0.43)
2016	14.7 (0.71)	20.1 (0.78)	7.7 (0.61)
2017	15.2 (0.64)	19.9 (0.77)	8.1 (0.53)
2018 (Jan–Sep)	14.8 (0.73)	19.9 (0.76)	7.7 (0.54)

[1]A person was defined as uninsured if he or she did not have any private health insurance, Medicare, Medicaid, Children's Health Insurance Program (CHIP), state-sponsored or other government-sponsored health plan, or military plan. A person was also defined as uninsured if he or she had only Indian Health Service coverage or had only a private plan that paid for one type of service, such as accidents or dental care.

[2]In references to "part of the past year" and "more than 1 year," 1 year is defined as the 12 months prior to interview. Beginning in 2016, answer categories concerning the length of noncoverage were modified for those who were currently uninsured. Therefore, starting in 2016, estimates of "uninsured for at least part of the past year" and "uninsured for more than 1 year" may not be completely comparable with previous years. For more information on this change, see Technical Notes.

NOTE: Data are based on household interviews of a sample of the civilian noninstitutionalized population.

SOURCE: NCHS, National Health Interview Survey, 1997, 2005, and 2010–2018, Family Core component.

Table II. Numbers (in millions) of persons who lacked health insurance coverage at the time of interview, for at least part of the past year, and for more than 1 year, by age group and selected years: United States, 1997–September 2018

Age group and year	Uninsured[1] at time of interview	Uninsured[1] for at least part of the past year[2]	Uninsured[1] for more than 1 year[2]
All ages			
1997	41.0	51.9	27.7
2005	41.2	51.3	29.2
2010	48.6	60.3	35.7
2011	46.3	58.7	34.2
2012	45.5	57.5	34.1
2013	44.8	55.4	33.4
2014	36.0	51.6	26.3
2015	28.6	41.7	19.6
2016	28.6	39.9	16.7
2017	29.3	39.8	17.3
2018 (Jan–Sep)	29.7	41.1	16.9
Under 65 years			
1997	40.7	51.4	27.6
2005	41.0	50.9	29.0
2010	48.2	59.6	35.4
2011	45.9	58.0	33.9
2012	45.2	56.8	33.9
2013	44.3	54.7	33.1
2014	35.7	50.8	26.1
2015	28.4	41.1	19.4
2016	28.2	39.3	16.5
2017	28.9	39.2	17.0
2018 (Jan–Sep)	29.4	40.4	16.6
0–17 years			
1997	9.9	12.9	6.0
2005	6.5	9.3	3.9
2010	5.8	8.7	3.4
2011	5.2	8.1	2.7
2012	4.9	7.7	2.7
2013	4.8	7.3	2.6
2014	4.0	6.9	2.2
2015	3.3	5.7	1.7
2016	3.8	5.9	1.6
2017	3.7	6.0	1.8
2018 (Jan–Sep)	3.6	5.8	1.4
18–64 years			
1997	30.8	38.5	21.7
2005	34.5	41.7	25.2
2010	42.5	51.0	32.0
2011	40.7	49.9	31.2
2012	40.3	49.2	31.2
2013	39.6	47.4	30.5
2014	31.7	44.0	23.9
2015	25.1	35.5	17.8
2016	24.5	33.4	14.9
2017	25.2	33.2	15.3
2018 (Jan–Sep)	25.8	34.6	15.2

See footnotes at end of table.

Table II. Numbers (in millions) of persons who lacked health insurance coverage at the time of interview, for at least part of the past year, and for more than 1 year, by age group and selected years: United States, 1997–September 2018—Con.

Age group and year	Uninsured[1] at time of interview	Uninsured[1] for at least part of the past year[2]	Uninsured[1] for more than 1 year[2]
19–25 years			
1997	7.7	9.7	5.1
2005	8.8	10.7	6.1
2010	10.0	12.3	7.1
2011	8.4	10.8	6.0
2012	7.9	9.9	5.9
2013	8.0	9.5	6.0
2014	6.0	8.1	4.3
2015	4.8	6.7	3.1
2016	4.4	6.0	2.3
2017	4.5	5.9	2.4
2018 (Jan–Sep)	4.4	5.9	2.3

[1]A person was defined as uninsured if he or she did not have any private health insurance, Medicare, Medicaid, Children's Health Insurance Program (CHIP), state-sponsored or other government-sponsored health plan, or military plan. A person was also defined as uninsured if he or she had only Indian Health Service coverage or had only a private plan that paid for one type of service, such as accidents or dental care.

[2]In references to "part of the past year" and "more than 1 year," 1 year is defined as the 12 months prior to interview. Beginning in 2016, answer categories concerning the length of noncoverage were modified for those who were currently uninsured. Therefore, starting in 2016, estimates of "uninsured for at least part of the past year" and "uninsured for more than 1 year" may not be completely comparable with previous years. For more information on this change, see Technical Notes.

NOTE: Data are based on household interviews of a sample of the civilian noninstitutionalized population.

SOURCE: NCHS, National Health Interview Survey, 1997, 2005, and 2010–2018, Family Core component.

Table III. Percentages (and standard errors) of persons who lacked health insurance coverage, had public health plan coverage, and had private health insurance coverage at the time of interview, by age group and selected years: United States, 1997–September 2018

Age group and year	Uninsured[1] at time of interview	Public health plan coverage[2]	Private health insurance coverage[3]
All ages			
1997	15.4 (0.21)	23.3 (0.27)	70.7 (0.32)
2005	14.2 (0.21)	26.4 (0.30)	67.3 (0.37)
2010	16.0 (0.27)	31.4 (0.39)	60.2 (0.48)
2011	15.1 (0.25)	32.4 (0.37)	60.1 (048)
2012	14.7 (0.23)	33.4 (0.35)	59.6 (0.43)
2013	14.4 (0.26)	33.8 (0.36)	59.5 (0.49)
2014	11.5 (0.23)	34.6 (0.37)	61.8 (0.45)
2015	9.1 (0.19)	35.6 (0.42)	63.2 (0.46)
2016	9.0 (0.27)	36.8 (0.36)	62.5 (0.44)
2017	9.1 (0.25)	36.2 (0.37)	62.6 (0.45)
2018 (Jan–Sep)	9.2 (0.27)	37.0 (0.44)	62.3 (0.54)
Under 65 years			
1997	17.4 (0.24)	13.6 (0.25)	70.8 (0.35)
2005	16.0 (0.24)	16.8 (0.29)	68.4 (0.39)
2010	18.2 (0.30)	22.0 (0.38)	61.2 (0.50)
2011	17.3 (0.29)	23.0 (0.37)	61.2 (0.51)
2012	16.9 (0.27)	23.5 (0.37)	61.0 (0.47)
2013	16.6 (0.30)	23.8 (0.35)	61.0 (0.52)
2014	13.3 (0.26)	24.5 (0.36)	63.6 (0.46)
2015	10.5 (0.22)	25.3 (0.43)	65.6 (0.50)
2016	10.4 (0.31)	26.3 (0.41)	65.0 (0.48)
2017	10.7 (0.29)	25.3 (0.39)	65.4 (0.46)
2018 (Jan–Sep)	10.8 (0.32)	25.9 (0.49)	64.9 (0.60)
0–17 years			
1997	13.9 (0.36)	21.4 (0.48)	66.2 (0.57)
2005	8.9 (0.29)	29.9 (0.56)	62.4 (0.60)
2010	7.8 (0.32)	39.8 (0.73)	53.8 (0.75)
2011	7.0 (0.27)	41.0 (0.74)	53.3 (0.76)
2012	6.6 (0.27)	42.1 (0.72)	52.8 (0.73)
2013	6.5 (0.26)	42.2 (0.70)	52.6 (0.76)
2014	5.5 (0.27)	42.2 (0.65)	53.7 (0.68)
2015	4.5 (0.24)	42.2 (0.79)	54.7 (0.78)
2016	5.1 (0.31)	43.0 (0.65)	53.8 (0.71)
2017	5.0 (0.40)	41.3 (0.77)	55.0 (0.67)
2018 (Jan–Sep)	4.9 (0.23)	42.5 (0.96)	54.1 (0.96)
18–64 years			
1997	18.9 (0.23)	10.2 (0.20)	72.8 (0.30)
2005	18.9 (0.26)	11.5 (0.22)	70.9 (0.36)
2010	22.3 (0.35)	15.0 (0.30)	64.1 (0.46)
2011	21.3 (0.34)	15.9 (0.29)	64.2 (0.45)
2012	20.9 (0.31)	16.4 (0.29)	64.1 (0.42)
2013	20.4 (0.37)	16.7 (0.30)	64.2 (0.47)
2014	16.3 (0.31)	17.7 (0.32)	67.3 (0.43)
2015	12.8 (0.27)	18.9 (0.36)	69.7 (0.43)
2016	12.4 (0.36)	20.0 (0.38)	69.2 (0.41)
2017	12.8 (0.32)	19.3 (0.30)	69.3 (0.41)
2018 (Jan–Sep)	13.0 (0.41)	19.7 (0.40)	69.0 (0.50)

See footnotes at end of table.

Table III. Percentages (and standard errors) of persons who lacked health insurance coverage, had public health plan coverage, and had private health insurance coverage at the time of interview, by age group and selected years: United States, 1997–September 2018—Con.

Age group and year	Uninsured[1] at time of interview	Public health plan coverage[2]	Private health insurance coverage[3]
19–25 years			
1997	31.4 (0.63)	11.2 (0.46)	58.4 (0.71)
2005	31.2 (0.65)	12.9 (0.51)	56.5 (0.79)
2010	33.9 (0.73)	15.7 (0.55)	51.0 (0.84)
2011	27.9 (0.71)	16.8 (0.60)	56.2 (0.85)
2012	26.4 (0.72)	17.5 (0.59)	57.2 (0.85)
2013	26.5 (0.71)	16.1 (0.54)	58.1 (0.84)
2014	20.0 (0.65)	19.1 (0.64)	61.9 (0.88)
2015	15.8 (0.58)	19.5 (0.68)	65.7 (0.81)
2016	14.7 (0.71)	21.9 (0.79)	64.7 (0.88)
2017	15.2 (0.64)	19.9 (0.67)	65.7 (0.96)
2018 (Jan–Sep)	14.8 (0.73)	20.4 (0.76)	66.1 (1.00)

[1]A person was defined as uninsured if he or she did not have any private health insurance, Medicare, Medicaid, Children's Health Insurance Program (CHIP), state-sponsored or other government-sponsored health plan, or military plan. A person was also defined as uninsured if he or she had only Indian Health Service coverage or had only a private plan that paid for one type of service, such as accidents or dental care.

[2]Includes Medicaid, CHIP, state-sponsored or other government-sponsored health plan, Medicare, and military plans. A small number of persons were covered by both public and private plans and were included in both categories.

[3]Includes any comprehensive private insurance plan (including health maintenance and preferred provider organizations). These plans include those obtained through an employer, purchased directly, purchased through local or community programs, or purchased through the Health Insurance Marketplace or a state-based exchange. Private coverage excludes plans that pay for only one type of service, such as accidents or dental care. A small number of persons were covered by both public and private plans and were included in both categories.

NOTE: Data are based on household interviews of a sample of the civilian noninstitutionalized population.

SOURCE: NCHS, National Health Interview Survey, 1997, 2005, and 2010–2018, Family Core component.

Table IV. Percentages (and standard errors) of persons under age 65 who lacked health insurance coverage, had public health plan coverage, and had private health insurance coverage at the time of interview, by poverty status and selected years: United States, 1997–September 2018

Poverty status[1] and year	Uninsured[2] at time of interview	Public health plan coverage[3]	Private health insurance coverage[4]
Poor (< 100% FPL)			
1997	32.7 (0.80)	46.1 (1.01)	22.9 (0.93)
2005	28.4 (0.78)	50.6 (0.98)	22.1 (0.89)
2010	29.5 (0.83)	56.0 (0.98)	15.5 (0.70)
2011	28.2 (0.66)	56.2 (0.82)	16.6 (0.77)
2012	28.3 (0.65)	57.1 (0.83)	16.1 (0.83)
2013	27.3 (0.68)	59.0 (0.81)	14.7 (0.72)
2014	22.3 (0.66)	62.1 (0.80)	16.6 (0.69)
2015	17.2 (0.63)	65.6 (0.87)	18.5 (0.78)
2016	18.7 (0.94)	66.8 (1.01)	16.2 (0.71)
2017	17.7 (0.72)	63.4 (0.85)	20.1 (0.94)
2018 (Jan–Sep)	19.1 (0.99)	67.1 (1.07)	15.5 (0.91)
Near poor (≥ 100% and < 200% FPL)			
1997	30.4 (0.70)	18.2 (0.56)	53.5 (0.80)
2005	28.6 (0.63)	30.0 (0.72)	43.2 (0.89)
2010	32.3 (0.69)	36.2 (0.63)	33.2 (0.77)
2011	30.4 (0.58)	37.7 (0.73)	33.5 (0.75)
2012	29.5 (0.56)	37.1 (0.66)	35.2 (0.75)
2013	29.3 (0.70)	39.1 (0.77)	33.4 (0.79)
2014	23.5 (0.60)	41.1 (0.74)	37.3 (0.81)
2015	18.2 (0.51)	45.1 (0.77)	39.1 (0.77)
2016	17.6 (0.63)	49.2 (0.89)	35.4 (0.85)
2017	18.2 (0.63)	48.1 (1.15)	35.7 (0.82)
2018 (Jan–Sep)	18.5 (0.79)	50.0 (0.97)	33.8 (0.92)
Not poor (≥ 200% FPL)			
1997	8.9 (0.22)	5.3 (0.19)	87.6 (0.27)
2005	9.1 (0.22)	7.4 (0.22)	84.7 (0.30)
2010	10.7 (0.24)	9.7 (0.28)	81.0 (0.36)
2011	10.1 (0.25)	9.9 (0.26)	81.4 (0.36)
2012	9.8 (0.23)	10.3 (0.33)	81.3 (0.39)
2013	9.6 (0.24)	10.5 (0.29)	81.2 (0.39)
2014	7.6 (0.20)	9.9 (0.28)	83.7 (0.36)
2015	6.6 (0.19)	10.6 (0.31)	84.1 (0.38)
2016	6.4 (0.23)	11.2 (0.21)	83.9 (0.32)
2017	7.2 (0.25)	11.6 (0.26)	82.5 (0.35)
2018 (Jan–Sep)	7.1 (0.25)	12.1 (0.31)	82.4 (0.37)
Unknown			
1997	21.6 (0.59)	13.2 (0.49)	66.7 (0.71)
2005	18.5 (0.48)	16.4 (0.48)	66.2 (0.68)
2010	22.7 (0.95)	21.0 (0.69)	57.3 (1.08)
2011	21.0 (0.64)	26.2 (0.95)	53.9 (1.09)
2012	20.4 (0.73)	28.8 (0.89)	52.1 (1.00)
2013	20.5 (0.76)	24.2 (0.94)	56.8 (1.24)
2014	15.0 (0.80)	22.2 (0.91)	64.1 (1.24)
2015	11.9 (0.80)	24.4 (1.16)	64.9 (1.20)
2016	13.2 (1.01)	27.0 (1.04)	61.6 (1.26)
2017	12.1 (0.92)	28.2 (1.24)	61.0 (1.39)
2018 (Jan–Sep)	14.6 (1.20)	31.5 (1.72)	55.3 (1.72)

[1]FPL is federal poverty level, based on family income and family size, using the U.S. Census Bureau's poverty thresholds. "Poor" persons are defined as those with incomes below the poverty threshold; "near poor" persons have incomes of 100% to less than 200% of the poverty threshold; and "not poor" persons have incomes of 200% of the poverty threshold or greater. For more information on the "unknown" poverty status category, see Technical Notes. Estimates may differ from estimates that are based on both reported and imputed income.

[2]A person was defined as uninsured if he or she did not have any private health insurance, Medicare, Medicaid, Children's Health Insurance Program (CHIP), state-sponsored or other government-sponsored health plan, or military plan at the time of interview. A person was also defined as uninsured if he or she had only Indian Health Service coverage or had only a private plan that paid for one type of service, such as accidents or dental care.

[3]Includes Medicaid, CHIP, state-sponsored or other government-sponsored health plan, Medicare, and military plans. A small number of persons were covered by both public and private plans and were included in both categories.

[4]Includes any comprehensive private insurance plan (including health maintenance and preferred provider organizations). These plans include those obtained through an employer, purchased directly, purchased through local or community programs, or purchased through the Health Insurance Marketplace or a state-based exchange. Private coverage excludes plans that pay for only one type of service, such as accidents or dental care. A small number of persons were covered by both public and private plans and were included in both categories.

NOTE: Data are based on household interviews of a sample of the civilian noninstitutionalized population.

SOURCE: NCHS, National Health Interview Survey, 1997, 2005, and 2010–2018, Family Core component.

Table V. Percentages (and standard errors) of adults aged 18–64 who lacked health insurance coverage, had public health plan coverage, and had private health insurance coverage at the time of interview, by poverty status and selected years: United States, 1997–September 2018

Poverty status[1] and year	Uninsured[2] at time of interview	Public health plan coverage[3]	Private health insurance coverage[4]
Poor (< 100% FPL)			
1997	40.2 (0.88)	34.3 (0.93)	26.8 (1.09)
2005	38.5 (0.95)	35.6 (0.98)	26.8 (1.03)
2010	42.2 (0.99)	38.8 (0.97)	19.6 (0.89)
2011	40.1 (0.92)	39.6 (0.93)	21.2 (1.02)
2012	40.1 (0.90)	40.8 (0.94)	20.2 (1.09)
2013	39.3 (1.00)	42.4 (0.95)	19.0 (0.97)
2014	32.3 (0.93)	46.6 (0.95)	21.9 (0.92)
2015	25.2 (0.90)	51.7 (1.08)	24.3 (1.04)
2016	26.2 (1.31)	53.7 (1.29)	21.6 (0.92)
2017	24.4 (1.06)	50.2 (1.07)	26.5 (1.22)
2018 (Jan–Sep)	27.0 (1.39)	54.7 (1.42)	19.9 (1.08)
Near poor (≥ 100% and < 200% FPL)			
1997	34.9 (0.71)	14.6 (0.51)	52.6 (0.76)
2005	36.6 (0.73)	20.0 (0.61)	45.0 (0.85)
2010	43.0 (0.74)	23.7 (0.55)	34.7 (0.74)
2011	40.1 (0.72)	25.9 (0.69)	35.4 (0.75)
2012	39.2 (0.68)	25.2 (0.57)	37.2 (0.74)
2013	38.5 (0.84)	26.6 (0.78)	36.4 (0.78)
2014	30.9 (0.72)	29.6 (0.76)	41.2 (0.81)
2015	24.1 (0.62)	34.2 (0.80)	43.8 (0.79)
2016	23.2 (0.76)	38.5 (0.91)	40.3 (0.95)
2017	23.8 (0.67)	37.6 (1.07)	40.5 (0.85)
2018 (Jan–Sep)	25.0 (1.02)	38.0 (1.08)	39.3 (0.99)
Not poor (≥ 200% FPL)			
1997	9.9 (0.22)	5.0 (0.18)	87.1 (0.26)
2005	10.7 (0.24)	6.2 (0.20)	84.4 (0.29)
2010	12.6 (0.27)	8.1 (0.27)	80.8 (0.36)
2011	12.0 (0.28)	8.3 (0.23)	81.1 (0.35)
2012	11.4 (0.26)	8.7 (0.29)	81.3 (0.38)
2013	11.4 (0.27)	8.9 (0.26)	81.2 (0.37)
2014	8.9 (0.23)	8.5 (0.26)	83.9 (0.35)
2015	7.6 (0.22)	9.1 (0.27)	84.7 (0.33)
2016	7.2 (0.25)	9.6 (0.22)	84.6 (0.29)
2017	8.2 (0.26)	9.9 (0.24)	83.3 (0.35)
2018 (Jan–Sep)	8.0 (0.28)	10.2 (0.29)	83.4 (0.36)
Unknown			
1997	22.9 (0.58)	10.1 (0.41)	68.6 (0.65)
2005	21.2 (0.52)	11.3 (0.36)	68.7 (0.61)
2010	27.1 (1.10)	15.6 (0.63)	58.4 (1.11)
2011	25.6 (0.77)	17.6 (0.73)	58.1 (0.96)
2012	25.7 (0.88)	18.9 (0.76)	56.9 (0.92)
2013	24.3 (0.87)	17.6 (0.77)	59.5 (1.11)
2014	17.2 (0.88)	17.2 (0.81)	67.0 (1.20)
2015	13.8 (0.82)	19.6 (0.94)	67.7 (1.09)
2016	14.6 (0.90)	21.6 (0.91)	65.6 (1.03)
2017	14.7 (1.07)	21.9 (1.21)	64.6 (1.30)
2018 (Jan–Sep)	16.9 (1.30)	25.3 (1.37)	59.5 (1.58)

[1]FPL is federal poverty level, based on family income and family size, using the U.S. Census Bureau's poverty thresholds. "Poor" persons are defined as those with incomes below the poverty threshold; "near poor" persons have incomes of 100% to less than 200% of the poverty threshold; and "not poor" persons have incomes of 200% of the poverty threshold or greater. For more information on the "unknown" poverty status category, see Technical Notes. Estimates may differ from estimates that are based on both reported and imputed income.

[2]A person was defined as uninsured if he or she did not have any private health insurance, Medicare, Medicaid, Children's Health Insurance Program (CHIP), state-sponsored or other government-sponsored health plan, or military plan at the time of interview. A person was also defined as uninsured if he or she had only Indian Health Service coverage or had only a private plan that paid for one type of service, such as accidents or dental care.

[3]Includes Medicaid, CHIP, state-sponsored or other government-sponsored health plan, Medicare, and military plans. A small number of persons were covered by both public and private plans and were included in both categories.

[4]Includes any comprehensive private insurance plan (including health maintenance and preferred provider organizations). These plans include those obtained through an employer, purchased directly, purchased through local or community programs, or purchased through the Health Insurance Marketplace or a state-based exchange. Private coverage excludes plans that pay for only one type of service, such as accidents or dental care. A small number of persons were covered by both public and private plans and were included in both categories.

NOTE: Data are based on household interviews of a sample of the civilian noninstitutionalized population.

SOURCE: NCHS, National Health Interview Survey, 1997, 2005, and 2010–2018, Family Core component.

Table VI. Percentages (and standard errors) of children aged 0–17 years who lacked health insurance coverage, had public health plan coverage, and had private health insurance coverage at the time of interview, by poverty status and selected years: United States, 1997–September 2018

Poverty status[1] and year	Uninsured[2] at time of interview	Public health plan coverage[3]	Private health insurance coverage[4]
Poor (< 100% FPL)			
1997	22.4 (0.99)	62.1 (1.31)	17.5 (1.09)
2005	13.0 (0.92)	73.3 (1.32)	15.0 (1.10)
2010	10.2 (0.96)	82.0 (1.22)	9.2 (0.70)
2011	8.1 (0.62)	84.4 (0.87)	8.9 (0.72)
2012	7.5 (0.58)	85.9 (0.80)	8.8 (0.78)
2013	7.8 (0.62)	86.1 (0.88)	7.7 (0.69)
2014	5.9 (0.52)	87.3 (0.72)	8.0 (0.62)
2015	4.4 (0.47)	87.9 (0.86)	9.1 (0.81)
2016	6.5 (0.70)	88.0 (0.97)	7.4 (0.71)
2017	6.0 (0.59)	86.5 (0.95)	8.8 (0.81)
2018 (Jan–Sep)	6.1 (0.94)	87.6 (1.10)	8.2 (1.01)
Near poor (≥ 100% and < 200% FPL)			
1997	22.8 (0.96)	24.3 (0.93)	55.0 (1.15)
2005	14.7 (0.79)	47.3 (1.21)	40.0 (1.31)
2010	12.6 (0.73)	59.2 (1.16)	30.5 (1.18)
2011	11.5 (0.69)	60.8 (1.17)	29.9 (1.07)
2012	10.1 (0.70)	61.0 (1.30)	31.1 (1.18)
2013	10.6 (0.72)	64.4 (1.16)	27.3 (1.17)
2014	8.6 (0.65)	64.3 (1.23)	29.4 (1.19)
2015	6.7 (0.59)	66.4 (1.17)	29.8 (1.14)
2016	6.9 (0.62)	69.9 (1.11)	26.0 (1.01)
2017	7.5 (1.03)	67.9 (1.70)	26.6 (1.09)
2018 (Jan–Sep)	5.7 (0.59)	73.6 (1.28)	23.2 (1.26)
Not poor (≥ 200% FPL)			
1997	6.1 (0.33)	6.3 (0.32)	88.9 (0.43)
2005	4.6 (0.30)	10.7 (0.47)	85.6 (0.52)
2010	4.6 (0.29)	14.9 (0.57)	81.4 (0.61)
2011	4.0 (0.27)	15.0 (0.55)	82.1 (0.58)
2012	4.5 (0.31)	15.2 (0.62)	81.3 (0.64)
2013	4.0 (0.28)	15.6 (0.62)	81.2 (0.65)
2014	3.6 (0.28)	14.4 (0.56)	83.1 (0.58)
2015	3.3 (0.26)	15.5 (0.69)	82.1 (0.74)
2016	3.5 (0.27)	16.5 (0.52)	81.5 (0.58)
2017	3.8 (0.43)	17.2 (0.55)	80.1 (0.53)
2018 (Jan–Sep)	3.9 (0.27)	18.2 (0.66)	79.1 (0.64)
Unknown			
1997	18.3 (0.90)	21.4 (0.97)	61.7 (1.18)
2005	11.0 (0.66)	30.8 (1.05)	59.3 (1.16)
2010	8.8 (0.89)	38.1 (1.71)	53.7 (1.74)
2011	10.4 (0.76)	45.9 (1.70)	44.5 (1.66)
2012	8.2 (0.77)	51.8 (1.50)	41.2 (1.49)
2013	9.2 (1.00)	43.7 (2.16)	48.6 (2.20)
2014	8.0 (1.41)	37.9 (2.01)	54.8 (2.05)
2015	6.3 (1.36)	37.9 (2.33)	56.6 (2.24)
2016	8.9 (2.13)	43.6 (2.36)	49.3 (2.86)
2017	4.5 (0.95)	46.5 (2.24)	50.7 (2.48)
2018 (Jan–Sep)	8.2 (1.76)	49.2 (3.31)	43.0 (3.07)

[1]FPL is federal poverty level, based on family income and family size, using the U.S. Census Bureau's poverty thresholds. "Poor" persons are defined as those with incomes below the poverty threshold; "near poor" persons have incomes of 100% to less than 200% of the poverty threshold; and "not poor" persons have incomes of 200% of the poverty threshold or greater. For more information on the "unknown" poverty status category, see Technical Notes. Estimates may differ from estimates that are based on both reported and imputed income.

[2]A person was defined as uninsured if he or she did not have any private health insurance, Medicare, Medicaid, Children's Health Insurance Program (CHIP), state-sponsored or other government-sponsored health plan, or military plan at the time of interview. A person was also defined as uninsured if he or she had only Indian Health Service coverage or had only a private plan that paid for one type of service, such as accidents or dental care.

[3]Includes Medicaid, CHIP, state-sponsored or other government-sponsored health plan, Medicare, and military plans. A small number of persons were covered by both public and private plans and were included in both categories.

[4]Includes any comprehensive private insurance plan (including health maintenance and preferred provider organizations). These plans include those obtained through an employer, purchased directly, purchased through local or community programs, or purchased through the Health Insurance Marketplace or a state-based exchange. Private coverage excludes plans that pay for only one type of service, such as accidents or dental care. A small number of persons were covered by both public and private plans and were included in both categories.

NOTE: Data are based on household interviews of a sample of the civilian noninstitutionalized population.

SOURCE: NCHS, National Health Interview Survey, 1997, 2005, and 2010–2018, Family Core component.

Table VII. Percentages (and standard errors) of persons who lacked health insurance coverage, had public health plan coverage, and had private health insurance coverage at the time of interview, by age group and sex: United States, January–September 2018

Age group and sex	Uninsured[1] at time of interview	Public health plan coverage[2]	Private health insurance coverage[3]
Age group (years)			
All ages	9.2 (0.27)	37.0 (0.44)	62.3 (0.54)
Under age 65	10.8 (0.32)	25.9 (0.49)	64.9 (0.60)
0–17	4.9 (0.23)	42.5 (0.96)	54.1 (0.96)
18–64	13.0 (0.41)	19.7 (0.40)	69.0 (0.50)
18–24	14.2 (0.68)	22.6 (0.77)	64.6 (1.05)
25–34	17.1 (0.64)	19.4 (0.65)	64.4 (0.77)
35–44	14.2 (0.65)	17.1 (0.64)	69.8 (0.82)
45–64	9.9 (0.34)	20.2 (0.48)	72.5 (0.50)
65 and over	0.8 (0.11)	95.7 (0.23)	48.1 (0.87)
19–25	14.8 (0.73)	20.4 (0.76)	66.1 (1.00)
Sex			
Male			
All ages	10.2 (0.31)	34.9 (0.48)	62.7 (0.57)
Under age 65	11.9 (0.36)	24.6 (0.53)	65.2 (0.65)
0–17	4.6 (0.31)	42.3 (1.06)	54.6 (1.07)
18–64	14.6 (0.48)	17.8 (0.46)	69.3 (0.56)
18–24	15.3 (0.95)	19.8 (0.90)	66.3 (1.22)
25–34	20.1 (0.93)	15.7 (0.76)	65.1 (1.04)
35–44	16.1 (0.82)	15.0 (0.79)	70.2 (0.95)
45–64	10.7 (0.38)	19.6 (0.54)	72.3 (0.55)
65 and over	0.8 (0.15)	95.1 (0.31)	48.1 (0.88)
19–25	16.6 (1.01)	17.3 (0.91)	67.3 (1.29)
Female			
All ages	8.2 (0.27)	39.1 (0.48)	61.8 (0.59)
Under age 65	9.8 (0.31)	27.2 (0.54)	64.7 (0.64)
0–17	5.2 (0.28)	42.8 (1.03)	53.6 (1.10)
18–64	11.4 (0.40)	21.6 (0.46)	68.6 (0.54)
18–24	13.0 (0.77)	25.4 (1.09)	62.9 (1.36)
25–34	14.1 (0.59)	23.0 (0.83)	63.7 (0.87)
35–44	12.3 (0.68)	19.2 (0.65)	69.5 (0.91)
45–64	9.1 (0.39)	20.7 (0.57)	72.7 (0.59)
65 and over	0.8 (0.12)	96.1 (0.30)	48.0 (0.98)
19–25	12.9 (0.75)	23.6 (1.03)	64.9 (1.23)

[1]A person was defined as uninsured if he or she did not have any private health insurance, Medicare, Medicaid, Children's Health Insurance Program (CHIP), state-sponsored or other government-sponsored health plan, or military plan at the time of interview. A person was also defined as uninsured if he or she had only Indian Health Service coverage or had only a private plan that paid for one type of service, such as accidents or dental care.

[2]Includes Medicaid, CHIP, state-sponsored or other government-sponsored health plan, Medicare, and military plans. A small number of persons were covered by both public and private plans and were included in both categories.

[3]Includes any comprehensive private insurance plan (including health maintenance and preferred provider organizations). These plans include those obtained through an employer, purchased directly, purchased through local or community programs, or purchased through the Health Insurance Marketplace or a state-based exchange. Private coverage excludes plans that pay for only one type of service, such as accidents or dental care. A small number of persons were covered by both public and private plans and were included in both categories.

NOTE: Data are based on household interviews of a sample of the civilian noninstitutionalized population.

SOURCE: NCHS, National Health Interview Survey, 2018, Family Core component.

Table VIII. Percentages (and standard errors) of persons under age 65 who lacked health insurance coverage, had public health plan coverage, and had private health insurance coverage at the time of interview, by race and ethnicity and year: United States, 2010–September 2018

Race and ethnicity and year	Uninsured[1] at time of interview	Public health plan coverage[2]	Private health insurance coverage[3]
Hispanic or Latino			
2010	31.9 (0.72)	32.0 (0.78)	36.6 (0.81)
2011	31.1 (0.68)	33.6 (0.74)	36.1 (0.82)
2012	30.4 (0.71)	34.0 (0.71)	36.4 (0.74)
2013	30.3 (0.66)	33.4 (0.62)	37.0 (0.76)
2014	25.2 (0.59)	34.6 (0.78)	41.2 (0.89)
2015	20.8 (0.56)	36.2 (0.84)	43.8 (0.81)
2016	19.3 (0.93)	37.1 (1.02)	44.9 (1.02)
2017	20.5 (0.77)	35.9 (1.23)	44.8 (1.37)
2018 (Jan–Sep)	19.6 (0.86)	36.7 (1.17)	44.6 (1.28)
Non-Hispanic white, single race			
2010	13.7 (0.30)	16.4 (0.42)	71.4 (0.57)
2011	13.0 (0.32)	17.1 (0.39)	71.4 (0.55)
2012	12.7 (0.28)	17.3 (0.39)	71.5 (0.51)
2013	12.1 (0.29)	17.9 (0.38)	71.6 (0.53)
2014	9.8 (0.25)	18.1 (0.41)	73.6 (0.50)
2015	7.4 (0.21)	18.9 (0.48)	75.4 (0.54)
2016	7.5 (0.24)	19.8 (0.40)	74.5 (0.42)
2017	7.5 (0.26)	18.9 (0.36)	75.2 (0.44)
2018 (Jan–Sep)	7.7 (0.26)	19.2 (0.42)	74.9 (0.49)
Non-Hispanic black, single race			
2010	20.8 (0.63)	36.3 (0.79)	44.6 (0.84)
2011	19.0 (0.51)	36.9 (0.83)	45.6 (0.85)
2012	17.9 (0.50)	38.2 (0.77)	45.4 (0.79)
2013	18.9 (0.51)	37.5 (0.92)	44.9 (1.01)
2014	13.5 (0.49)	40.3 (0.76)	47.7 (0.86)
2015	11.2 (0.48)	39.2 (1.01)	51.3 (1.02)
2016	11.7 (0.55)	40.0 (1.18)	50.1 (1.04)
2017	11.2 (0.41)	39.3 (1.20)	50.9 (1.28)
2018 (Jan–Sep)	11.6 (0.64)	39.2 (1.37)	51.6 (1.29)
Non-Hispanic Asian, single race			
2010	16.8 (0.76)	14.9 (0.98)	69.1 (1.17)
2011	16.0 (0.89)	17.6 (1.14)	67.0 (1.40)
2012	16.4 (0.93)	16.6 (0.85)	67.5 (1.24)
2013	13.8 (0.81)	17.5 (1.00)	69.4 (1.27)
2014	10.6 (0.61)	16.7 (0.86)	73.4 (1.01)
2015	6.7 (0.51)	18.0 (1.34)	75.9 (1.44)
2016	6.3 (0.60)	18.9 (1.26)	75.3 (1.18)
2017	6.7 (0.83)	17.9 (1.12)	75.8 (1.25)
2018 (Jan–Sep)	7.0 (0.97)	19.6 (1.82)	74.4 (2.14)
Non-Hispanic, other races and multiple races			
2010	22.4 (4.83)	30.3 (2.14)	48.7 (3.83)
2011	19.1 (1.78)	32.5 (1.60)	50.6 (1.89)
2012	16.4 (1.33)	35.8 (1.77)	50.8 (2.16)
2013	16.0 (1.17)	35.9 (1.75)	50.1 (1.97)
2014	12.8 (1.30)	36.2 (1.69)	52.7 (2.01)
2015	11.1 (1.00)	37.0 (1.86)	53.7 (1.99)
2016	12.6 (0.97)	37.3 (1.87)	52.7 (2.04)
2017	13.9 (1.33)	36.2 (2.03)	52.2 (2.30)
2018 (Jan–Sep)	14.6 (1.29)	37.1 (2.34)	50.3 (2.44)

[1]A person was defined as uninsured if he or she did not have any private health insurance, Medicare, Medicaid, Children's Health Insurance Program (CHIP), state-sponsored or other government-sponsored health plan, or military plan. A person was also defined as uninsured if he or she had only Indian Health Service coverage or had only a private plan that paid for one type of service, such as accidents or dental care.

[2]Includes Medicaid, CHIP, state-sponsored or other government-sponsored health plan, Medicare, and military plans. A small number of persons were covered by both public and private plans and were included in both categories.

[3]Includes any comprehensive private insurance plan (including health maintenance and preferred provider organizations). These plans include those obtained through an employer, purchased directly, purchased through local or community programs, or purchased through the Health Insurance Marketplace or a state-based exchange. Private coverage excludes plans that pay for only one type of service, such as accidents or dental care. A small number of persons were covered by both public and private plans and were included in both categories.

NOTE: Data are based on household interviews of a sample of the civilian noninstitutionalized population.

SOURCE: NCHS, National Health Interview Survey, 2010–2018, Family Core component.

Table IX. Percentages (and standard errors) of adults aged 18–64 who lacked health insurance coverage, had public health plan coverage, and had private health insurance coverage at the time of interview, by race and ethnicity and year: United States, 2010–September 2018

Race and ethnicity and year	Uninsured[1] at time of interview	Public health plan coverage[2]	Private health insurance coverage[3]
Hispanic or Latino			
2010	43.2 (0.91)	16.3 (0.64)	41.1 (0.85)
2011	42.2 (0.89)	18.1 (0.63)	40.3 (0.82)
2012	41.3 (0.89)	19.0 (0.64)	40.4 (0.73)
2013	40.6 (0.88)	18.0 (0.62)	42.1 (0.70)
2014	33.7 (0.76)	20.6 (0.73)	46.4 (0.86)
2015	27.7 (0.72)	23.0 (0.84)	50.0 (0.85)
2016	25.0 (1.20)	24.9 (1.15)	51.4 (1.08)
2017	27.2 (0.99)	23.7 (0.96)	50.2 (1.27)
2018 (Jan–Sep)	26.3 (1.15)	23.8 (1.16)	50.6 (1.18)
Non-Hispanic white, single race			
2010	16.4 (0.35)	12.8 (0.34)	72.2 (0.52)
2011	15.6 (0.35)	13.4 (0.31)	72.5 (0.48)
2012	15.1 (0.31)	13.7 (0.33)	72.7 (0.46)
2013	14.5 (0.34)	14.4 (0.32)	72.7 (0.49)
2014	11.6 (0.29)	14.6 (0.36)	75.3 (0.47)
2015	8.7 (0.25)	15.7 (0.42)	77.3 (0.47)
2016	8.6 (0.25)	16.6 (0.34)	76.6 (0.38)
2017	8.5 (0.28)	15.8 (0.32)	77.2 (0.41)
2018 (Jan–Sep)	8.8 (0.29)	16.2 (0.38)	76.9 (0.45)
Non-Hispanic black, single race			
2010	27.2 (0.75)	25.3 (0.70)	49.3 (0.81)
2011	24.8 (0.65)	26.2 (0.75)	50.5 (0.79)
2012	23.6 (0.61)	27.0 (0.68)	50.8 (0.75)
2013	24.9 (0.62)	26.6 (0.80)	50.0 (0.91)
2014	17.7 (0.60)	30.5 (0.73)	53.4 (0.84)
2015	14.4 (0.57)	29.7 (0.84)	57.8 (0.90)
2016	15.0 (0.62)	29.9 (1.06)	56.7 (0.95)
2017	14.1 (0.63)	30.3 (0.85)	57.0 (0.99)
2018 (Jan–Sep)	14.7 (0.85)	29.8 (1.22)	57.8 (1.16)
Non-Hispanic Asian, single race			
2010	19.5 (0.92)	11.2 (0.72)	70.2 (1.05)
2011	18.8 (0.96)	13.6 (0.87)	68.0 (1.27)
2012	19.1 (0.92)	13.2 (0.83)	68.2 (1.15)
2013	16.3 (0.88)	14.1 (0.91)	70.4 (1.28)
2014	12.5 (0.65)	13.7 (0.84)	74.5 (1.01)
2015	7.9 (0.58)	15.5 (1.16)	77.2 (1.27)
2016	7.5 (0.67)	16.2 (1.19)	76.8 (1.07)
2017	7.6 (0.94)	15.4 (1.11)	77.3 (1.13)
2018 (Jan–Sep)	8.2 (1.08)	17.3 (1.85)	75.4 (2.13)
Non-Hispanic, other races and multiple races			
2010	32.8 (5.76)	20.6 (1.94)	48.5 (4.77)
2011	27.1 (2.01)	23.6 (1.53)	52.1 (2.17)
2012	24.9 (1.78)	26.1 (1.62)	52.0 (2.24)
2013	23.8 (1.66)	26.8 (1.84)	51.6 (2.26)
2014	19.5 (1.65)	25.2 (1.51)	56.9 (2.06)
2015	16.1 (1.42)	29.0 (1.76)	56.9 (1.88)
2016	17.6 (1.29)	28.9 (1.64)	55.5 (2.13)
2017	20.1 (1.62)	28.0 (2.33)	53.6 (2.45)
2018 (Jan–Sep)	20.6 (1.79)	29.1 (2.60)	52.8 (2.75)

[1]A person was defined as uninsured if he or she did not have any private health insurance, Medicare, Medicaid, Children's Health Insurance Program (CHIP), state-sponsored or other government-sponsored health plan, or military plan. A person was also defined as uninsured if he or she had only Indian Health Service coverage or had only a private plan that paid for one type of service, such as accidents or dental care.

[2]Includes Medicaid, CHIP, state-sponsored or other government-sponsored health plan, Medicare, and military plans. A small number of persons were covered by both public and private plans and were included in both categories.

[3]Includes any comprehensive private insurance plan (including health maintenance and preferred provider organizations). These plans include those obtained through an employer, purchased directly, purchased through local or community programs, or purchased through the Health Insurance Marketplace or a state-based exchange. Private coverage excludes plans that pay for only one type of service, such as accidents or dental care. A small number of persons were covered by both public and private plans and were included in both categories.

NOTE: Data are based on household interviews of a sample of the civilian noninstitutionalized population.

SOURCE: NCHS, National Health Interview Survey, 2010–2018, Family Core component.

Table X. Percentages (and standard errors) of adults aged 18–64 who lacked health insurance coverage, had public health plan coverage, and had private health insurance coverage at the time of interview, by selected demographic characteristics: United States, January–September 2018

Selected characteristic	Uninsured[1] at time of interview	Public health plan coverage[2]	Private health insurance coverage[3]
Race and ethnicity			
Hispanic or Latino	26.3 (1.15)	23.8 (1.16)	50.6 (1.18)
Non-Hispanic:			
White, single race	8.8 (0.29)	16.2 (0.38)	76.9 (0.45)
Black, single race	14.7 (0.85)	29.8 (1.22)	57.8 (1.16)
Asian, single race	8.2 (1.08)	17.3 (1.85)	75.4 (2.13)
Other races and multiple races	20.6 (1.79)	29.1 (2.60)	52.8 (2.75)
Region			
Northeast	7.3 (0.71)	22.1 (0.86)	72.6 (1.02)
Midwest	11.0 (0.49)	17.9 (0.55)	72.9 (0.78)
South	18.1 (0.81)	17.4 (0.57)	66.2 (0.94)
West	11.2 (0.54)	23.2 (0.93)	67.0 (1.14)
Education			
Less than high school	30.3 (1.20)	36.9 (1.13)	34.1 (1.04)
High school diploma or GED	17.9 (0.62)	26.5 (0.59)	57.7 (0.74)
More than high school	7.8 (0.29)	13.9 (0.37)	79.8 (0.41)
Employment status			
Employed	12.1 (0.41)	11.8 (0.31)	77.2 (0.47)
Unemployed	29.8 (1.51)	37.7 (1.66)	33.2 (1.37)
Not in workforce	13.1 (0.57)	44.5 (0.72)	46.7 (0.75)
Poverty status[4]			
< 100% FPL	27.0 (1.39)	54.7 (1.42)	19.9 (1.08)
≥ 100% and ≤ 138% FPL	29.0 (1.52)	45.2 (1.87)	28.0 (1.45)
> 138% and ≤ 250% FPL	20.6 (0.82)	28.5 (0.87)	53.0 (0.97)
> 250% and ≤ 400% FPL	11.8 (0.56)	14.2 (0.54)	75.8 (0.72)
> 400% FPL	4.6 (0.25)	6.2 (0.27)	90.7 (0.32)
Unknown	14.2 (1.01)	21.3 (1.10)	66.1 (1.34)
Marital status			
Married	9.8 (0.47)	14.1 (0.46)	78.0 (0.59)
Widowed	11.6 (1.52)	36.3 (2.12)	55.9 (2.24)
Divorced or separated	15.6 (0.70)	29.8 (0.96)	57.2 (0.99)
Living with partner	19.8 (0.85)	22.9 (1.03)	58.4 (1.11)
Never married	16.3 (0.57)	25.3 (0.58)	59.8 (0.66)

[1]A person was defined as uninsured if he or she did not have any private health insurance, Medicare, Medicaid, Children's Health Insurance Program (CHIP), state-sponsored or other government-sponsored health plan, or military plan. A person was also defined as uninsured if he or she had only Indian Health Service coverage or had only a private plan that paid for one type of service, such as accidents or dental care.

[2]Includes Medicaid, CHIP, state-sponsored or other government-sponsored health plan, Medicare, and military plans. A small number of persons were covered by both public and private plans and were included in both categories.

[3]Includes any comprehensive private insurance plan (including health maintenance and preferred provider organizations). These plans include those obtained through an employer, purchased directly, purchased through local or community programs, or purchased through the Health Insurance Marketplace or a state-based exchange. Private coverage excludes plans that pay for only one type of service, such as accidents or dental care. A small number of persons were covered by both public and private plans and were included in both categories.

[4]FPL is federal poverty level, based on family income and family size, using the U.S. Census Bureau's poverty thresholds. The percentage of respondents with "unknown" poverty status for this five-level categorization is 8.6%. This value is greater than the corresponding value for the three-level poverty categorization of poor, near poor, and not poor because of greater uncertainty when assigning individuals to more detailed poverty groups. For more information on poverty status, see Technical Notes. Estimates may differ from estimates that are based on both reported and imputed income.

NOTE: Data are based on household interviews of a sample of the civilian noninstitutionalized population.

SOURCE: NCHS, National Health Interview Survey, 2018, Family Core component.

Table XI. Percentages (and standard errors) of persons under age 65 with private health insurance coverage who were enrolled in a high-deductible health plan, in a high-deductible health plan without a health savings account, and in a consumer-directed health plan, and who were in a family with a flexible spending account for medical expenses, by year: United States, 2010–September 2018

Year	Enrolled in high-deductible health plan (HDHP)[1]	Enrolled in HDHP without health savings account (HSA)[2]	Enrolled in consumer-directed health plan (CDHP)[3]	In family with flexible spending account (FSA) for medical expenses
2010	25.3 (0.54)	17.6 (0.46)	7.7 (0.33)	20.4 (0.50)
2011	29.0 (0.54)	19.9 (0.41)	9.2 (0.35)	21.4 (0.53)
2012	31.1 (0.57)	20.3 (0.42)	10.8 (0.34)	21.6 (0.45)
2013	33.9 (0.68)	22.2 (0.48)	11.7 (0.43)	21.6 (0.48)
2014	36.9 (0.77)	23.6 (0.52)	13.3 (0.47)	21.2 (0.49)
2015	36.7 (0.68)	23.4 (0.50)	13.3 (0.42)	21.7 (0.51)
2016	39.4 (0.65)	23.9 (0.49)	15.5 (0.51)	22.1 (0.40)
2017	43.7 (0.64)	25.5 (0.52)	18.2 (0.38)	23.6 (0.40)
2018 (Jan–Sep)	45.6 (0.76)	25.0 (0.58)	20.6 (0.56)	24.4 (0.48)

[1]HDHP was defined in 2018 as a health plan with an annual deductible of at least $1,350 for self-only coverage and $2,700 for family coverage. The deductible is adjusted annually for inflation. Deductibles for previous years are included in the Technical Notes.

[2]HSA is a tax-advantaged account or fund that can be used to pay for medical expenses. It must be coupled with an HDHP.

[3]CDHP is an HDHP coupled with an HSA.

NOTES: The measures of HDHP enrollment, CDHP enrollment, and being in a family with an FSA for medical expenses are not mutually exclusive. Therefore, a person may be counted in more than one measure. The individual components of HDHPs may not add up to the total due to rounding. Data are based on household interviews of a sample of the civilian noninstitutionalized population.

SOURCE: NCHS, National Health Interview Survey, 2010–2018, Family Core component.

Table XII. Percentages (and standard errors) of persons under age 65 with private health insurance coverage who were enrolled in a high-deductible health plan, by year and source of coverage: United States, 2010–September 2018

Year	Employment based[1]	Directly purchased[2]
2010	23.3 (0.54)	48.0 (1.48)
2011	26.9 (0.53)	52.4 (1.49)
2012	29.2 (0.60)	54.7 (1.61)
2013	32.0 (0.67)	56.4 (1.50)
2014	36.2 (0.73)	54.1 (1.43)
2015	36.6 (0.72)	50.9 (1.50)
2016	39.6 (0.69)	51.9 (1.38)
2017	44.1 (0.69)	55.3 (1.55)
2018 (Jan–Sep)	46.5 (0.85)	51.0 (1.37)

[1]Private insurance that was originally obtained through a present or former employer or union, or through a professional association.

[2]Private insurance that was originally obtained through direct purchase or other means not related to employment.

NOTES: For persons under age 65, approximately 8% of private health plans were directly purchased from 2010 through 2013. In 2014 through the first three quarters of 2018, approximately 9% of private plans were directly purchased. Data are based on household interviews of a sample of the civilian noninstitutionalized population.

SOURCE: NCHS, National Health Interview Survey, 2010–2018, Family Core component.

Table XIII. Percentages (and standard errors) of persons under age 65 who lacked health insurance coverage, had public health plan coverage, and had private health insurance coverage at the time of interview, by age group, state Medicaid expansion status, and year: United States, 2010–September 2018

Age group, state Medicaid expansion status, and year	Uninsured[1] at time of interview	Public health plan coverage[2]	Private health insurance coverage[3]
Under 65 years			
Medicaid expansion states[4]			
2010	16.4 (0.42)	21.8 (0.54)	63.1 (0.70)
2011	15.3 (0.35)	23.1 (0.56)	62.9 (0.72)
2012	15.0 (0.34)	23.1 (0.50)	63.3 (0.63)
2013	14.9 (0.40)	24.1 (0.48)	62.3 (0.68)
2014	10.9 (0.29)	25.6 (0.49)	64.9 (0.59)
2015	8.2 (0.23)	26.7 (0.57)	66.4 (0.64)
2016	7.8 (0.24)	27.7 (0.53)	66.3 (0.60)
2017	7.6 (0.27)	26.9 (0.53)	67.0 (0.60)
2018 (Jan–Sep)	8.1 (0.28)	27.6 (0.67)	66.0 (0.72)
Non-Medicaid expansion states[5]			
2010	20.3 (0.48)	22.1 (0.51)	59.0 (0.76)
2011	19.6 (0.50)	22.7 (0.50)	59.1 (0.78)
2012	19.2 (0.45)	24.0 (0.55)	58.3 (0.75)
2013	18.4 (0.48)	23.4 (0.51)	59.6 (0.80)
2014	16.0 (0.44)	23.2 (0.52)	62.1 (0.76)
2015	14.0 (0.41)	23.2 (0.58)	64.4 (0.78)
2016	14.7 (0.56)	23.9 (0.58)	62.8 (0.84)
2017	15.7 (0.47)	22.8 (0.60)	62.7 (0.74)
2018 (Jan–Sep)	15.2 (0.51)	23.3 (0.71)	63.2 (0.98)
0–17 years			
Medicaid expansion states[4]			
2010	6.7 (0.46)	38.2 (1.05)	56.5 (1.06)
2011	5.9 (0.33)	40.2 (1.11)	55.4 (1.09)
2012	5.3 (0.32)	40.4 (1.00)	55.9 (1.07)
2013	5.6 (0.33)	41.3 (0.86)	54.5 (0.95)
2014	4.3 (0.33)	41.0 (0.84)	56.2 (0.88)
2015	3.8 (0.28)	41.1 (0.99)	56.7 (1.00)
2016	4.1 (0.33)	42.0 (0.92)	56.1 (0.97)
2017	3.5 (0.41)	40.4 (1.09)	57.7 (0.95)
2018 (Jan–Sep)	3.7 (0.31)	41.8 (1.29)	56.0 (1.28)
Non-Medicaid expansion states[5]			
2010	9.0 (0.47)	41.7 (0.99)	50.7 (1.08)
2011	8.3 (0.46)	42.0 (1.02)	50.9 (1.11)
2012	8.0 (0.46)	43.9 (1.11)	49.4 (1.07)
2013	7.5 (0.40)	43.1 (1.12)	50.5 (1.23)
2014	6.7 (0.43)	43.5 (1.06)	51.0 (1.11)
2015	5.5 (0.42)	43.7 (1.27)	52.0 (1.26)
2016	6.7 (0.52)	44.4 (1.02)	50.3 (1.20)
2017	7.3 (0.79)	42.8 (1.19)	50.8 (1.04)
2018 (Jan–Sep)	6.7 (0.40)	43.5 (1.50)	51.3 (1.54)

See footnotes at end of table.

Table XIII. Percentages (and standard errors) of persons under age 65 who lacked health insurance coverage, had public health plan coverage, and had private health insurance coverage at the time of interview, by age group, state Medicaid expansion status, and year: United States, 2010–September 2018—Con.

Age group, state Medicaid expansion status, and year	Uninsured[1] at time of interview	Public health plan coverage[2]	Private health insurance coverage[3]
18–64 years			
Medicaid expansion states[4]			
2010	20.1 (0.47)	15.5 (0.40)	65.6 (0.62)
2011	18.9 (0.41)	16.6 (0.41)	65.8 (0.61)
2012	18.5 (0.39)	16.7 (0.38)	66.0 (0.53)
2013	18.4 (0.49)	17.7 (0.44)	65.2 (0.65)
2014	13.3 (0.34)	19.9 (0.46)	68.1 (0.56)
2015	9.8 (0.28)	21.5 (0.49)	70.0 (0.56)
2016	9.2 (0.25)	22.5 (0.41)	70.0 (0.49)
2017	9.1 (0.33)	21.9 (0.36)	70.4 (0.50)
2018 (Jan–Sep)	9.6 (0.34)	22.4 (0.50)	69.6 (0.60)
Non-Medicaid expansion states[5]			
2010	24.8 (0.58)	14.4 (0.45)	62.2 (0.70)
2011	24.1 (0.60)	15.1 (0.42)	62.3 (0.71)
2012	23.7 (0.54)	16.1 (0.44)	61.8 (0.69)
2013	22.7 (0.59)	15.6 (0.41)	63.2 (0.69)
2014	19.6 (0.54)	15.3 (0.41)	66.5 (0.69)
2015	17.5 (0.52)	14.9 (0.44)	69.4 (0.67)
2016	17.9 (0.69)	15.7 (0.50)	67.8 (0.78)
2017	19.0 (0.50)	15.0 (0.42)	67.3 (0.66)
2018 (Jan–Sep)	18.5 (0.67)	15.3 (0.54)	67.9 (0.80)

[1]A person was defined as uninsured if he or she did not have any private health insurance, Medicare, Medicaid, Children's Health Insurance Program (CHIP), state-sponsored or other government-sponsored health plan, or military plan. A person was also defined as uninsured if he or she had only Indian Health Service coverage or had only a private plan that paid for one type of service, such as accidents or dental care.

[2]Includes Medicaid, CHIP, state-sponsored or other government-sponsored health plan, Medicare, and military plans. A small number of persons were covered by both public and private plans and were included in both categories.

[3]Includes any comprehensive private insurance plan (including health maintenance and preferred provider organizations). These plans include those obtained through an employer, purchased directly, purchased through local or community programs, or purchased through the Health Insurance Marketplace or a state-based exchange. Private coverage excludes plans that pay for only one type of service, such as accidents or dental care. A small number of persons were covered by both public and private plans and were included in both categories.

[4]For 2010 through 2014, states moving forward with Medicaid expansion included: AZ, AR, CA, CO, CT, DE, DC, HI, IL, IA, KY, MD, MA, MI, MN, NV, NJ, NM, NY, ND, OH, OR, RI, VT, WA, and WV (as of October 31, 2013). Beginning with 2015, three additional states were included as expansion states: IN, NH, and PA. Beginning with 2016, three additional states were included as expansion states: AK, LA, and MT.

[5]For 2010 through 2014, states not moving forward with Medicaid expansion included: AL, AK, FL, GA, ID, IN, KS, LA, ME, MS, MO, MT, NE, NH, NC, OK, PA, SC, SD, TN, TX, UT, VA, WI, and WY (as of October 31, 2013). Beginning with 2015, three states have been removed from this grouping: IN, NH, and PA. Beginning with 2016, three additional states have been removed from this grouping: AK, LA, and MT.

NOTE: Data are based on household interviews of a sample of the civilian noninstitutionalized population.

SOURCE: NCHS, National Health Interview Survey, 2010–2018, Family Core component.

Table XIV. Percentages (and standard errors) of persons under age 65 who lacked health insurance coverage, had public health plan coverage, and had private health insurance coverage at the time of interview, by age group, state Health Insurance Marketplace type, and year: United States, 2010–September 2018

Age group, state Health Insurance Marketplace type, and year	Uninsured[1] at time of interview	Public health plan coverage[2]	Private health insurance coverage[3]
Under 65 years			
State-based Marketplace states[4]			
2010	16.3 (0.46)	21.6 (0.66)	63.2 (0.80)
2011	15.9 (0.46)	23.6 (0.70)	61.8 (0.88)
2012	15.2 (0.43)	24.2 (0.66)	61.8 (0.83)
2013	15.2 (0.48)	25.0 (0.56)	61.0 (0.83)
2014	11.1 (0.38)	26.4 (0.63)	63.7 (0.78)
2015	7.7 (0.30)	28.1 (0.80)	65.4 (0.92)
2016	7.3 (0.27)	28.4 (0.70)	65.9 (0.72)
2017	7.2 (0.35)	28.0 (0.87)	66.2 (1.00)
2018 (Jan–Sep)	7.5 (0.33)	29.0 (0.99)	65.0 (1.14)
Partnership Marketplace states[5]			
2010	14.7 (0.87)	22.5 (1.15)	64.8 (1.73)
2011	14.3 (0.71)	22.7 (1.28)	64.5 (1.72)
2012	14.1 (0.70)	20.8 (1.12)	66.7 (1.53)
2013	14.2 (0.83)	21.8 (1.07)	65.6 (1.42)
2014	10.2 (0.57)	24.4 (1.06)	67.2 (1.28)
2015	8.0 (0.59)	26.1 (1.20)	67.7 (1.42)
2016	7.0 (0.48)	26.3 (1.27)	68.8 (1.66)
2017	7.0 (0.66)	25.3 (1.15)	69.8 (1.46)
2018 (Jan–Sep)	7.5 (0.37)	26.0 (1.25)	68.3 (1.27)
Federally Facilitated Marketplace states[6]			
2010	20.1 (0.48)	22.1 (0.50)	59.1 (0.70)
2011	18.8 (0.45)	22.6 (0.47)	60.0 (0.71)
2012	18.6 (0.41)	23.6 (0.50)	59.3 (0.67)
2013	17.9 (0.44)	23.3 (0.49)	60.2 (0.74)
2014	15.3 (0.40)	23.3 (0.50)	62.8 (0.69)
2015	12.8 (0.33)	23.4 (0.54)	65.3 (0.66)
2016	13.1 (0.45)	24.8 (0.51)	63.6 (0.69)
2017	13.6 (0.37)	23.7 (0.53)	64.1 (0.60)
2018 (Jan–Sep)	13.5 (0.42)	24.0 (0.57)	64.3 (0.78)
0–17 years			
State-based Marketplace states[4]			
2010	6.7 (0.50)	38.0 (1.32)	56.4 (1.31)
2011	6.4 (0.47)	40.9 (1.43)	54.2 (1.39)
2012	5.4 (0.43)	42.2 (1.37)	53.9 (1.46)
2013	5.7 (0.37)	42.8 (1.05)	52.6 (1.18)
2014	4.2 (0.40)	42.0 (1.11)	54.9 (1.13)
2015	3.1 (0.34)	42.4 (1.32)	55.8 (1.41)
2016	3.6 (0.38)	42.7 (1.19)	55.8 (1.26)
2017	2.9 (0.29)	41.2 (1.68)	57.0 (1.62)
2018 (Jan–Sep)	3.0 (0.37)	42.5 (1.95)	56.0 (1.96)
Partnership Marketplace states[5]			
2010	4.1 (0.78)	40.7 (2.21)	57.9 (2.31)
2011	4.2 (0.53)	39.6 (2.44)	58.0 (2.39)
2012	3.6 (0.69)	38.5 (2.20)	59.9 (2.26)
2013	4.2 (0.53)	38.4 (1.95)	59.2 (2.08)
2014	3.2 (0.51)	40.8 (1.88)	58.4 (1.99)
2015	4.3 (0.73)	40.3 (2.53)	57.5 (2.34)
2016	2.0 (0.40)	40.4 (2.54)	60.5 (2.49)
2017	2.0 (0.44)	40.6 (2.86)	60.3 (2.77)
2018 (Jan–Sep)	3.5 (0.78)	40.6 (3.01)	57.3 (3.04)

See footnotes at end of table.

Table XIV. Percentages (and standard errors) of persons under age 65 who lacked health insurance coverage, had public health plan coverage, and had private health insurance coverage at the time of interview, by age group, state Health Insurance Marketplace type, and year: United States, 2010–September 2018—Con.

Age group, state Health Insurance Marketplace type, and year	Uninsured[1] at time of interview	Public health plan coverage[2]	Private health insurance coverage[3]
0–17 years—Con.			
Federally Facilitated Marketplace states[6]			
2010	9.2 (0.48)	40.7 (0.91)	51.3 (0.97)
2011	8.0 (0.40)	41.4 (0.93)	51.8 (1.01)
2012	7.9 (0.41)	42.7 (1.00)	50.8 (0.98)
2013	7.5 (0.39)	42.6 (1.02)	51.3 (1.11)
2014	6.6 (0.41)	42.6 (0.94)	52.0 (1.00)
2015	5.3 (0.35)	42.4 (1.06)	53.6 (1.04)
2016	6.6 (0.45)	43.6 (0.87)	51.5 (0.97)
2017	6.8 (0.66)	41.5 (0.96)	52.9 (0.81)
2018 (Jan–Sep)	6.3 (0.38)	42.9 (1.20)	52.4 (1.23)
18–64 years			
State-based Marketplace states[4]			
2010	19.9 (0.52)	15.3 (0.48)	65.9 (0.68)
2011	19.5 (0.53)	17.1 (0.52)	64.7 (0.75)
2012	18.8 (0.50)	17.7 (0.49)	64.7 (0.69)
2013	18.7 (0.60)	18.4 (0.52)	64.1 (0.80)
2014	13.6 (0.45)	20.6 (0.57)	67.0 (0.75)
2015	9.4 (0.37)	22.9 (0.69)	68.9 (0.81)
2016	8.6 (0.30)	23.4 (0.58)	69.5 (0.58)
2017	8.7 (0.45)	23.2 (0.58)	69.5 (0.79)
2018 (Jan–Sep)	9.2 (0.40)	24.1 (0.74)	68.3 (0.92)
Partnership Marketplace states[5]			
2010	18.9 (1.12)	15.3 (0.90)	67.6 (1.59)
2011	18.4 (0.92)	15.9 (0.87)	67.1 (1.52)
2012	18.1 (0.85)	13.9 (0.79)	69.3 (1.36)
2013	17.9 (0.98)	15.7 (0.91)	68.0 (1.29)
2014	12.8 (0.68)	18.2 (0.98)	70.5 (1.22)
2015	9.4 (0.74)	20.8 (0.95)	71.5 (1.26)
2016	8.8 (0.59)	21.3 (0.88)	71.8 (1.41)
2017	8.9 (0.81)	19.6 (0.84)	73.3 (1.20)
2018 (Jan–Sep)	8.9 (0.38)	20.7 (0.86)	72.2 (0.91)
Federally Facilitated Marketplace states[6]			
2010	24.5 (0.56)	14.7 (0.43)	62.2 (0.66)
2011	23.0 (0.54)	15.1 (0.39)	63.3 (0.64)
2012	22.8 (0.48)	16.1 (0.41)	62.7 (0.61)
2013	22.0 (0.54)	15.9 (0.41)	63.6 (0.64)
2014	18.6 (0.49)	15.8 (0.41)	66.9 (0.63)
2015	15.7 (0.42)	16.0 (0.43)	69.9 (0.57)
2016	15.7 (0.54)	17.4 (0.46)	68.5 (0.63)
2017	16.2 (0.38)	16.7 (0.42)	68.4 (0.55)
2018 (Jan–Sep)	16.3 (0.53)	16.7 (0.46)	68.8 (0.66)

[1]A person was defined as uninsured if he or she did not have any private health insurance, Medicare, Medicaid, Children's Health Insurance Program (CHIP), state-sponsored or other government-sponsored health plan, or military plan. A person was also defined as uninsured if he or she had only Indian Health Service coverage or had only a private plan that paid for one type of service, such as accidents or dental care.

[2]Includes Medicaid, CHIP, state-sponsored or other government-sponsored health plan, Medicare, and military plans. A small number of persons were covered by both public and private plans and were included in both categories.

[3]Includes any comprehensive private insurance plan (including health maintenance and preferred provider organizations). These plans include those obtained through an employer, purchased directly, purchased through local or community programs, or purchased through the Health Insurance Marketplace or a state-based exchange. Private coverage excludes plans that pay for only one type of service, such as accidents or dental care. A small number of persons were covered by both public and private plans and were included in both categories.

[4]State-based Marketplace states include: CA, CO, CT, DC, HI, ID, KY, MD, MA, MN, NV, NM, NY, OR, RI, VT, and WA (as of October 31, 2013).

[5]Partnership Marketplace states include: AR, DE, IL, IA, MI, NH, and WV (as of October 31, 2013).

[6]Federally Facilitated Marketplace states include: AL, AK, AZ, FL, GA, IN, KS, LA, ME, MS, MO, MT, NE, NJ, NC, ND, OH, OK, PA, SC, SD, TN, TX, UT, VA, WI, and WY (as of October 31, 2013).

NOTE: Data are based on household interviews of a sample of the civilian noninstitutionalized population.

SOURCE: NCHS, National Health Interview Survey, 2010–2018, Family Core component.

Table XV. Percentages (and standard errors) of persons who lacked health insurance coverage, had public health plan coverage, and had private health insurance coverage at the time of interview, by age group and expanded region: United States, January–September 2018

Age group and expanded region[1]	Uninsured[2] at time of interview	Public health plan coverage[3]	Private health insurance coverage[4]
All ages			
All regions	9.2 (0.27)	37.0 (0.44)	62.3 (0.54)
New England	4.3 (0.57)	37.4 (2.07)	68.2 (2.31)
Middle Atlantic	5.2 (0.56)	37.4 (1.23)	67.2 (1.06)
East North Central	7.9 (0.34)	35.7 (0.57)	66.3 (0.83)
West North Central	8.3 (0.84)	32.3 (1.16)	70.7 (1.76)
South Atlantic	11.7 (0.52)	38.0 (1.04)	58.8 (1.14)
East South Central	11.0 (0.94)	42.1 (1.48)	54.9 (2.01)
West South Central	16.5 (0.92)	33.6 (0.90)	56.3 (1.68)
Mountain	9.1 (0.51)	34.9 (2.19)	63.1 (1.96)
Pacific	7.4 (0.47)	40.4 (1.36)	59.0 (1.52)
Under 65 years			
All regions	10.8 (0.32)	25.9 (0.49)	64.9 (0.60)
New England	5.2 (0.72)	25.8 (2.07)	71.5 (2.76)
Middle Atlantic	6.1 (0.63)	25.7 (1.42)	70.0 (1.16)
East North Central	9.2 (0.38)	24.5 (0.58)	67.9 (0.60)
West North Central	10.0 (1.03)	18.8 (1.08)	73.2 (2.05)
South Atlantic	14.0 (0.58)	25.8 (1.12)	62.1 (1.35)
East South Central	13.1 (1.08)	30.8 (1.19)	57.7 (1.93)
West South Central	19.0 (1.00)	23.7 (0.96)	58.6 (1.79)
Mountain	10.4 (0.64)	25.0 (1.81)	66.4 (2.01)
Pacific	8.6 (0.56)	30.8 (1.57)	61.9 (1.92)
0–17 years			
All regions	4.9 (0.23)	42.5 (0.96)	54.1 (0.96)
New England	0.6 (0.35)	36.3 (4.37)	65.6 (4.49)
Middle Atlantic	2.8 (0.57)	39.2 (2.98)	59.6 (2.73)
East North Central	5.1 (0.57)	38.8 (0.94)	57.7 (1.04)
West North Central	5.2 (0.68)	31.1 (1.84)	65.6 (2.33)
South Atlantic	5.4 (0.53)	47.2 (2.06)	48.9 (2.18)
East South Central	4.6 (1.08)	52.3 (2.88)	44.2 (3.14)
West South Central	9.0 (0.57)	46.7 (2.07)	45.3 (2.17)
Mountain	5.9 (0.89)	36.3 (2.97)	60.0 (3.27)
Pacific	3.4 (0.51)	46.9 (3.04)	51.0 (3.14)
18–64 years			
All regions	13.0 (0.41)	19.7 (0.40)	69.0 (0.50)
New England	6.7 (0.93)	22.2 (1.76)	73.5 (2.32)
Middle Atlantic	7.2 (0.77)	21.1 (0.93)	73.6 (1.02)
East North Central	10.6 (0.44)	19.4 (0.65)	71.5 (0.60)
West North Central	11.7 (1.27)	14.4 (0.94)	75.9 (2.08)
South Atlantic	17.2 (0.83)	17.7 (0.96)	67.1 (1.09)
East South Central	16.3 (1.34)	22.8 (1.20)	62.7 (1.67)
West South Central	22.9 (1.36)	14.6 (0.85)	63.8 (1.66)
Mountain	12.4 (0.70)	20.0 (1.73)	69.2 (1.78)
Pacific	10.6 (0.69)	24.7 (1.03)	66.0 (1.44)

[1]The New England region includes: CT, ME, MA, NH, RI, and VT. The Middle Atlantic region includes: DE, DC, MD, NJ, NY, and PA. The East North Central region includes: IL, IN, MI, OH, and WI. The West North Central region includes: IA, KS, MN, MO, NE, ND, and SD. The South Atlantic region includes: FL, GA, NC, SC, VA, and WV. The East South Central region includes: AL, KY, MS, and TN. The West South Central region includes: AR, LA, OK, and TX. The Mountain region includes: AZ, CO, ID, MT, NV, NM, UT, and WY. The Pacific region includes: AK, CA, HI, OR, and WA.

[2]A person was defined as uninsured if he or she did not have any private health insurance, Medicare, Medicaid, Children's Health Insurance Program (CHIP), state-sponsored or other government-sponsored health plan, or military plan. A person was also defined as uninsured if he or she had only Indian Health Service coverage or had only a private plan that paid for one type of service, such as accidents or dental care.

[3]Includes Medicaid, CHIP, state-sponsored or other government-sponsored health plan, Medicare, and military plans. A small number of persons were covered by both public and private plans and were included in both categories.

[4]Includes any comprehensive private insurance plan (including health maintenance and preferred provider organizations). These plans include those obtained through an employer, purchased directly, purchased through local or community programs, or purchased through the Health Insurance Marketplace or a state-based exchange. Private coverage excludes plans that pay for only one type of service, such as accidents or dental care. A small number of persons were covered by both public and private plans and were included in both categories.

NOTE: Data are based on household interviews of a sample of the civilian noninstitutionalized population.

SOURCE: NCHS, National Health Interview Survey, 2018, Family Core component.

Low-income undocumented adults are largely locked out of health care in California

Nine in 10 lack insurance

February 19, 2019

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Implementation of the Affordable Care Act cut in half the percentage of low-income, uninsured Californians under age 65, from 23 percent in 2013 to 11 percent in 2016-17. But federal law bars undocumented residents from federally funded Medicaid health services and from purchasing health insurance on the ACA Marketplaces. This leaves them the largest group of uninsured people in California, according to a new study by the UCLA Center for Health Policy Research.

Read The Policy Brief

View: Reducing Access Disparities in California by Insuring Low-Income Undocumented Adults

The study reports that of the 2.2 million undocumented people living in the state, three in five are low income and of those, nine in 10 are uninsured. In comparison, about one in 10 U.S.-born and documented low-income residents in the state is uninsured. The study defines low income as earnings at or below 138 percent of the federal poverty level ($16,754 for a single person; $34,638 for a household of four in 2018).

“Federal law is creating a class of people who would otherwise be able to access health care,” said Nadereh Pourat, director of the center’s Health Economics & Evaluation Research Program and lead author of the study.

“We have left a significant number of low-income California residents without an affordable way to get preventive and primary care services because of their legal status.”

Relatively healthy, but less likely to receive care when needed
Low-income undocumented adults in California are relatively young, relatively healthy, and likely to be working, according to the study.

Using 2016 and 2017 California Health Interview Survey data for adults ages 19 to 64, authors of the study found that, compared to U.S.-born and documented low-income residents in the state, undocumented low-income adults are more likely to be 26 to 44 years of age (56 percent vs. 19 percent), be in families with children (63 percent vs. 37 percent), and employed (67 percent vs. 60 percent). They are less likely to have multiple chronic health conditions (26 percent vs. 42 percent).

Pourat said that to maintain health, people need timely access to affordable care. But the current study reports the undocumented are more likely to lack a regular source of care (44 percent vs. 24 percent of U.S.-born and documented people) and to have gone without preventive care in the past year (38 percent vs. 21 percent).

“All Californians benefit from improving access as a means of preventing disease and improving our residents’ health,” Pourat said.

The study was supported by the California Health Care Foundation.

The UCLA Center for Health Policy Research is one of the nation's leading health policy research centers and the premier source of health policy information for California. The Center improves the public's health through high-quality, objective, and evidence-based research and data that informs effective policymaking. The Center is the home of the California Health Interview Survey (CHIS) and is part of the UCLA Fielding School of Public Health. For more information, visit www.healthpolicy.ucla.edu.

UCLA CENTER FOR HEALTH POLICY RESEARCH

Health Policy Brief

February 2019

Reducing Access Disparities in California by Insuring Low-Income Undocumented Adults

Nadereh Pourat and Ana E. Martinez

"The Affordable Care Act... did not extend eligibility for coverage to undocumented U.S. residents."

SUMMARY: While the Patient Protection and Affordable Care Act (ACA), signed into law in 2010, expanded health insurance coverage to millions of Californians, it did not extend eligibility for coverage to undocumented U.S. residents. Federal policy prohibits the use of federal funds to provide Medicaid to undocumented individuals. In 2015, the state of California extended Medi-Cal (California's Medicaid program) to undocumented children using state funds, and policies to extend eligibility to undocumented adults have been proposed. This policy brief includes the latest data from the California Health Interview Survey (CHIS) on the health insurance, demographics, health status, and access to care of undocumented low-income Californians ages 19-64. The data indicate that the great majority of these undocumented adults are working, live in families with children, and report being relatively healthy. However, significant disparities exist in access to health care between this group and their documented counterparts. This overview of undocumented low-income adult residents of California provides insights into the implications of extending full-scope Medi-Cal eligibility to this population, who currently have very limited options for affordable health insurance coverage and experience access disparities.

Under the Patient Protection and Affordable Care Act (ACA), California's uninsured rate has reached a historic low, driven in large part by the expansion of Medi-Cal (California's Medicaid program) to include low-income adults with earnings at or below 138 percent of the federal poverty level (FPL). But federal policy prohibits the use of federal Medicaid funds to provide full-scope coverage to undocumented residents, a restriction unchanged by the Affordable Care Act.* However, in 2016, California extended full-scope Medi-Cal eligibility to undocumented low-income children up to age 19, using state funds.

Most undocumented low-income California adults have remained uninsured due to ineligibility for full-scope Medi-Cal, the inability to purchase policies under Covered California (California's ACA exchange marketplace),† and limited affordable private options for coverage. Undocumented low-income adults are projected to comprise an estimated 37 percent of California's remaining uninsured in 2020.[1] As of January 2019, the California legislature was considering proposals to expand Medi-Cal to low-income undocumented adults. Governor Gavin Newsom has also proposed state funding to

* Undocumented low-income residents of the United States are eligible for restricted-scope Medicaid, which covers emergency and pregnancy-related services rather than providing comprehensive coverage. Throughout this brief, we use Medicaid/Medi-Cal to refer to full-scope Medicaid/Medi-Cal, which covers the full set of benefits described here.

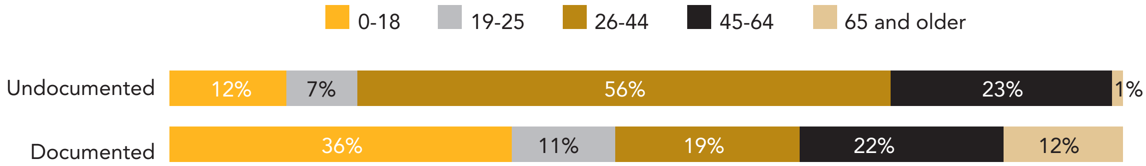
† Under the ACA, undocumented immigrants are prohibited from purchasing insurance through the ACA marketplaces.

California Health Care Foundation

This policy brief was funded by a generous grant from the California Health Care Foundation.

Exhibit 1

Age Distribution of Low-Income Documented and Undocumented Populations, California, 2016-2017



Source: UCLA Center for Health Policy analysis of the combined 2016 and 2017 California Health Interview Survey (CHIS).

Notes: "Low-income" is defined as having income of 0-138 percent FPL.
Estimates do not sum to 100 percent due to rounding.

"Sixty-one percent {of undocumented Californians} are low-income."

extend Medi-Cal to low-income undocumented young adults ages 19-25.

We analyzed the most recent data from the California Health Interview Survey (CHIS)[2] to provide information on the characteristics of California's low-income undocumented adults, including sources of health insurance coverage, demographics, health status, and access to health care. We included English proficiency to assess the ability of individuals to communicate effectively with medical professionals in English and to navigate the health care system. To understand access to care, we examined rates of utilization of services and, as an indicator of continuity and ease of getting care when needed, whether survey respondents had a usual source of care other than the emergency department.

In this policy brief, we focus on undocumented adults ages 19-64 with incomes at or below 138 percent of the federal poverty level (FPL), which is the Medi-Cal income eligibility threshold for low-income adults with satisfactory immigration status. We excluded the undocumented elderly in the analyses due to their very small sample size. We compared the characteristics of low-income nonelderly undocumented adults to those of their documented counterparts, including U.S.-born citizens, naturalized citizens, and legal permanent residents (see the "Methodology" section for further detail).

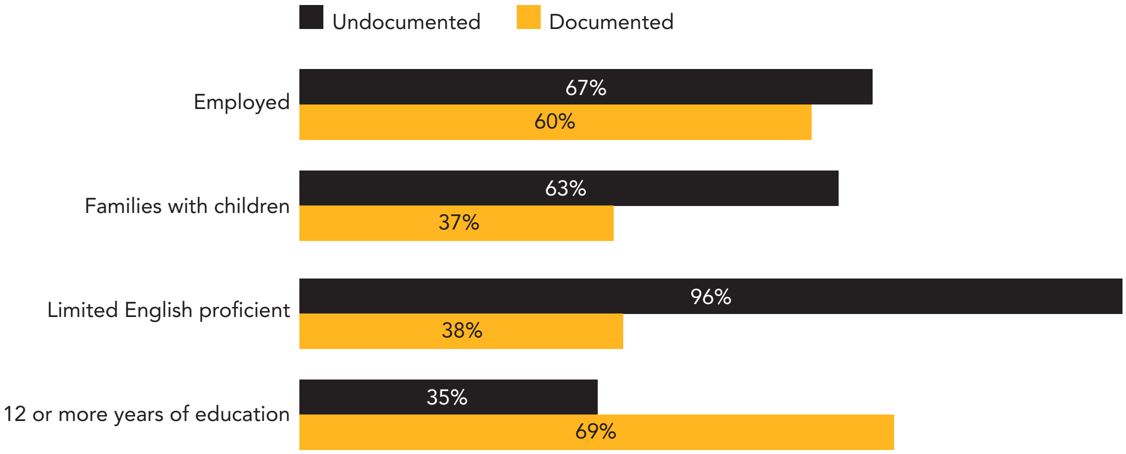
The majority of undocumented residents are low-income and nonelderly adults.

An estimated 2.2 million California residents are undocumented.[3] Of these, 61 percent are low income, defined here as having an income of 0–138 percent FPL (data not shown). The great majority of low-income undocumented residents are nonelderly adults, including 56 percent who are ages 26-44 (Exhibit 1). Young adults between 19 and 25 years of age comprise 7 percent of the low-income undocumented population. The age distribution of documented and undocumented low-income populations is significantly different, with more undocumented than documented adults being between 26 and 44 years of age (56 percent vs. 19 percent).

Most undocumented low-income adults are working and have children.

Examining selected demographic characteristics of low-income undocumented and documented adults revealed statistically significant differences between the two groups in education level, English proficiency (spoken English), family status, and employment status. For example, fewer undocumented than documented low-income adults have 12 or more years of education (35 percent vs. 69 percent), and more are limited English proficient, reported as speaking English less

Selected Demographic Characteristics of Documented and Undocumented Low-Income Adults Ages 19-64, California, 2016-2017 **Exhibit 2**



Source: UCLA Center for Health Policy analysis of the combined 2016 and 2017 California Health Interview Survey (CHIS).

Note: "Low-income" is defined as having income of 0-138% FPL.

than very well (96 percent vs. 38 percent; Exhibit 2). Similarly, compared to low-income documented adults, more low-income undocumented adults live in families with children (63 percent vs. 37 percent), and more are employed (67 percent vs. 60 percent). The two groups do not differ significantly in the proportion who are female (52 percent vs. 56 percent, respectively).

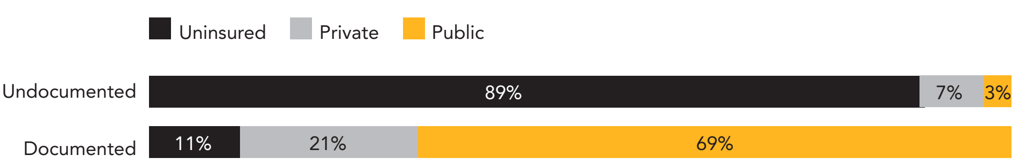
Most low-income undocumented adults are uninsured.

The great majority (89 percent) of low-income undocumented adults in California are uninsured, and 7 percent have private insurance, most often through employers (Exhibit 3).* In contrast, only 11 percent

* Uninsured undocumented low-income adults include 52 percent who report having Medi-Cal. We considered these individuals to have restricted-scope emergency benefits, as they are ineligible for full-scope Medi-Cal.

"Eighty-nine percent of low-income undocumented adults in California are uninsured."

Insurance Status of Documented and Undocumented Low-Income Adults Ages 19-64, California, 2016-2017 **Exhibit 3**



Source: UCLA Center for Health Policy analysis of the combined 2016 and 2017 California Health Interview Survey (CHIS).

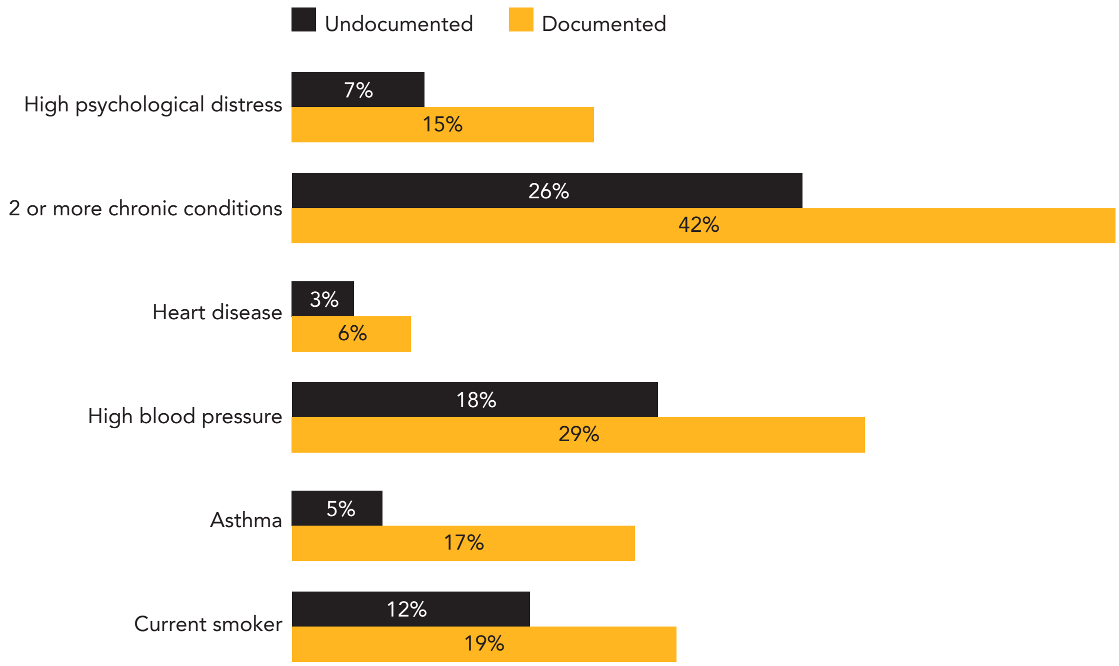
Notes: "Low-income" is defined as having income of 0-138 percent FPL.

Undocumented low-income adults who reported Medi-Cal are identified as uninsured.[4] Private insurance includes employer-sponsored insurance and privately purchased insurance. Public insurance for the documented population includes Medi-Cal, Medicare, and other public programs.

Estimates do not sum to 100 percent due to rounding.

Exhibit 4

Health Status of Documented and Undocumented Low-Income Adults Ages 19-64, California, 2016-2017



Source: UCLA Center for Health Policy analysis of the combined 2016 and 2017 California Health Interview Survey (CHIS).

Notes: "Low-income" is defined as having income of 0-138 percent FPL.
Multiple chronic conditions include asthma, diabetes, heart disease, and high blood pressure.

"Most undocumented low-income adults report being relatively healthy."

of low-income documented adults report being uninsured, and 21 percent have private insurance. The latter includes 16 percent with employer-sponsored coverage and 5 percent with privately purchased insurance. Insurance among undocumented individuals reporting public coverage was primarily through county programs. The majority (69 percent) of low-income documented adults have coverage through public sources, including 66 percent with Medi-Cal.

Most undocumented low-income adults report being relatively healthy.

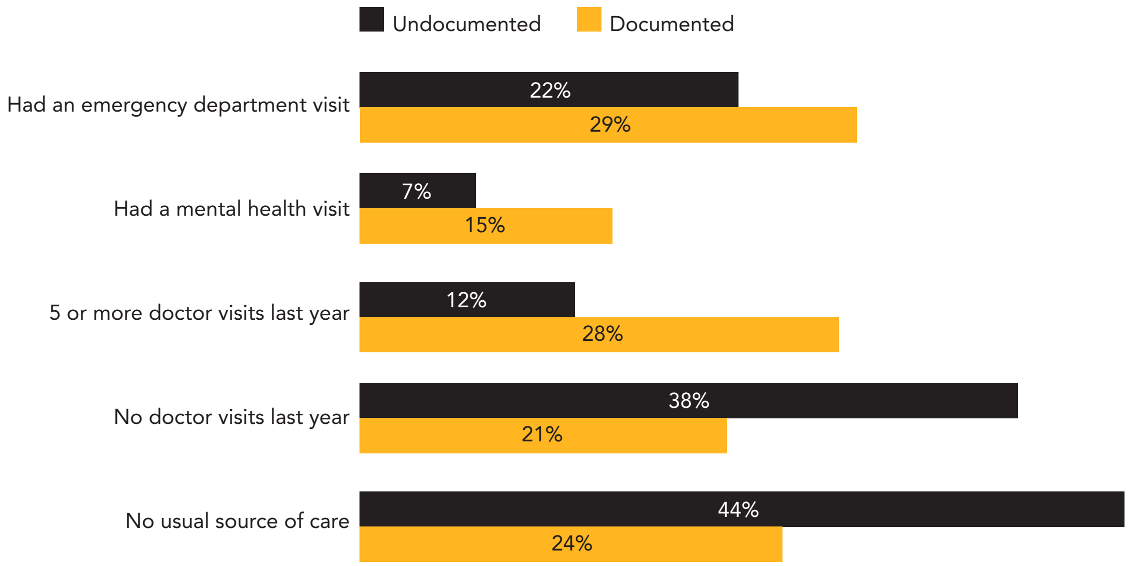
We examined differences in several indicators of health status between undocumented and documented low-income adults. Compared with their documented counterparts, undocumented low-income adults report statistically significant lower rates of asthma, high blood pressure, heart disease, high levels of psychological distress, two or more chronic conditions, or being current smokers (Exhibit 4). Undocumented low-income adults reported statistically similar rates of fair or poor health (34 percent vs. 38 percent), diabetes (13 percent vs. 10 percent), and being overweight or obese (69 percent vs. 71 percent) compared to documented low-income adults (data not shown).*

Undocumented low-income adults have limited access to care.

Data reveal disparities in access to health care between documented and undocumented low-income adults. Low-income undocumented adults have statistically significant lower rates of having a usual source of care and higher rates

* The age-adjusted estimates of health status of documented and undocumented low-income adults showed results similar to those of the unadjusted estimates presented in this brief for being a current smoker, having asthma, high blood pressure, heart disease, two or more chronic conditions, and high psychological distress. The age-adjusted results showed a higher likelihood of being in poor health and a lower likelihood of having diabetes and being overweight or obese, but these relationships were not significant.

Access to Care of Documented and Undocumented Low-Income Adults Ages 19-64 in the Past Year, California, 2016-2017 **Exhibit 5**



Source: UCLA Center for Health Policy analysis of the combined 2016 and 2017 California Health Interview Survey (CHIS).

Note: "Low-income" is defined as having income of 0-138 percent FPL.

of no doctor visits in the past year compared with their documented counterparts. In addition, undocumented adults report lower rates of five or more doctor visits, any mental health visits, and any emergency department (ED) visits in the past year compared to low-income undocumented adults. In contrast, undocumented adults report statistically similar rates of delays in getting medical care due to cost (13 percent vs. 14 percent) and delays in getting needed medications (14 percent vs. 10 percent) as documented adults (data not shown).

Opportunities to reduce disparities in access to care among the remaining uninsured

This policy brief provides data on demographics, insurance coverage, health status, and access to care for undocumented low-income nonelderly adults in California. The great majority are not highly proficient in English and are uninsured, and many experience access limitations, including lacking a usual source of care and going without a doctor visit in the past year. These results are consistent with research showing that uninsured individuals face greater access barriers to health care than documented adults.[5]

Research shows that individuals without access often postpone seeking needed care and may have higher rates of undiagnosed conditions.[6] Thus, the lower prevalence of chronic conditions among low-income undocumented adults compared to their documented counterparts may be partly due to lower rates of health insurance and fewer visits to health care providers to diagnose conditions.[7-9] Linguistic, education level, and cultural differences can contribute to variations in how individuals report on their health and their need for care.[10] These variations might contribute to the contradictory findings that low-income undocumented adults report being in fair or poor health or delaying needed care at similar rates as low-income documented

"Low-income undocumented adults have … lower rates of having a usual source of care."

"Medicaid expansion has been associated with reduced mortality and improved health status."

adults, while other health indicators have significant differences. Research also shows that immigrants often arrive with better health profiles, but that this advantage declines over time.[11, 12] Thus, the healthier profile of undocumented low-income adults compared to the documented group might vary with the number of years of having lived in the U.S.

Undocumented low-income adults are eligible only for restricted-scope Medi-Cal, which is limited to episodic access to pregnancy-related services and emergency care for specific urgent conditions and is not designed for receipt of comprehensive preventive, primary, or specialty care.[13] Previous research indicates that obtaining comprehensive and affordable insurance is likely to reduce access disparities.[8, 14] In particular, Medicaid expansion has been associated with reduced mortality and improved health status, as well as better access to care.[4] Extending full-scope Medi-Cal eligibility to undocumented low-income adults provides new opportunities to reduce the remaining disparities in health and access statewide.[14]

Data Source and Methods

We pooled the 2016 and 2017 CHIS data for these analyses. Undocumented individuals were identified using a predictive model described elsewhere.[6] Documented individuals include U.S.-born citizens, naturalized citizens, and permanent residents. Undocumented low-income adults who reported having Medi-Cal are identified as uninsured. English proficiency is based on self-reported data on how well the individual speaks English. We combined data on chronic conditions to identify those with multiple (two or more) chronic conditions. These included asthma, diabetes, high blood pressure, and heart disease. High psychological distress is based on having a Kessler 6 score of 13 or higher in the past year. Those without a usual source of care included individuals who reported using the emergency department as their usual source of care. We considered differences between estimates as statistically significant when probabilities were less than 0.05.

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Funder Information

This policy brief was funded by a generous grant from the California Health Care Foundation.

CHIS california health interview survey

This publication contains data from the California Health Interview Survey (CHIS), the nation's largest state health survey. Conducted by the UCLA Center for Health Policy Research, CHIS data give a detailed picture of the health and health care needs of California's large and diverse population.

CHIS is a collaboration of the UCLA Center for Health Policy Research, California Department of Public Health, California Department of Health Care Services, and the Public Health Institute. Learn more at: ***www.chis.ucla.edu***

Acknowledgments

Sincere thanks to Steven Wallace of the UCLA Center for Health Policy Research, Laurel Lucia of the UC Berkeley Labor Center, and Amy Adams of the California Health Care Foundation for their careful review of and insightful comments on this publication. Thanks also to Pan Wang, PhD, for her statistical assistance, and to Venetia Lai and Celeste Maglan Peralta for their contributions to production and public communication of this brief.

Suggested Citation

Pourat N, Martinez AE. 2019. *Reducing Access Disparities in California by Insuring Low-Income Undocumented Adults*. Los Angeles, CA: UCLA Center for Health Policy Research.

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PB2019-2

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THE EFFECT OF HEALTH INSURANCE ON MORTALITY: POWER ANALYSIS AND WHAT WE CAN LEARN FROM THE AFFORDABLE CARE ACT COVERAGE EXPANSIONS

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Kosali Simon

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February 2019

We thank Marcus Dillender, William Evans, Ted Joyce, Robert Kaestner, Amanda Kowalski, Sarah Miller, Dan Sacks, Ben Sommers, Coady Wing, Engy Ziedan, and participants in workshops at Bar-Ilan University Conference on Law and Big Data (May 2018); Georgia State University, Economics Department (August 2018); Hebrew University of Jerusalem, Economics Department (Nov. 2018); Interdisciplinary Center Herzliya (May 2018); ASSA 2018; Stanford University Health Economics Seminar (May 2018); ASHEcon (2018); APPAM (2017); Tel Aviv University, Economics Department (Nov. 2018), Texas A&M (May 2017); and the UK Institute for Fiscal Studies (Nov. 2018). The views expressed herein are those of the authors and do not necessarily reflect the views of the National Bureau of Economic Research.

The Effect of Health Insurance on Mortality: Power Analysis and What We Can Learn from the Affordable Care Act Coverage Expansions
Bernard Black, Alex Hollingsworth, Leticia Nunes, and Kosali Simon
NBER Working Paper No. 25568
February 2019
JEL No. I1

ABSTRACT

A large literature examines the effect of health insurance on mortality. We contribute by emphasizing two challenges in using the Affordable Care Act (ACA)'s quasi-experimental variation to study mortality. The first is non-parallel pretreatment trends. Rising mortality in Medicaid non-expansion relative to expansion states prior to Medicaid expansion makes it difficult to estimate the effect of insurance using difference-in-differences (DD). We use various DD, triple difference, age-discontinuity and synthetic control approaches, but are unable to satisfactorily address this concern. Our estimates are not statistically significant, but are imprecise enough to be consistent with both no effect and a large effect of insurance on amenable mortality over the first three post-ACA years. Thus, our results should not be interpreted as evidence that health insurance has no effect on mortality for this age group, especially in light of the literature documenting greater health care use as a result of the ACA. Second, we provide a simulation-based power analysis, showing that even the nationwide natural experiment provided by the ACA is underpowered to detect plausibly sized mortality effects in available datasets, and discuss data needs for the literature to advance. Our simulated pseudo-shocks power analysis approach is broadly applicable to other natural-experiment studies.

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A Problem Set version of code to demonstrate shock-based power calculation approach is available at https://github.com/hollina/health_insurance_and_mortality

I. Introduction

The relationship between health insurance and mortality is at the center of much empirical inquiry in the health economics literature. Since the first rigorous study of this relationship through the RAND Health Insurance Experiment, researchers have studied this question using varying study designs and populations, finding mixed results on the existence and strength of any relationship; a recent literature review found over 200 studies published on the topic (Gaudette et al., 2016). Many papers in this literature focus on mortality as an extreme, but readily measurable outcome. Most earlier studies, including the RAND Experiment, studies of Medicare, and the more recent Oregon Health Insurance Experiment find no statistically significant impacts of health insurance on overall mortality for the general adult population (Levy and Meltzer 2008; Finkelstein and McKnight 2008; Finkelstein et al., 2012), [1] but several more recent studies report mortality reductions from state or federal insurance expansions for adults (e.g. Sommers, Long, and Baicker, 2014). A separate literature finds health and mortality gains from health insurance for children (e.g., Currie and Gruber, 1996a,b; Wherry and Meyer, 2015; Brown, Kowalski, and Lurie 2017). Health insurance expansions have also been shown to have substantial improvements in access to health care and in health status (Currie and Gruber 1996a, Sommers et al 2013, Simon et al 2018 JPAM,). Other studies examine the effect of insurance on non-physical health outcomes, such as mental health stress levels and financial health, finding improvements (e.g., Hu et al, 2016; Baicker et al. 2013).

The Affordable Care Act produced substantial insurance expansions for the low-income, non-elderly adult population (e.g. Kaestner et al., 2015; Wherry & Miller, 2016; Frean et al., 2017; Simon et al., 2017; Courtemanche et al., 2017). These expansions provide a new opportunity to study the link between health insurance and mortality, and to examine issues of statistical power for these studies and, more generally, natural experiment studies of low-frequency outcomes. Our study examines this relationship using mortality microdata from 1999-2016. We use both difference-in-differences (DiD) and triple-difference/age discontinuity approaches to study the effect of state Medicaid expansions, and ACA expansion more generally, on mortality during the

[1] These are studies of the effect on mortality of health insurance, not health care. For example, Finkelstein and McKnight (2008) observe that "part of the explanation for [finding no mortality effect could be that], prior to Medicare, elderly individuals with life-threatening, treatable health conditions sought care even if they lacked insurance, as long as they had legal access to hospitals."

first three post-ACA years (2014-2016). We exploit heterogeneity in assignment to "treatment" (health insurance) and potential treatment effect heterogeneity along several dimensions: healthcare amenable vs. non-amenable causes of death; specific major causes of death (cancer, heart disease, diabetes, and respiratory disease); and sociodemographic factors at the individual (gender, race/ethnicity, and education) and the county (baseline percent uninsured and percent in poverty) levels. Our triple-difference/age-discontinuity design compares the near-elderly (age 55-64) to the young-elderly (ages 65-74), who were already covered by Medicare. We focus on the near-elderly, both because they are more likely than younger persons to have health conditions for which healthcare is important for survival, and because focusing on this age band makes the above and below-65 groups more comparable. Our age-discontinuity approach is similar to the Finkelstein and McKnight (2008) study of Medicare, except their treatment group is our control group. We obtain similar results in analyses using broader age ranges (age 45-64, or all non-elderly adults).

We do not find a statistically significant pattern of results consistent with Medicaid expansion causing mortality changes, but we also cannot rule out large effects in either direction. We note here that prior evidence on the effects of insurance expansion on mortality lead one to expect modest effects of incremental insurance expansions on mortality. Reasons for modest overall effects include: many of those in greatest need of healthcare are already insured; and many uninsured persons already receive substantial healthcare. One reason for our "null result" is that the first stage on insurance coverage is weak: our principal identifying variation (the relative change in uninsurance rates for Medicaid expansion versus non-expansion states) amounts to a very small fraction of the population. The average increase in health insurance coverage attributable to Medicaid expansion over 2014-2016 is only around 1.1% for persons aged 50-64, and only around 4% even when we hone in on low-educated populations; precise income measures used to determine ACA eligibility are unavailable in mortality data. A second reason for failure to reject the null of no effect is a high level of "noise" - substantial background variation in mortality, and mortality trends, across states and demographic groups. A third reason is that mortality is a low-frequency outcome. We note too that effects of health insurance on mortality are more likely to emerge over a long time frame.

Our second contribution is to highlight that observational studies can often benefit from performing and reporting power analyses. We use a simulation-based power analysis, in which we impose treatment effects of varying sizes on actual data during the pre-treatment period, and assess whether ACA expansion effects on mortality of plausible size can be detected with our data. We conclude that even the nationwide natural experiment provided by the ACA is severely underpowered to detect effects on mortality of plausible size in county-level death certificate data. To reliably detect effects of insurance coverage on mortality, one would need very large-sample panel data on individuals, which is not currently available. Such data could include information on health, income, and insurance status, which would allow the study to focus on subsamples with a larger first stage and/or higher sensitivity of health and mortality to healthcare use. Even with such hypothetical data, it is likely that only fairly large effects of health insurance on mortality could be reliably detected.

We estimate power using our pre-treatment period data (pre-2014) by first applying a pseudo-shock to health insurance rates at the beginning of 2011 as if the ACA expansion had occurred then. We choose pseudo-treated states at random, and then apply pseudo treatment effect (mortality shocks) of different sizes to the group of pseudo-treated states (by randomly removing deaths from our mortality data). We repeat this process 1,000 times. We then assess the likelihood that these pseudo shocks we introduce in 2011-2013 would be detected, using methods similar to our actual specifications. This approach (applying simulated treatment effects to actual data, drawn from a period when no effect should exist) can be applied to a wide-variety of research settings, including both structural and non-parametric work; The Appendix provides sample Stata code for implementing our power analysis using publicly available mortality data from CDC Wonder.

The minimum detectable effect (MDE) – the minimum reduction in amenable mortality for all persons aged 55-64 years in expansion states, detectable at the 95% confidence level (two-tailed test), 80% of the time (a standard threshold for a study to be considered adequately powered) as a result of a state expanding Medicaid is about 0.018. Together with a 0.011 first-stage, this implies that the MDE is roughly a 160% drop in amenable mortality among the newly insured.[2] The DD and triple difference models have similar power. Power does not improve when we examine subgroups: non-parallel trends remain common, the first-stage remains modest, and the gain in

[2] This estimate assumes that baseline amenable mortality rate is the same for those who differentially gained insurance in expansion states as for the general population, controlling for observable covariates. If the baseline mortality rate for the newly, differentially insured was twice that of the overall population, the MDE would be half as large, thus 80% rather than 160%.

power from a higher first-stage and a higher base mortality rate is more than offset by smaller sample size.

By comparison to the very large MDE from the natural experimental variation available in our study, the historic introduction of sulfa drugs reduced maternal mortality by 24-36% (Thomasson and Treber, 2008; Jayachandran et al., 2012). Finkelstein and McKnight (2008) found no significant effect of the introduction of Medicare on mortality for those aged 65-74 years (point estimate after 5 years = -0.15%; 95% CI [-3.9%, +3.6%]); Card, Dobkin, and Maestas (2004) use an age-discontinuity design and find no reduction in mortality at age 65 (point estimate +0.5%, 95% CI [-3.3%, +4.3%]); the RAND Experiment found no significant overall effect of health insurance on mortality but found a 10% reduction in mortality for a subsample of persons with vulnerable health; and the Oregon Experiment found no significant effect, with a point estimate of -13% but a wide 95% confidence interval (95% CI [-39%, +13%]).[3] Large effects are also unlikely because prior research finds that the uninsured already consume substantial healthcare -- about 80% as much as the insured (e.g., Black et al., 2017). Our prior expectation, considering the near-zero estimates and confidence intervals in the largest prior studies (Finkelstein and McKnight, 2004; Card, Dobkin and Maestas, 2004), the substantial healthcare consumed by the uninsured, the imperfect safety net that already covers some vulnerable populations (e.g., the elderly and the disabled), and the availability of emergency care regardless of insurance status (Card, Dobkin, and Maestas, 2009), were that any effect of the 2014 insurance expansion on mortality was unlikely to exceed 10% for the newly insured, and that any effect would likely appear only over time.

Combining this past literature with a power analysis perspective, we expect that if significant effects of expanding health insurance eligibility on general adult mortality are found, these are likely to greatly overstate actual magnitudes. Reasons to re-examine results from low-powered studies include: they may draw from the right tail of a probability distribution; failure to adequately balance treated and control units or address non-parallel trends; specification searches; and "file-drawer bias" (the tendency for insignificant results to remain unpublished). McCrary, Christensen and Fanelli (2016) propose a minimum *t*-statistic around 3 to correct for file-drawer bias alone.

[3] Sulfa drugs: See Jayachandran et al. (2012), table 1. Medicare adoption: See Finkelstein & McKnight (2008), App. A. Oregon Experiment: See Finkelstein et al. (2012), Table IX. Medicare age discontinuity: see Card et al (2004) table 11, RAND experiment: see Brook et al. (1983) Table 7.

Power analyses are common in the design (*ex ante*) stage of a randomized trial; researchers use them to ensure that the trial does not "fail" to find a true effect due to inadequate sample size. They are rare, however, for DiD and other observational studies. Ioannidis et al. (2017) and McCloskey (1985) criticize the failure of economics researchers to conduct power analyses. DiD and other shock-based, observational studies with panel data would often benefit from assessing plausible effect sizes and conducting power analyses, ideally in an explicit "design stage" (with outcomes hidden; see Rubin, 2008). Conducting these analyses can reduce the chance of inadvertently publishing false positive results or results with inflated magnitudes (Button et al., 2013; Gelman and Carlin, 2014).[4]

For example, we find non-parallel pre-treatment trends between treated and control states; mortality among those aged 55-64 drops fairly substantially in treated states over 2009-2013 relative to control states (Figure 2). The triple difference design cannot fully address this problem, because we also find non-parallel within-state trends for persons aged 55-64 compared to those aged 65-74, which vary across subgroups. DD and triple difference regression estimates ignore these non-parallel trends. For example, we find implausibly large, statistically significant effects of ACA expansion on mortality for blacks and Hispanics, in both DD and triple difference specifications (Appendix Table A2). The power analysis and parallel trends examination (for which a long pre-treatment period can be important) reduce the likelihood that we would inadvertently interpret these significant coefficients as robust results.[5]

We note several limitations of our work. First, our analysis should not be interpreted as evidence that health insurance does *not* affect mortality or health, either overall or for particular diseases or subgroups. Second, studying mortality with ACA-induced variation in health insurance is marginal in three senses: (i) those previously uninsured (implying average lower demand for health insurance; see Kowalski's (2018) evidence on better health among new enrollees in Massachusetts reform than existing enrollees) may experience lower marginal gains from insurance than the already insured; (ii) prior policy interventions already provide emergency care and some healthcare access for vulnerable populations; and (iii) access to health insurance

[4] We discuss below the limited prior examples we have found on use of a simulated power analysis in applied economics research; none involve imposing a simulated treatment effect on actual data.

[5] As we were finalizing this draft, we became aware of Borgschulte and Vogler (2019), who find a post-ACA drop in mortality attributable to Medicaid expansion for both amenable and non amenable causes of death.

does not equate to access to healthcare, as even the uninsured consume substantial healthcare, so that some insurance-induced healthcare could be at the "flat" (or even the downslope) of the marginal benefit curve. We also study a relatively short post-shock time frame, yet any effects of health insurance on mortality may appear only over a longer time frame. However, our simulations suggest that longer-term effects on mortality, with plausible effect sizes, cannot be reliably detected with currently available datasets. Moreover, concern with non-parallel trends during the treatment period increases as one moves further away from the shock. Thus, additional years of data, using existing sources, are unlikely to allow a convincing longer-term effect to emerge.

In Part II we summarize the prior literature on the relationship between health insurance and mortality. This literature presents a mixed picture. There is no consistent evidence for statistically significant effects of insurance on mortality for the general adult population. There are some effects for specific vulnerable populations such as those with HIV, but not for others, such as those with a disability. Part III provides an overview of the conceptual concerns that inform our analysis. Part IV summarizes the ACA insurance expansions. Part V describes our data and presents summary statistics. Part VI summarizes our empirical approach. Part VII presents our results. Part VIII presents our power analysis, highlights the limited sources of identifying variation and the risk of false positives, and assesses which data and sample sizes might provide adequate power. Part IX concludes.

II. Prior Research

A. The Effect of Health Insurance on Health and Mortality

Our first contribution, on whether Medicaid expansion predicts lower mortality, fits into a large literature that examines the connection between health insurance and health status. This literature spans experimental and quasi-experimental settings, and examines morbidity and mortality, physical and mental health, elderly and non-elderly adults, pregnant women, children, infants, short- and long-run effects, and specific diseases and demographic subpopulations.

For our first aim, we focus on the effect of health insurance on mortality in the general adult population.[6] Historically, the first rigorous evidence on how health insurance affects health

[6] In early research using a natural experiment, Currie and Gruber (1996a,b) find that Medicaid expansions in the late 1980s and early 1990s reduced infant mortality by 8% and all-cause child mortality by 5%.However, Howell et al (2010) find that the effects of Medicaid expansion on child and infant mortality are limited to accidental deaths, not disease-related deaths – a puzzling result, since emergency care regardless of insurance has been required since 1996

and mortality comes from the RAND Health Insurance Experiment (Brook et al., 1983; Keeler, 1985; Newhouse, 1993) which provided experimental exposure to varying degrees of insurance generosity; none of the study subjects was fully uninsured. Brook et al. (1983) found no significant overall effect on mortality for the full sample (of persons aged 14 to 61, followed for 3-5 years (point estimate -0.02; 95% CI [-0.05, +0.02]), but found 10% lower mortality for high-risk individuals who received generous insurance. The RAND HIE also found some improvements in blood pressure for low-income populations receiving generous insurance, but otherwise found limited evidence that generous insurance led to improved health.

Finkelstein and McKnight (2008) study Medicare's introduction in 1965, which remains the largest health insurance policy change in US history. Their first stage is around 75%, because private insurance for the elderly was uncommon pre-Medicare (Finkelstein, 2007). Finkelstein and McKnight (2008) find a 40% drop in out-of-pocket medical expenditures, but no discernible mortality effects over a 10-year period (point estimate after 5 years = -0.15%; 95% CI [-3.9%, +3.6%]). Finkelstein and McKnight observe that these results may be due to the fact that prior to Medicare, those with life-threatening but treatable conditions likely sought care even if they were uninsured.

Card, Dobkin, and Maestas (2004) exploit the age-65 discontinuity in coverage using more recent data from 1989-1998; they find no significant effect of turning 65 on population mortality (point estimate +0.5%, 95% CI [-3.3%, +4.3%]).[7] Their first stage is around 8% for the full sample (Table 3) and 14% for a low-education subsample. In a related study that speaks to possible mechanisms, Card, Dobkin, and Maestas (2009) find a drop in mortality at age 65 among those admitted to hospital through the ED for severe, non-deferrable reasons for which individuals would seek care at the ED whether insured or not: having insurance through Medicare increases treatment intensity by around 3% and results in a 1% absolute (20% relative) reduction in 7-day mortality and a 3% relative reduction in 1-year mortality.

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under the Emergency Medical Treatment and Active Labor Act (EMTALA) and was widely available pre-EMTALA. Wherry and Meyer (2015) examine the long-run impact of eligibility expansions for children using a regression discontinuity design and find lower mortality for nervous system diseases and cancer, rather than for accidents, among black but not white children. These studies, while pointing in different directions, suggest that there is important heterogeneity based on both cause of death and race.

[7] The overall mortality results are included in the 2004 NBER working paper but not later published papers (Card, Dobkin, and Maestas, 2008, 2009).

Doyle (2005) studies a subpopulation with strong need for emergency medical care (victims of auto accidents who are alive when they reach the hospital) and finds higher adult mortality rates for uninsured persons in Wisconsin during 1992-1997. He finds that being uninsured increases in-hospital mortality by 39%, relative to other auto accident victims (1.5 more deaths per 100, relative to a mean of 3.8 deaths per 100) (point estimate 0.015, 95% CI [0.003, 0.027]), which he attributes to differences in treatment intensity, rather than pre-accident differences in health; in this sense, the paper also speaks to a specific channel involving in-hospital treatment intensity for emergency care for severe traumatic injury.[8]

Levy and Meltzer (2004, 2008) review the literature and conclude that, consistent with Finkelstein and McKnight (2008) and Card, Dobkin, and Maestas (2004), the literature presents evidence at most of modest health benefits from general adult health insurance expansions. They note potential exceptions for specific vulnerable populations, but conclude that "for most of the population at risk of being uninsured (adults of ages 19 to 50), we have limited reliable evidence on how health insurance affects health." (Levy and Meltzer 2008, p.404).

In addition to the RAND Experiment, two other randomized experiments deserve attention. Weathers and Stegman (2012) find no significant mortality effect for adults receiving Social Security Disability Insurance when they receive health insurance immediately rather than after the usual 2-year waiting period, even when given assistance in navigating the health insurance system (point estimate for odds ratio 1.28, 95% CI [0.71,1.85]. However, their sample of 2,000 persons is small, and thus confidence bounds are wide. They do find that those receiving insurance have higher self-reported health. The second is the Oregon Experiment, involving Medicaid expansion for adults, administered through a lottery among those who applied. Finkelstein et al. (2012) and Baicker et al. (2013) find limited changes in mortality or measures of physical health after 2 years. They find increased healthcare use, increased diabetes detection and care (but not lower blood sugar levels), reduced financial strain, and less depression. Their first stage on health insurance coverage is strong at around a 25% relative rise in coverage for those in the treatment group; this difference shrinks rapidly, however, and is only half as large after 16 months. Their point estimate for mortality reduction is large, at -13%, but with a wide 95% CI [-26%, +13%]. Thus, both

[8] Another example of health insurance affecting health among a uniquely vulnerable population is Goldman et al. (2001), who use state HIV policies and Medicaid generosity as instruments for insurance status; they find that 6-month mortality falls by 71% as a result of gaining insurance.

experiments find statistically insignificant effects for relatively vulnerable populations (the disabled for Weathers and Stegman (2012), and poor adults who signed up for the Medicaid lottery and later enrolled if eligible for the Oregon Experiment).

In contrast, several recent papers on insurance expansions for nonelderly adults find large effects of health insurance on mortality rates. Sommers, Baicker and Epstein (2012) considers Medicaid expansion for non-elderly adults in three states (Arizona, Maine, and New York) that expanded Medicaid in the early 2000s compared to neighboring non-expansion states; Sommers, Long and Baicker (2014) and Powell (2018) consider the Massachusetts insurance expansion in 2006. McClellan (2017) considers the ACA mandate that requires employers to cover young adults under their parents' employment-based insurance policies until age 26, and Dunn and Shapiro (forthcoming) considers the effect of Medicare Part D prescription drug coverage for elderly adults.

B. Power analyses and prior use of simulated power in economics research

Our second contribution focuses on the value of conducting and reporting a power analysis in an observational study. We perform a power analysis in a form that is generally usable for DiD studies with reasonably long panels by using simulation, in which one imposes treatment effects of varying sizes on actual data during the pre-treatment period.

Ex ante power analyses, before research is carried out, are often used in randomized trial designs to assess feasibility and determine necessary sample size,[9] as well as in grant applications for observational studies.[10] However, even when performed at an early stage in a research project, power analyses are rarely reported in published research. It is rarer still to find simulated power analyses. The exceptions we found include Hsiang et al. (2015) and Croke et al. (2016) from economics and Hannon et al. (1993) from bird ornithology. Of these only Hannon et al. (1993)

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9 For example, after making assumptions about the mean and sampling distribution of a potential treatment effect, a researcher designing an RCT could use a standard formula to estimate the minimum number of subjects needed to detect an effect of that size at a 5% significance level 80% probability – termed 80% power. This ex ante power analysis is helpful in ruling out study designs that are underpowered given realistic assumptions, and can allow researchers to assess the needed sample size, and to enhance power by changing the research design.

10 The National Institutes of Health (NIH) require reviewers of grant applications to evaluate how statistical power has been addressed and advice to potential grant applicants is to aim for at least 80% power (NIH, 2016; Gerin et al.,. 2017).

modify observed data to discern power, while Hsiang et al. (2015) and Croke et al. (2016) create synthetic data that is designed to proxy for real world variables of interest.[11]

Some have argued that power analysis should not be done after results are available (Hoenig and Heisey, 2001; Senn, 2002); citing concerns that a lack of power will be used to justify insignificant findings, which could be due to lack of a treatment effect. Conversely, Gelman and Carlin (2014) point out in low-powered studies which *find* a statistically significant effect, the estimated effect size will often have the wrong sign or have magnitude far larger than the true effect; this implies a need for power analysis in studies which find significant effects.[12]

A growing literature documents the prevalence of underpowered studies in a number of fields, including neuroscience, psychology, medicine, and economics (Button et al., 2013; Maxwell, 2004; Ioannidis, 2005; Ioannidis et al., 2017). Related early work in this vein by economists includes the lament by McCloskey and Ziliak that power analyses are rarely conducted (McCloskey, 1985; McCloskey and Ziliak, 1996; Ziliak and McCloskey, 2004). Ioannidis et al. (2017) estimate that the median statistical power in a large set of economics articles is 18%, which is far lower than the 80% standard used in experimental design. The authors determine power by relying on meta-analyses of these articles, and comparing the weighted effect size from the meta-analysis to a weighted standard error. Their approach, however, cannot be used to assess power in a single study.[13] In addition, Banerjee et al. (2015) review six randomized trials assessing microcredit and find that most suffer from low power due to a limited take up rate.

Single-study power analyses can be either closed form (based on an assumed data generating process) or simulation-based; the simulation can involve either artificial data (from an assumed data generating process) or actual data, to which a treatment effect is added. A study of bird nest visitation by Hannon et al. (1993), the earliest simulated power analysis we found, is similar in spirit to our own in that the authors apply a simulated treatment effect to actual data.

[11] Hannon et al. (1993) are also the only researchers who conduct a power analysis on their own results. Hsiang et al. (2015) and Croke et a. (2016) run power analysis on studies by others.

[12] Gelman (2018) and Button et al. (2013) note a technical concern: power analysis should not be based upon the estimated treatment effect size since noise in the estimated effect size will cause error in the estimated power; an estimated effect that exceeds the true effect would lead to estimated power that exceeds actual power.

[13] Zhang and Ortmann (2013) and Gallet and Doubouliagos (2017) use similar approaches to estimate power for a series of related studies. Zhang and Ortmann report median power of 25% in experimental papers using the dictator game. Gallet and Doubouliagos report that 59% of studies examining the impact of healthcare spending on life expectancy have adequate power.

The authors modify their outcome variable (nest visitation) using draws from the binomial distribution, gradually increasing (or decreasing) the probability of visitation. For each modified sample, they draw 50 bootstrapped samples, re-estimate their statistical model, and report power for each imposed effect size as the percentage of times the imposed effect is statistically significant among the bootstrapped samples.

In contrast, Hsiang et al. (2015) estimate power using synthetic data. They generate the dependent variable (likelihood of conflict) using a normal distribution with a fixed mean and standard deviation; they impose a treatment effect by varying the mean to indicate a "treatment effect." For each imposed effect size, they analyze the synthetic data using their preferred specification and report power as the percent of times a statistically significant result is found at the 95% confidence level. Croke et al. (2016) examine a meta-analysis done by Taylor-Robinson et al. (2015) on the impact of mass administration of deworming drugs on childhood health. Croke et al. (2016) demonstrate that the meta-analysis is under-powered by using a simulation similar to Hsiang et al. (2015).

An advantage of entirely synthetic data is that there will be no pre-treatment trends or treatment effect unless one is imposed. However, fully synthetic data involves large sacrifices, similar to those noted for closed form power analyses by Burlig et al. (2017); one must implicitly impose structure on the variance-covariance matrix, for which the true structure may not be known. For example, in a panel data setting, values could be autocorrelated across time, pre-treatment trends could be non-parallel in complex ways (as we find for our data), and unobserved covariates could predict both treatment and outcome. As Stigler (1977) points out, real data are rarely drawn from a "perfect distribution." Our approach, of applying a simulated treatment effect by modifying existing data during the pre-treatment period, does not guarantee a distribution centered around the null when we impose a zero treatment effect (the data can exhibit an "accidental" effect), but it preserves both the obvious and more subtle relationships present in the actual data that can affect power, and lets us take accidental effects into account in estimating power. We have yet to find a prior example of this exact approach other than Hannon et al. (1993). However, similar procedures are suggested in the online appendix of Burlig et al. (2017), § D.2 and by Gelman and Carlin (2014).

III. Conceptual Concerns

We study the end result (mortality) of a process that starts with policy changes to eligibility for free or subsidized health insurance. To assess the plausible magnitude of any treatment effect and the challenges in measuring that effect using available datasets, one must keep in mind the chain of causation between policy changes and health or mortality. Because large-scale datasets available to researchers do not adequately measure morbidity, many studies (including ours) focus on mortality. However, mortality records are generally not linkable at the individual level to other information, including pre-ACA insurance status (which one could use to exclude the always insured from the sample, thus increasing the first stage)[14] or income (which determines eligibility for Medicaid and subsidized private insurance).

Several concepts inform our analysis and the interpretation of our results. One is the existence of prior policies that provide vulnerable populations with health insurance, or with healthcare regardless of health insurance status. These include health insurance and healthcare for the elderly and disabled through Medicare or Medicaid; pregnant women through Medicaid; many children through the Children's Health Insurance Program; persons needing emergency care through the Emergency Medical Treatment and Active Labor Act (EMTALA); persons with specific high-cost health conditions (AIDS through the Ryan White Act and end-stage renal disease under Medicare); those who suffer workplace or automobile injuries; and those with access to public hospitals, publicly supported clinics, or the charity care provided by nonprofit hospitals. Thus, further health insurance expansions will affect principally populations and medical conditions outside these groups.

A second concept that informs our analysis is selection into coverage for a new program, such as the ACA Medicaid expansion, including selection effects for both take-up of new coverage and crowd-out of other coverage. The less policymakers are practically or politically able to target groups likely to be uninsured and promote a high take-up rate, the less likely it is that studies like ours will have sufficient statistical power to find detectable effects on health or mortality. For example, the ACA changes eligibility but does not directly provide insurance. As in any "intent-to-treat" (encouragement) experimental design, we can estimate a treatment effect only for the

[14] An analogy: The Oregon Experiment achieved a 25% first stage because insurance was offered only to persons who were previously uninsured and had applied for the Medicaid lottery.

"compliers" with the encouragement. Multiple selection effects are possible, including that those who sign up: (i) may be more health-conscious in other ways; (ii) may have greater healthcare needs (e.g., Kenney et al., 2012); (iii) may be more likely to use additional healthcare once insured; and (iv) may be more compliant with medical advice than the "never-takers" who do not sign up. Thus, estimates for compliers may differ from those for never takers or always takers (the already insured). For example, Kowalski (2018) reconciles differences in the effects of the Oregon experiment and the Massachusetts health insurance expansion on emergency department visits on the basis of better initial health for the Massachusetts complier populations.

Third, there could be substantial treatment heterogeneity even among the compliers, with health insurance improving health for some, but being neutral for others ("flat of the marginal benefit curve" medicine) or even detrimental due to overtreatment (e.g., opioid addiction as an unintended effect of pain treatment). Yet the available data limits our ability to study specific subpopulations.

A fourth concern is heterogeneous health insurance quality. In many states, Medicaid insurance is considered to be of lower quality than commercial insurance (Polsky et al., 2015).

Fifth, health insurance is only one factor potentially affecting trends in health and mortality. Other factors can vary by age and ethnic group (e.g., Case and Deaton, 2015, find rising mortality in middle-age for less-educated whites, but not other groups), and by state (as we find below). Differing trends complicate any effort to define a suitable control group.

These concerns, taken together, highlight the complex relationship between health insurance and health outcomes, and anticipate the limitations of the available data and policy shocks.

IV. **Data**

We measure mortality using the confidential version of the Compressed Mortality File (CMF), which contains records on approximately 2.6 million deaths a year.[15] This dataset is compiled by the National Center for Health Statistics (NCHS) and contains individual death records from the National Death Index, with county-level geographic identifiers.[16] Other data in the mortality files

[15] The public-use version of this data can be found at http://wonder.cdc.gov/mortSQL.html, but that version suppresses death counts in county-years with 10 or fewer deaths in any query.

[16] http://www.cdc.gov/nchs/data_access/cmf.htm#data_availability. We do not use data prior to 1999 because that is the first year in which death certificates began using ICD10 codes.

include (1) race, ethnicity, and gender; (2) year of death; (3) age at death (which we collapse into 5yr-age groups, e.g., 55-59, 60-64, etc., because county population, which we use as the denominator for measuring mortality rates, is available only for these groups); and 4) primary cause of death (4 digit ICD-10 code). We use data from 2009-2013 as the pre-treatment period and 2014-2016 as the treatment period for our main DD analysis, but use longer periods for selected analyses. We conduct county-level analyses, using county population (from the U.S. Census Bureau) as weights, to produce state-level and national estimates that are representatives of the respective populations. To examine the first-stage health insurance estimates that correspond to our mortality analyses, we use information on uninsurance rates from the Census Bureau's Small Area Health Insurance Estimates (SAHIE).[17]

V. ACA Insurance Expansions and Identifying Variation

In 2014, the two main insurance expansions under the ACA took place, with Medicaid expansions occurring in 27 states (including the District of Columbia) on or soon after January 1, 2014, in three more states on or soon after January 1, 2015, and in two more in late 2015 or the beginning of 2016. "Standard" expansion included coverage for all non-elderly adults with family income less than 138% of the federal poverty level (FPL). Of these 32 expansion states, 10 had conducted significant expansions prior to 2014 and are not included in our main specifications. The "treated" states for our principal DD analyses are the remaining 22 "Full Expansion States"; the control group consists of the 19 "Non-Expansion States"; we also treat the five late-expansion states as part of the control group during pre-expansion years. A number of other studies of Medicaid expansion also focus on the Full-Expansion States (e.g., Wherry and Miller, 2016). Table 1 lists the states in each expansion group, as well as the change in percent uninsured in each state from 2013-2015 for persons between the ages of 50 and 64; Appendix Table A-1 provides additional details on each state's expansion status.

The second major way in which the ACA expanded coverage was by creating "marketplaces" with private insurance subsidies for those with income between 138% and 400% of the FPL in expansion states, and 100-400% of the FPL in Non-Expansion States and WI (which expanded Medicaid only to 100% of the FPL). Our study design exploits mainly variation in

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[17] Source: https://www.census.gov/data/datasets/time-series/demo/sahie/estimates-acs.html. SAHIE data is available for ages 50-64, rather than the 55-64 age group we study in our main analyses, but first-stage magnitudes should be similar.

Medicaid expansion, but we also provide estimates that use both sources of variation provided by the ACA by comparing areas that received different shocks to uninsurance rates due to differing pre-ACA characteristics.

There is ample evidence that the proportion of uninsured adults fell, and that the sources of payment for hospitalizations shifted toward more Medicaid and less self-pay. However, the uninsured population fell in both Expansion and Non-Expansion States. As Table 1 shows, the population-weighted drop in uninsurance rates from 2013 to 2015 for the 50-64 age group averaged 7.1% in Full-Expansion States versus 5.4% in Non-Expansion States; the difference between the two groups is 1.7%.[18]

This small difference in secular uninsurance declines between treatment and control groups poses a major challenge to any effort to use Medicaid expansion to estimate the effect of health insurance on mortality. The "first stage" of the encouragement design is only modestly higher for particular subgroups who were more likely to be affected by Medicaid expansion, for whom we still find first stages of 5% or less (Appendix Tables A-3 and A-4).

Although the ACA unambiguously reduced uninsurance rates, causal effects on healthcare delivery appear more modest and uneven across types of care (e.g., Mazurenko et al., 2018). The Oregon Experiment (Taubman et al., 2014) found a 40% increase in ED visits among the newly Medicaid eligible, and Ghosh et al. (2017) find that ACA Medicaid expansion predicts a nearly 20% increase in prescription drug use. In contrast, there is no evidence that the ACA Medicaid expansion led to a significant rise in ED visits in expansion states (Pines et al., 2016; Wherry and Miller, 2016). Both from this evidence and from prior studies of the effect of health insurance on mortality discussed above, we expect the effect of receiving health insurance on mortality during our study period to be modest.

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[18] Here, we use uninsurance rates for persons aged 50-64 as the closest available match in the Small Area Health Insurance Estimates (SAHIE) data on uninsurance rates to our principal treatment group of those aged 55- 64. The drop in uninsurance rates was somewhat larger for the entire adult population. See Appendix. If one weighs states equally, rather than by population, the drop in uninsurance rates is 6.4% versus 4.4% (a difference of 2.0%). But the apparent gain in first-stage strength is offset by greater reliance on small states, for which mortality rates are noisier; moreover, this approach answers a different question: 'how is the average US state affected, rather than how is the average newly insured person affected?'

VI. Empirical Approach

A. Effect of Health Insurance on Mortality

To investigate the effect of Medicaid expansion on mortality, we use several DD specifications: (i) a "simple DD" specification, which assumes a one-time change in mortality rates; (ii) a "leads-and-lags" model, which allows for a separate treatment effect in each year, both before and after Medicaid expansion, and lets us assess whether pre-treatment trends are parallel; and (iii) a "triple difference" model, in which the third difference is persons aged 55-64 versus persons in the same county aged 65-74. Treatment is recorded in event time, relative to the year in which each expansion state expanded Medicaid. For states that expand on a date other than January 1 of year *t*, we treat year *t* as post-expansion if expansion occurred in the first half of the year; we treat year *t* as pre-expansion otherwise (see Table 1 for details). All models use county-level data, county and year fixed effects (FE), county population weights, standard errors clustered at the state level, and data from 2009 through 2016.[19] The simple DD model is:

$$Y_{jt} = \alpha + \beta Post_{st} + \partial X_{jt} + \tau_t + \vartheta_j + \varepsilon_{jt} \qquad [1]$$

Here, *i* indexes individuals; *j* indexes county; *s* indexes state; t indexes time in years, the dependent variable; Y_{jt} is *ln*((deaths)/100,000 persons)+1); we add 1 to the mortality rate to avoid dropping county-years with zero deaths.[20] We limit the sample to Full- and Non-Expansion States to form a stronger comparison. The predictor variable of interest is Post =1 for Full Expansion States in post-expansion years (2014 and 2015 for the 17 states that fully expanded Medicaid in 2014; 2015 for the 3 states that expanded in 2015). The covariate vector X_{jt} includes the following county-level demographic characteristics: % male; % Black; % White, % Hispanic; % aged 0-19, 20-34, 35-44, 45-54, 55-64, 65-74, 75-84, and 85+; managed care penetration (Medicare Advantage beneficiaries as % of all Medicare beneficiaries); % disabled (% of Medicare beneficiaries receiving SSDI benefits); % in poverty; unemployment rate; median household income; mean per-capita income; % with diabetes; % obese; % physically inactive; % smokers; active practicing non-

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[19] A small number of small, rural counties experienced boundary changes over the study period, which are reflected at different times in different datasets. To handle this problem, we merged some counties (see the Appendix for details).

[20] We use a log-linear model for convenience, so that the regression coefficients are interpretable as (approximate) fractional changes in mortality. We obtain similar results with a linear model, with Y_{jt} = (deaths)/100,000 persons.

federal physicians/1,000 persons.[21] We convert all amounts to 2010 dollars.[22] In some specifications, we use a narrower set of covariates or no covariates, partly to assess whether our results are sensitive to including observable, time-varying, county-level factors, and also because expansion could affect some covariates. We include county and year fixed-effects ($\tau_t and\ \vartheta_{jt}$) in all models to control for potential unobserved covariates that vary across counties but are fixed over time, and for determinants of mortality that are constant across counties but vary over time.

Appendix Table A-2 provides a covariate balance table showing mean values for each covariate by state, averaged over the pre-reform period of 2009-2013. As expected, there are differences in a number of covariates. Expansion states differ from non-expansion states in a number of ways, including age structure (more weighted towards middle ages), race (more White), poverty (less poor), health status (less diabetes, more physical activity), health care access (more physicians per capita) and health insurance (less uninsured). To address covariate imbalance, we also implement an inverse propensity score weighting approach in which we compute ATT weights and use ATT*population weights.[23] Results with these weights, presented in the Appendix, are consistent with those we report in the text.

We principally study mortality due to healthcare-amenable causes (Nolte and McKee, 2003), but also provide some estimates for non-amenable and total mortality. The concept of amenable mortality seeks to capture deaths from conditions that are potentially preventable with timely care; examples include heart disease, stroke, cancer, diabetes, and infections.[24]

To study the time pattern of any apparent treatment effect, and to assess whether pre-treatment trends differ between Full- and Non-Expansion States, we use a leads-and-lags model in event time, with the first expansion year set to zero, following Equation (2):

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[21] We take population data from the Census Bureau at http://www.census.gov/popest/. We use mid-year inter-censal estimates for 1999 and 2001-2009, and post-census estimates for 2011-2015. We obtain physician counts (interpolating from adjacent years for 2009 due to missing data), unemployment rate, median household income, percent in managed care (interpolating from adjacent years for 2006-2007 due to missing data), and percent disabled from the Area Health Resource File (AHRF) at http://arf.hrsa.gov/. County per-capita personal income comes from the Bureau of Economic Analysis at http://www.bea.gov/regional/. Data on health variables comes from the Centers for Disease Control at https://www.cdc.gov/dhdsp/maps/atlas/index.htm.

[22] Source: www.bls.gov/cpi/. We use the annual average consumer price index for all urban consumers.

[23] To generate propensity scores, we average the covariates over the pre-treatment period (2009-2013). We then run a logit regression, which predicts whether a county is in a Full- or Non-Expansion State, using all variables in Table A-2 to generate the fitted propensity p. ATT weights are calculated as (p/(1-p)).

[24] We implement the concept of amenable mortality using the ICD-10CM causes of death tabulated in Sommers, Long, and Baicker (2014), App. 1, last column. This definition is somewhat broader than the Nolte and McKee definition.

$$Y_{jt} = \alpha + \sum_{k=-5}^{2} (\beta_k * D_{jt}^{k}) + \partial X_{jt} + \tau_t + \vartheta_j + \varepsilon_{jt} \quad [2]$$

Here, k indexes "event time" in years relative to Medicaid expansion. $D_{jt}^{k} = 0$ for Non-Expansion States for all t and k. For Full-Expansion States, $D_{st}^{k} = 1$ for the k^{th} year relative to the adoption year, and 0 otherwise. For states that expanded Medicaid on January 1, 2014, $D_{st}^{1} = 1$ for 2014 and 2 for 2015. Thus, β_1 provides the estimated population average treatment effect for the first expansion year, while β_{-1} is the estimated effect one year before adoption, and so on. We adjust the coefficients by subtracting β_{-3} from each, so that reported $\beta_{-3} \equiv 0$.

We find evidence that states have differing mortality trends during the pre-treatment period, which casts doubt on the parallel trends assumption required for valid DD analysis. To address these sources of differing trends, we use a further source of within-state variation: mortality trends among those who are 65 or older (and thus always insured) can potentially control for the otherwise unobserved state-specific factors that generate non-parallel trends. We thus also use a triple-difference/age-discontinuity specification (similar to Finkelstein and McKnight, 2008), where the third difference is mortality among persons between the ages of 65 and 74, who are eligible for Medicare and should not be affected by Medicaid expansion, and limit the sample to persons between the ages of 55 and 74, thus comparing mortality trends for the 55-64 age group to thosein the 65-74 age group. The triple-difference specification, analogous to simple DiD, is:

$$Y_{jt} = \alpha + \beta Post_{st} * Under65_{st} + \beta Post_{st} + \beta Under65_{st} + \partial X_{jt} + \tau_t + \vartheta_j + \varepsilon_{jt} \quad [4]$$

<u>*Heterogeneity/Robustness*</u>

We also seek to strengthen the first stage (the fraction of county population that gains insurance due to Medicaid expansion) and to investigate potential heterogeneous treatment effects, by estimating a model that interacts the double difference with an indicator for counties with high uninsurance rates in 2013, prior to Medicaid expansion. High2013 indicator equals 1 for the counties with the highest uninsurance rates in 2013, such that together they contain 20% of the population of our treated and control states (or demographic subsamples), and 0 for the counties with the lowest uninsurance rates in 2013, containing another 20% of this population; we remove from the sample counties with moderate uninsurance rates (containing 60% of the U.S. population). We thus compare high-uninsurance counties to low-uninsurance counties. The regression equation is:

$$Y_{jt} = \alpha + \beta Post_{st} x High2013_j + \beta Post_{st} + \partial Xjt + \tau_t + \vartheta_j + \varepsilon_{jt} \quad [5]$$

We similarly compare counties with high poverty rates in 2013, containing 20% of the sample population, to counties with low poverty rates, also containing 20% of this population. This approach exploits variation from the ACA overall, rather than just the Medicaid expansion component.

We also estimate separate models for subsamples stratified on covariates that may predict uninsurance rates or response to health insurance, for which we also have mortality data: education, gender, and race/ethnicity. For example, lower-educated subgroups will have larger first stages and higher mortality rates, and thus will (before the offsetting effect of reduced sample size) could be more likely to produce detectable mortality changes.

B. Power Analysis

The power of a statistical test is the probability that the test will correctly reject a false null hypothesis, at a given confidence level. For a regression coefficient, power is normally taken to be the likelihood that the coefficient will be found to be significantly different from zero, at that confidence level. We conduct a simulation-based power analysis by artificially introducing treatment effects of different sizes into the data in the pre-treatment period, and then assessing (over 1,000 iterations) how often our DD and triple-difference regression models can detect these effects at the 90%, 95%, 99%, and 99.9% confidence levels (using two-tailed tests). The goal of this analysis is to determine the minimum effect of health insurance on amenable mortality that is reliably detectable with our data and research design.

The alternative of a closed-form power analysis requires fully modeling the data generating process, including parameterizing the error term for both variance and covariance terms, and is especially hard to construct with panel data in which observations can be correlated over time (Burlig et al., 2017). A simulation using entirely artificial data has similar problems. We therefore use simulation methods applied to real data. For example, our simulation approach builds in "noise" from non-parallel trends in the actual data; with a closed-form analysis we would have to model the level and form of these trends. Our use of regression weights and clustered standard errors further contributes to the difficulty in producing a tractable and credible form for an analytic power calculation. Simulation, applied to real data, avoids these challenges and lets us use the same research design and econometric specification as the main analysis (Burlig et al., 2017).

Our simulation proceeds as follows. We exclude all data from the post-treatment period and use data from 2007-2013 rather than the 2009-2015 period used in our actual analyses. We then do the following 1,000 times: we randomly assign a pseudo-expansion status to 20 of the 41 states in our final study (that either fully expanded or did not expand Medicaid). Thus, in each draw, 20 states are pseudo-treated and 21 are pseudo-control. In each case, we assume that the expansion occurred in 2012, giving us two years of post-expansion data for each pseudo-treated state.

For each randomly drawn set of pseudo-treated states, we impose a pseudo treatment effect of a reduction in amenable mortality (from 0% to 6%, in 0.25% increments) for all persons aged 55-64 living in a pseudo-treated state. We do this by randomly removing deaths from each pseudo-treated county-year using draws from a binomial distribution. For example, if a county-year has 100 healthcare-amenable deaths and the imposed treatment effect is 0.5%, we remove each death with probability 0.005. The expected number of remaining deaths is then 99.5, but the actual number must be a whole number and could be 100, 99, 98, etc. Each imposed treatment effect is randomly distributed across the pseudo-treated states and across counties in each state. Thus, as in this example, it is unlikely that any pseudo-treated county will have its mortality rate decrease by exactly 0.5%, but the pseudo-treated counties will still experience the imposed treatment effect on average (subject to sample variation).

Once we have introduced the artificial shocks, we run the DD model in eqn. (1) and save the regression coefficient and standard error. The percentage of times a result is found to be statistically significant for a given effect size and significance level is the power for that effect size and significance level; a common threshold for a study to be deemed adequately powered is 80% power at a 95% confidence level. We similarly assess power using the DDD model in eqn. (4). In addition to statistical power, we also report three measures based upon Gelman and Carlin (2014) that inform the plausibility of any significant results obtained, given the study's underlying power: the percentage of times a significant, estimated treatment effect has the wrong sign (opposite from the imposed effect; that is, a *higher* mortality in expansion states); in the subset of cases where a significant effect is found, the mean ratio of the estimated treatment effect to the true (imposed) effect (the exaggeration ratio); and the percentage of significant treatment effect estimates that have the correct sign and an exaggeration ratio below 2 (which we term a "believable" coefficient).

VII. Principal Results

We present full-sample results in this section, principally for adults aged 55-64 some limited results for adults in a broader 45-64 age group. We first present univariate results, and then results from DD and triple difference models. See the Appendix for similar results for all non-elderly adults. In the Appendix, we assess whether we could obtain a better match between treated and control states, and thus tighter confidence bounds, using synthetic control methods. We conclude that we cannot rely on these methods for inference due to poor pre-treatment fit.[25]

A. Univariate Graphical Evidence

In Figure 1, we display trends in amenable mortality for the four state groups, for the full time period with available data (1999-2015). We aggregate data to the state-group level using population weights, and show amenable mortality rates per 100,000 persons aged 55-64; Appendix Figure A-1 shows data for persons aged 18-64. Several features of Figure 1 are important. First, there are substantial differences in mortality rates across the state groups, although these are smaller between our principal comparison groups—the Full-Expansion vs. Non-Expansion States.

Second, Figure 1 shows clear evidence of non-parallel pre-treatment trends. Unless these differences are absorbed by the regression covariates (for our data, we show below they are not) or by our third difference (they partly are), any DD analysis is suspect. More specifically, over 2010-2016, mortality continues to decline in the Mild-Expansion and Substantial-Expansion states, but levels off in the Full-Expansion States and rises in the Non-Expansion States. We also find non-parallel univariate trends for all non-elderly adults (Appendix Figure A-1).

If one simply compares the post-treatment average difference in mortality rates for Non-Expansion versus Full-Expansion States to a similar post-treatment average difference—as a simple DD regression does—it would appear that Medicaid expansion has a large, immediate effect in reducing mortality. In fact, mortality rates for these two state groups diverge principally during the pre-treatment period. There is little additional divergence during 2014-2016. The simple DD coefficient is misleading, because it ignores the non-parallel pre-treatment trends. One value of the power analysis presented below is to protect against finding spurious significance due to non-parallel trends. The power simulation during the pre-treatment period treats pre-treatment trends as a source of additional noise, which reduces power.[26]

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[25] See Appendix Figures A-2 and A-3.

[26] A common robustness check, which provides some protection against DD results being driven by non-parallel, pre-treatment trends, is to add linear unit-specific trends to a DD regression. This can be effective in some cases, but requires a long pre-treatment period to estimate the linear trends and assumes a simple parametric (linear) form for those "trends."

[FIGURE 1 about here]

B. Covariate Balance

Appendix Table A-2 provides a covariate balance table showing means, and the normalized difference in means, between Full- and Non-Expansion states for the pre-expansion period of 2009-2013. There are meaningful differences between the two state groups on a number of covariates, as well as on mortality (see Figure 1) and uninsurance rates. In light of these differences, we reran the analyses reported below with ATT*population weights instead of population weights. Results are similar to those we present; see the Appendix. We use the simpler, population-weighted results as our main specification, as they are more transparent.

C. Leads-and-Lags Results

We turn next to leads-and-lags graphs, using equation (3). Figure 2, Panel A, provides annual point estimates and 95% CIs over 2004-2015, for amenable mortality among persons aged 55-64. There is, as expected, strong evidence for non-parallel pre-treatment trends, with relative mortality improving in Full-Expansion States over 2007-2013. There is also no evidence of a change in relative mortality in the first two expansion years. In Appendix Figures A-3 and A-4, we provide leads-and-lags graphs for total mortality and non-amenable mortality, these also show no evidence of a significant treatment effect.

[FIGURE 2 around here]

The likelihood of finding credible evidence of causal effects weakens further when we compare the coefficient magnitudes in Figure 1 to plausible effect magnitudes for the full populations of the treated states, given the small first stage shown in Table 1. Based on the prior research discussed in Part II, even a 10% effect of health insurance on mortality within two years would be large. Yet a 10% reduction in mortality for the treated (newly insured), with a roughly 1% first-stage (percent of the population treated), implies an average mortality reduction for all persons aged 55-64, and thus a DD coefficient of 0.001 (0.1%). It is apparent from Figure 1 that this reduction would be undetectable; it would be far lower than the annual 95% CIs, and far lower than year-to-year relative changes in mortality in the pre-treatment period, which can be up to 20 times as large (0.02 from year -2 to year -1).

If we take 0.02 as the minimum detectable effect with one year of data and 0.001 as a large but perhaps plausible effect size coefficient, Figure 2 suggests that our study is underpowered by a factor of 20 (equivalently, the ages 55-64 population needs to be 400 times larger). Adding one or two more years of data (which should be possible in the near term) would help, but would not be adequate to overcome this issue. We present a formal power assessment below, which is consistent with this qualitative discussion.

In Figure 2, Panel B, we present a similar figure for amenable death rates for those aged 65-74 to provide background for our triple-difference regression estimates. There is again evidence of non-parallel trends, with mortality dropping in Full- versus Non-Expansion states in the pre-treatment period. This suggests that the third difference (where we use 65-74 year olds as a within-state control) can limit the non-parallel trends we saw in Figures 1 and 2A.

Figure 2, Panel C provides triple-difference leads-and-lags results: annual point estimates and CIs are for Full- versus Non-Expansion States and for the 55-64 versus 65-74 age groups. Non-parallel trends are muted, but standard errors are larger than in Panel A. Moreover, there are still large year-to-year swings in relative mortality in the pre-treatment period, with a jump of around 0.02 from 2006 to 2007, and a similar jump from 2009-2010. Figure 2C shows dips in relative mortality in Full-Expansion States in 2014 and 2015, but the magnitude is both much larger than the plausible causal effect of around 0.001 and too small to be statistically convincing, given the year-to-year variation we observe in the pre-treatment period.

In Panel D, we present results from an age discontinuity specification that compares persons aged 55-64 to those aged 65-74 in the same state. This specification exploits both sources of ACA insurance expansion, leading to a stronger first stage, and can be applied in both Full- and No-Expansion states. We find, however, strongly non-parallel pre-treatment trends (rising relative mortality for those aged 55-64, compare Case and Deaton, 2015). These trends are similar in both Full- and No-Expansion States (Appendix Figure A-4). There is no evidence of a post-ACA change in this long-term trend.

Our overall assessment is that the triple difference specification in Panel C is the best available in limiting the extent of non-parallel pre-treatment trends. It remains suspect, however, because it depends on non-parallel trends in the three relevant double differences tending to offset each other in the pre-treatment period, with no basis for confidence that they would continue to do so in the treatment period.

D. DD and Triple-Difference Regression Results

We next turn to regression analysis. Table 2 shows results from DD regressions, following eqn. [1], with county and year FE and county population weights, separately for our principal treatment group (ages 55-64) and the placebo group (ages 65-74). It also shows triple-difference results, following eqn. [4]. While both DD and triple-difference specifications are suspect because of parallel trends problems, non-parallel pre-treatment trends are less severe for the triple difference; thus our discussion focuses on those results. We show separate results for healthcare-amenable mortality, non-amenable mortality, and total mortality. Even-numbered columns include the covariates noted above. We present results for the 55-64 age group both because we expect the effects of health insurance to be higher for this group than for younger persons, and because we need to study a limited age band to pursue the triple-difference approach. In the Appendix we estimate DD models that include younger ages for the treated population, with similar results. We caution that these regressions assume flat pre-treatment trends, but we in fact observe a declining trend. Given this trend, DD results will be biased toward finding a post-expansion drop in mortality.

In Table 2, in regressions with covariates, we find a statistically significant 2.1% post-expansion fall in amenable mortality for those aged 55-64, with no significant change in non-amenable mortality. However, in addition to assuming parallel trends, these results are fragile. First, the coefficient on the Full-Expansion dummy is far too large to be credible. Given our roughly 1.2% first stage, it implies an impossible 175% (2.1%/1.2%) reduction in amenable mortality among those who gain health insurance. Second, for the placebo group (ages 65-74) and the placebo-outcome (non-amenable mortality), we observe a large, statistically significant *rise* in mortality. Third, the triple-difference decline in mortality is far smaller, at 0.7% (although still implausibly large) and is not close to statistical significance. Note too that the standard errors for amenable mortality are around 0.007 with covariates and rise to 0.009 in the triple-difference specification. This implies a minimum detectable effect of around 0.014 to 0.018, which implies a 120-150% drop in amenable mortality for compliers. This is further evidence the research design is severely underpowered.[27]

[27] If we expand the age range for the treated group to 45-64 instead of 55-64, the insignificant negative triple-difference point estimate in Table 2 switches sign; see Table 4. Moreover, by broadening the age range, we weaken

[TABLE 2 around here]

E. Evidence on Heterogeneous Effects

We conducted extensive additional analyses of the effects of ACA-induced insurance variation on mortality, focusing on vulnerable subgroups or particular causes of death. These subgroups can potentially provide a stronger first stage, a stronger second stage, or both. However, moving to subgroup analysis also reduces sample size. We consider subgroups based on gender, race/ethnicity, education level, specific cause of death, and county poverty and pre-ACA uninsurance rates. We present and discuss these results in the Appendix.

Our search for evidence of a significant effect of Medicaid expansion on mortality for particular subgroups also proves to be underpowered. The discouraging conclusions we drew for the general adult population—no evidence of a statistically significant effect, and far too little power to detect effects of plausible magnitude—do not change. Reduced power due to a smaller sample outweigh any gains from a larger first stage or a higher base mortality rate.

Indeed, given the problems we found for the full sample, with both non-parallel trends and low power, these analyses have the flavor of beating (or, perhaps, seeking to revive) a dead horse. We find no success here. Most regression coefficients are insignificant. When significance is found (for Non-Hispanic Blacks and for Hispanics, see Appendix Table A-3), there are other factors that cut against a causal interpretation, including non-parallel pre-treatment trends and coefficients of implausible magnitudes given the weak first stages.

VIII. Power Analysis

We return to our conceptual framework of the chain of events by which insurance expansions may affect mortality, and discuss the conditions under which studies of the ACA using death certificate data could establish a connection between health insurance and mortality.

A. An Illustrative Example

Suppose first that out of 100,000 individuals aged 55-64, half became newly insured. By how much would the likelihood of death within 2 years have to change for us to find that change to be statistically significant? The annual amenable mortality rate in this group is around 600 per

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the logic behind using mortality for persons aged 65-74 as a third difference, yet we need that third difference to address non-parallel pre-treatment trends.

100,000 per year (Appendix Table App-2), if insurance were to reduce the probability of death by 25% among the newly insured, then insuring 50,000 individuals among 100,000 individuals would reduce the expected number of annual deaths by 75 (0.5*0.25*600) to 525. In expectation, a DD regression should show a 25% reduction in mortality rate.[28] But there will also be random variation in mortality. If mortality events are independent, the expected standard deviation (σ) of mortality/100,000 persons will be around 24,[29] and the expected *t*-statistic will be 3.07.

Now assume that there is random "external" variation in state-level mortality rates, with a standard deviation of around 2% per year (±12 deaths per year. As we show below, this is a reasonable level for our data. If this source of variance is independent of that due to health insurance, expected total variance will be 596 (from random mortality events) + 144 (from external variation) = 740, expected standard deviation will be around 28 and the expected t-statistic will be 2.76 – lower but not dramatically so.[30] The large effect of health insurance swamps the additional "noise" from other sources of variation in mortality.

Now assume that the background noise remains the same, but only 5% of the population is treated, and the mortality reduction for the newly insured is 10% instead of 25%. The expected population average treatment effect is now a reduction in the mortality rate of 3 (0.05*0.1*600) to 597. The standard deviation in the number of expected deaths remains the same, so the expected *t*-statistic will be only 3/28 = 0.11. To bring this *t*-statistic up by a factor of, say, 20 to 2.2, one might initially imagine we would need a sample 400 times as large – 40 million people.

However, as sample size increases, the variance in mortality rate due to independent mortality events falls by the usual factor of $n^{1/2}$. With a hypothetical sample of 40 million, the variance in the mortality rate (per 100,000 persons) would be 594/20 ≈ 30. But the variance due to external state-level mortality shocks will not fall and will dominate expected total variance, which will be 30 + 144 = 174; implying expected (σ = 13.2; *t* = 0.23).

This, in a nutshell, is the power problem we face. With a weak first stage, and a moderate second stage, even a very large sample cannot overcome the confounding effect of external

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28 The expected coefficient in a regression, such as those we run, with *ln*(mortality rate +1) as the dependent variable should be around -0.22

29 This uses the standard formula for the variance of a binomial distribution with probability Var = n*p(1-p). For n 100,000 and p = .006, Var = 596 and $\sigma = \text{Var}^{0.5}$ = 24.42.

30 Variances due to independent sources add so Var_{tot} = 596 + 124 = 740, and $\sigma_{tot} = \text{Var}_{tot}^{0.5}$ = 27.56.

variation in mortality rates. If that external variation is independent across states, then having more treated and control states will help but only somewhat. For example, if we had 20 treated states and 20 control states, all of equal size, the combined external variance for both groups would be (144/20) + (144/20) = 14.4; expected total variance would be around 44, implying expected (σ = 6.64, t = 0.45). If the treatment effect of health insurance on mortality were felt immediately then more years of data would help, but only somewhat, given that state-level mortality shocks are likely to persist over time. For example, 3 years of data, variance due to random arrival of deaths would fall to $29.7/(3^{1/2}) = 17.1$, but if state shocks are persistent, total expected variance will be 17.1 + 14.4 = 31.5; implying expected (σ = 5.62; t = 0.53). Having a first stage lower than 5% -- as we do -- will only exacerbate matters.

Thus, this example illustrates that a full-sample effect size on the order of a 0.5% reduction in mortality (hence an expected regression coefficient around - 0.005 in the log-linear specification we use) will not be detectable. Our power analysis formalizes this intuition, and shows that for plausible effect sizes, the effect of ACA Medicaid expansion on mortality is too small to be captured using death certificate data, unless that data can be linked to income data and insurance data, thus permitting a much larger first stage. We also show below that given lower power, one should be cautious in interpreting any statistically significant results from studies such as ours, even if parallel trends assumptions appear satisfied.

B. Available First-Stages

An initial question for our power analysis is what first stage one could realistically achieve with better data. Our full-sample first stage is similar to that in other ACA Medicaid expansion studies.[31] From SAHIE data, the first stage for low-income, Medicaid-eligible adults (income < 138% of FPL, age 50-64) is around 5.3%. We also saw above that the first stage for low-educated adults is around 4%.[32] Thus, around 5% is likely as large a first stage as one can achieve without linked individual data on some combination of income, family status (children at home), pre-expansion insurance, and mortality.[33] ACA-derived insurance gains were somewhat smaller

[31] Long et al (2014), using data from 2013-2014, find a 5.8% drop in uninsurance in expansion states vs 4.8% in non-expansion states, between 2013 and 2014, implying a 1.0% first stage. Smith and Medalia (2015) find a 3.4% reduction in uninsurance for all persons aged 0-64 in expansion states vs 2.3% in non-expansion states, hence a 1.1% first stage.

[32] Kaestner et al. (2015) estimate a similar 3% first-stage for low-educated adults, age 19-64.

[33] Wherry and Miller (2016), use income data from the National Health Interview Survey to isolate persons with incomes < 138% of FPL and find a 7% relative increase in insurance rates from 2010 to 2H2014 low-income persons

among the near elderly (on whom we focus) than among younger adults, perhaps because the near-elderly have greater healthcare needs and greater income, which led many to obtain insurance pre-ACA.[34]

We present power calculations below for the aged 55-64 population (around 29M persons, 14M in treated states), and also for our triple-difference specification. The first stage for the closest population for which we have data, persons aged 50-64, is around 1.1% (see Appendix Table A2). A 10% reduction in mortality for the newly insured, as large a near-term effect as we consider plausible, thus corresponds to a 0.012% reduction in mortality for all persons in this age group. The upper end of the 95% CIs from Finkelstein and McKnight (2008) and Card, Dobkin and Maestas (2004) imply an even lower mortality decline, bounded at 0.004%.

To put these numbers in context, Medicaid expansion led to around 170,000 more people gaining health insurance in Full-Expansion States (0.0012 * 14.1M) relative to non expansion states. If the mortality of the newly insured would have been similar to all persons in this age range but for Medicaid expansion, about 0.6% would have died each year (about 1,000 persons), and a 10% reduction in mortality would save around 100 lives annually. We cannot directly measure the relative mortality of the uninsured with our mortality data, but Black et al. (2017) provide evidence from the Health and Retirement Study that mortality for uninsured persons in the HRS population (initial age 50-61, so similar to the group we study) was similar to mortality for insured persons.[35]

The power challenge is to find statistically significant evidence for a fall in mortality of 100 persons (or less), in a combined treated and control population of around 29M, with 170,000 annual deaths. As we show below, that challenge cannot be met without individual level data on

aged 19-64; compare the 5% increase from 2013 to 2014 we find using SAHIE data. Simon et al. (2017) combine income data with childless status and find a 10% increase for childless adults age 19-64, with incomes < 100% of FPL and no children at home in 2014-2015, relative to a 2010-2013 baseline.

[34] Appendix Figure A-25, reproduced from the American Community Survey (ACS), shows the ACA-related change in uninsurance rates by age.

[35] Black et al. (2017), Table 2 calculates mortality differences in the manner most appropriate for these comparisons; the uninsured (aged 50-61) have higher mortality than the privately insured, but lower mortality than the publicly insured, leading to similar overall mortality between insured and uninsured over two- and four-year observation periods. To put these estimates in the context of prior literature, Galea et al 2011 reports that mortality for poor non-elderly adults is 75% higher than for the non-poor but does not report mortality differences for poor uninsured vs poor insured, which is the relevant comparison for our study. Kronick (2009) finds a 1.20 mortality hazard ratio for the uninsured versus the privately insured over a 14-year followup period after controlling for income (but does not compare the uninsured to the publicly insured).

personal characteristics (income, family status, pre-ACA insurance and health status), sufficient to greatly increase the first stage, linked to mortality data. Even with that data (not currently available), one would need a very large sample of newly insured persons and similar controls.

C. Full Sample Power Simulation Results

To investigate the minimum effect that our main DD and triple-difference specifications can detect, we perform the power exercise outlined in Section VI B. Figure 3 illustrates the results from our power simulation, using the amenable mortality rate for all persons aged 55 to 64 as the dependent variable. The simulation uses data from 2007-2013, and a pseudo-shock applied on January 1, 2012, to states chosen at random from our actual treated and control states.

Panel A shows DD results and Panel B shows triple-difference results, using the same regression models as in Table 2. The DD results indicate that to achieve 80% statistical power (finding a significant effect at least 80% of the time), the minimum detectable population average treatment effect size at the 95% confidence level is a mortality reduction of 1.8% for the DD and for the triple-difference simulation. Below, we focus on the triple-difference results, which we prefer because they are less subject to concern with non-parallel trends. A 1.8% fall in overall amenable mortality, given the roughly 1.1% first stage, implies that Medicaid expansion would have to reduce the average amenable mortality rate of all newly insured persons by (.018)/(.011) = 163%. If we apply a stricter significance standard, to account for specification error, specification searches, and file-drawer bias, the minimum detectable effect will be substantially higher – Figure 3 also shows power curves for the 99% and 99.9% and confidence levels.

The minimum detectable effect can also be framed in terms of lives saved. The 1.80% reduction in mortality needed for 80% power and 95% confidence translates into about .0180 * 14.1M * .006 = 170,000 = 1,522 annual deaths – almost 20 times the maximum plausible effect.

[Figure 3 about here]

The power analysis assumes that the underlying mortality rate of the newly Medicaid insured is similar to other persons aged 55-64. The actual rate could be higher (the newly insured tend to be low income, and thus higher mortality), or lower (the disabled are already insured, those in poor health could be more likely to already have insurance, and the first stage is lower for men, who have higher mortality rates than women), but is unlikely to be radically different. By comparison, Finkelstein et al. (2012, Table IX) study a likely lower-income, less-healthy population (persons who applied for the Oregon Medicaid expansion lottery), and report annual total mortality for the controls of 0.008, which is similar to the average total mortality rate we find for persons aged 55-64 in both Full-Expansion and Non-Expansion States. Power is also similar if we weight states equally, rather than by population; this increases the first stage to around 2%, but increases noise by giving more weight to smaller states.

"Power" also has peculiar properties, in the situation we face, where plausible effect sizes are small relative to those one can reliably detect. This implies both that: (i) the estimated effect is likely to greatly exceed the true effect; and (ii) there is an important risk that the estimated effect has the wrong sign (opposite from truth). Gelman and Carlin (2014) therefore recommend reporting two measures of plausibility in addition to power, the wrong-sign-likelihood and the exaggeration-ratio. Ioannides et al. (2017) report evidence that much economics research and thus prone to these concerns. We illustrate these problems in Figure 8.

In Figure 4, Panel A, we show the ratio of the magnitude of the estimated effect (when found to be statistically significant) to the "true" magnitude, imposed in the simulation. For population effect sizes under 1% (recall that a 10% mortality reduction for the newly insured implies a population effect around 0.1%) the exaggeration ratio is high – an effect which is large enough to be statistically significant is likely to be far from truth. In Panel B we show the proportion of statistically significant results that have the wrong sign. This proportion is also appreciable for the smaller population effect sizes. As we increase the imposed population effect size, the wrong-sign problem shrinks, and is negligible for effect sizes s above 1%; the exaggeration ratio also shrinks, but more slowly.

[Figure 4 around here]

As we discussed in Section A, one important source of "noise," captured in the power simulations but assumed away in DD regressions, is non-parallel mortality trends across states. We illustrate that concern in Figure 5. For this figure, we use a DD model, continue to use data from 2007-2013, apply a pseudo-shock to amenable mortality on January 1, 2012, but this time to one state at a time, treating all others as controls. We show a scatter plot of the DD estimates for each state of the change in amenable mortality, from regressions otherwise similar to those used for Table 2, versus *ln*(state population in 2012). We also superimpose a regression line showing the best linear fit between the point estimates and *ln*(population).

It is apparent from Figure 5 that for single states, it is common to find pseudo-treatment effects of 2% or more, with a fair number of states showing pseudo-effects of 4% or more, and Montana and Mississippi showing pseudo-effects around 6%. There is also a tendency for larger states to have better mortality trends than smaller states over 2012-2013, shown by the negative slope of the best-fit line.

[Figure 5 around here]

D. Power for Vulnerable Subgroups

We also conducted power analyses for the demographic, education, and cause of death subsamples discussed above, and report results in the Appendix. Power is generally similar to, or lower than, that shown in Figure 3. Smaller sample size, which reduces power, offsets the effect of the modestly larger first stages, which are all we can achieve. And the effect of non-parallel trends, in reducing power, remains.

E. What Data Would Be Needed for Reasonable Power?

We turn in this section to a different question – what combination of a stronger first stage and a reduction in amenable mortality for the newly insured would be detectable with reasonable power, if we could use a richer dataset, with data on mortality linked to data on income and family status (to determine eligibility for expanded Medicaid coverage) and pre-ACA insurance status (to exclude the always-insured from the sample). This hypothetical data would improve the first stage and bring it toward (or even above) the 5% one could obtain by studying only adults with incomes < 138% of FPL, or the 10% in Simon et al. (2017) for childless adults with incomes < 100% of FPLs. We consider the triple-difference design, which has similar power to DD and does a better, although imperfect job, of addressing non-parallel trends.

In this scenario, we imagine that we can identify in each county both a treated subsample and a similar control subsample, both aged 55-64. For example, if the treated subsample is childless adults with income < 138% of FPL, the within county control subsample could be childless adults with incomes from 138% to 250% of FPL. We assume hypothetical first stages varying from 1% to 15% and hypothetical second stages varying from 0% to 10%. For, say, a 5% first stage and a 10% second stage, we assign "insurance due to Medicaid expansion" to 5% of the persons in a "5% first stage" subsample of each expansion county, and then remove 10% of the amenable mortality deaths from the treated persons in this subsample (thus applying an overall mortality reduction to the subsample of .005). We again use data from 2007-2013 and a pseudo-treatment at Jan. 1, 2012, and assess whether we could detect this mortality effect if we did not know which specific individuals within this subsample would have gained insurance due to this pseudo-treatment. Since the treated and control samples are drawn at random from the same county and age range, they have the same expected mortality rates, by construction.[36]

We assume that with the hypothetical data, (i) researchers can identify the subsample members, and (ii) *all* effects of Medicaid expansion on uninsurance rates are concentrated in the subsample we consider. Thus, in our 5% first stage/10% second stage example, we assume that the entire Medicaid-expansion-related relative drop in uninsurance –170,000 persons in Full-Expansion States -- comes from this subsample. This defines the subsample size at 170,000/.05 = 3.4M treated persons, and a similar number of controls.

In Figure 10, we show power curves only for the 95% significance level. We vary (i) the assumed first stage (we show curves for 1%, 3%, 5%, 10%, 15%, and 20% first stages) and (ii) the imposed mortality reduction for the newly insured (from 0% to 10%) for the 5% significance level. With this hypothetical richer data, we need a smaller number of avoided deaths to be able to reliably detect a treatment effect. For example, with a 10% first stage, we could reliably detect mortality reductions of 2.4% or more in this subsample, or around 1,563 annual deaths. This is only slightly below the number of deaths we could detect in the full sample; thus, this hypothetical study remains severely underpowered. Recall that with a 10% second stage, we expect around 100 fewer annual deaths among those who actually gain insurance.

F. Implications of Power Analysis for Other Studies

While our exact simulation approach for understanding the minimum detectable effect is specific to our dataset and research design, a similar approach can be used in many other studies. We offer here four examples of why we believe power analyses such as ours, including an assessment of the minimum detectable effect and whether that effect size is plausible, can be broadly valuable in quasi-experimental research.

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[36] For small subsamples, there are many county-years with zero deaths in smaller counties. The log transform we use ($y_{it} = ln$((deaths)/100,000 persons)+1) can produce substantial bias when there are many zero-death observations but most non-zero death rates are large (because we multiply the fractional rate by 100,000), which can lead to underestimating statistical power. We therefore use a linear model in conducting power analysis for specifications that examine small sub-groups, and thus have many county-level observations with zero deaths.

First, our power analysis can be usefully compared to the results in Finkelstein et al. (2012), who study the Oregon Health Insurance Experiment. With a sample of 75,000 people and a roughly 25% first stage among people who signed up for the Oregon Medicaid lottery, who were randomly offered Medicaid or assigned to control, the study reports a large point estimate for the near-term effect of receiving Medicaid on mortality of around 13%, but a *t*-statistic only around 0.5. This implies that the sample was undersized, even for that large point estimate, by a factor of around 16 –a sample of 1.2M people (with 300,000 newly insured) would be needed to reliably find a 13% effect on mortality – and a sample of 8M people (with 2M newly insured) to find a 5% effect.[37] Yet, from SAHIE data, the number of people in Full-Expansion states aged 50-64, with income < 138% of FPL is around 3.4M, and the first-stage for this group is around 5.3%, hence around 180,000 newly insured due to Medicaid expansion relative to non expansion states. Thus, even if we could link mortality and income data at the individual level, and focus on the income range eligible for Medicaid (< 138% of FPL), power to detect mortality effects would be low.

Second, our analysis of power to detect the effect of health insurance on non-elderly adult mortality has direct implications for other DD studies of the effect of insurance expansions on adult mortality. We provide a back of the envelope calculation here, for example for SLB (2014), who report a statistically significant near-term decline in adult mortality following the "Romneycare" health insurance expansion in Massachusetts in 2006. Massachusetts has a moderate sized population (6.55M in 2017; 14th among all states). Kolstad and Kowalski (2012) find a first stage insurance gain of 5.6%. The DD effect estimate in SLB – a 4.5% drop in amenable mortality by two years after reform –implies an 80% drop in amenable mortality for compliers.

To assess power, we build on Kaestner's (2016) replication of SLB (2014), in which he finds that their results are insignificant, using randomization inference to estimate confidence intervals.[38] We used Kaestner's code to compute the minimum effect size in their analysis with p < .05 (95% confidence). This minimum effect is 6.9%. The minimum detectable mortality decline for the newly insured, implied by this minimum effect size, is 6.9%/5.6% = 123%.

[37] By comparison, the population in 2013 aged 50-64 with income < 138% of FPL was around 3.4M in Full-Expansion states and 4.1M in No-Expansion states, but the first-stage for this group is around 5%, well below the 25% in the Oregon Health Insurance Experiment.

[38] We thank Robert Kaestner for providing his Stata code, which we used in our analysis.

In two more examples, we turn to recent work by two of us, in separate projects. Soni et al. (2018a) report that Medicaid expansion predicts a 2.4% relative drop in the fraction of people with cancer who are uninsured. They cannot measure the drop in uninsurance among those with undiagnosed cancer, whose baseline uninisurance rate is likely higher. Soni et al. (2018b) report a 6.4% increase in diagnoses of early-stage cancer, but do not discuss plausible effect sizes or minimum detectable effects. What first stage would be needed among those with undiagnosed cancer to make a 6.4% increase in early diagnoses plausible? A back of the envelope calculation using their reported 95% CI suggests a standard error of around 2% and thus an MDE for early-stage cancer diagnoses of around 4%.

Pines et al. (2016) find no evidence that Medicaid expansion predicts a significant increase in ED visits; their point estimate is a 0.6% drop in expansion states, relative to non-expansion states. They do not discuss the first stage (the relative drop in ED visits by uninsured persons), but from their Appendix, one can determine that the first stage is around 6.7%. Twice their standard error is .018, and .018/.067 = 0.27. This implies that if the only reason for change in ED visit rates were gaining insurance, the 95% CI around their point estimate implies a [-36%, +18%] change in ED visits by the newly insured. There is still no evidence of a higher visit rate by the newly insured, and the upper end of the 95% CI is still well below the +40% point estimate from the Oregon Health Insurance Experiment, but it one cannot rule out a fairly large increase in ED visits by the newly insured.

X. Discussion

In this paper, we examine the relationship between mortality and health insurance, principally using the DD research design used in many prior ACA studies. This design exploits the natural experiment created by variation between those states that expanded Medicaid insurance and those that did not. We also exploit variation that results from counties having varying uninsurance or poverty levels prior to 2014. We focus on persons aged 55-64 years, whose mortality rates are the most likely to be affected by health insurance. We study effects of the first three years after expansion by type of mortality (healthcare amenable vs non amenable), demographics (gender, race, and ethnicity), education level, cause of death, and residence in counties most likely to gain from the ACA expansion).

We find large confidence intervals with no statistically significant evidence of an ACA-induced decline in mortality in Medicaid expansion states. Instead, there are important non-parallel pre-treatment trends, and standard errors are far too large to allow detection of effects of plausible sizes. We confirm lack of power through a formal, simulation-based power analysis.

While it is possible that the mortality effect of the ACA health insurance expansion variation we study may materialize with more time, other factors make it unlikely they too could be statistically detected; lengthening the study period would increase likelihood that other sources of variation, including cross-border moves, the instability of insurance status over time, and the underlying causes of the non-parallel pre-treatment trends we observe, will pose challenges for credible causal inference. Moreover, our power analysis implies that an extra few years would still be insufficient to attain reasonable power, given plausible effect sizes.

We end with a discussion of the data needed to push forward the literature on the health outcome effects of health insurance. Large-scale data sets that include individual-level data on income, insurance, baseline health status, and mortality are essential. Income and prior insurance information would permit a substantially larger first stage. Baseline health data would provide a more sensitive second stage, and might also permit analysis limited to health-vulnerable subpopulations, provided that one still has reasonably sized samples. At the same time, given the power concerns we identify, studies of the health effects of health insurance should include efforts to assess the first stage, estimate reasonable magnitudes for treatment effects, and conduct a power analysis.

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Table 1. Full Expansion; Substantial Expansion; Mild Expansion, and No-Expansion states, and % Uninsured for Selected Years

Table shows expansion status of each state (including D.C.). Treatment group is Full Expansion states and control group is No-Expansion states, for these states, table shows expansion date if other than Jan. 1, 2014. For "substantial" and "mild" expansion states, table shows year of significant prior Medicaid expansion. Summary rows give either equal weight to all states in each expansion group, or population weight, as indicated. See Appendix Table A-1 for additional details and sources for each state's expansion status.

State	Expansion Date	% uninsured (age 50-64)			change in % unins. (2013-2016)
		2013	2014	2016	
Full Expansion		**13.7**	**9.4**	**6.4**	**7.3**
Pop. weighted		**13.4**	**9.4**	**6.3**	**7.1**
Alaska	Sep 2015	19.1	17.2	13.8	5.3
Arizona[1]		17.6	13.1	10.0	7.6
Arkansas[2]		16.5	11.3	6.9	9.6
Colorado[3]		13.6	9.2	6.7	6.9
Illinois		14	9.8	6.3	7.7
Indiana	Feb 2015	12.9	11	7.5	5.4
Iowa[4]		7.7	5.9	3.9	3.8
Kentucky		14.4	7.5	4.8	9.6
Maryland		10	7.2	5.2	4.8
Michigan	Apr 2014	11.4	8.2	5.1	6.3
Montana	Jan 2016	18	14.4	9.2	8.8
Nevada		19.8	14.3	10.5	9.3
New Hampshire	Aug 2014	11.6	9.7	6.2	5.4
New Jersey[5]		13.1	10.8	7.1	6.0
New Mexico		19	15	9.8	9.2
North Dakota		9.6	6.9	5.2	4.4
Ohio		12.3	8.3	5.6	6.7
Oregon[6]		15.3	9.6	6.4	8.9
Pennsylvania	Jan 2015	9.5	7.7	5.0	4.5
Rhode Island		11.2	6.2	3.4	7.8
Washington[5]		13.1	8.2	5.7	7.4
West Virginia		14.5	8.9	5.9	8.6
Substantial Expansion		**10.3**	**7.1**	**4.8**	**5.5**
Pop. weighted		**15.0**	**10.3**	**6.4**	**8.6**
California[5]	2010	18.1	12.3	7.4	10.7
Connecticut[5]	2010	9.7	6.2	4.4	5.3
Hawaii[7]	1994	7.3	5.5	4.1	3.2
Minnesota[5]	2010	7.3	5.1	3.6	3.7
Wisconsin[8]	2009	9.1	6.6	4.7	4.4
Mild Expansion		**7.6**	**5.7**	**4.0**	**3.6**
Pop. weighted		**8.6**	**6.8**	**4.6**	**4.0**
Delaware[9]	1996	9.5	7.2	5.2	4.3
Dist. of Columbia[5]	2010	6.7	5.2	3.2	3.5
Massachusetts[10]	2006	3.5	3	2.5	1.0
New York[11]	2001	10.4	8.2	5.4	5.0
Vermont[12]	1996	7.9	5	3.7	4.2
No Expansion		**15.2**	**12.7**	**10.2**	**5.0**
Pop. weighted		**16.5**	**13.7**	**11.0**	**5.4**

State	Expansion Date	% uninsured (age 50-64)			change in % unins.
		2013	**2014**	**2016**	**(2013-2016)**
Alabama		13.4	11.6	9.5	3.9
Florida		22	17.9	13.8	8.2
Georgia		18.2	15.2	12.5	5.7
Idaho		17.1	12.9	11.5	5.6
Kansas		11.8	9.7	7.8	4.0
Louisiana	Jul 2016	17.8	15.6	10.8	7.0
Maine		12.5	11	8.7	3.8
Mississippi		18.8	15.4	13.1	5.7
Missouri		13.3	10.3	8.9	4.4
Nebraska		10.7	8.8	7.8	2.9
North Carolina		15.8	12.6	10.5	5.3
Oklahoma		18.1	15.6	13.9	4.2
South Carolina		17.1	13.7	10.9	6.2
South Dakota		11.3	9.3	8.8	2.5
Tennessee		15	12.7	9.4	5.6
Texas		21	17.4	15.5	5.5
Utah		13	11.3	8.8	4.2
Virginia		12.3	10.8	8.3	4.0
Wyoming		13.3	12.7	11.5	1.8
National		**13.5**	**10.4**	**7.7**	**5.8**
Pop. weighted		**14.6**	**11.2**	**8.3**	**6.3**

Table 2: DD and Triple-Difference Estimates: Effect of Medicaid Expansion on Mortality
County-level regressions, with county and year FE and population weights, of *ln*((mortality/100,000 persons)+1) over 2009-2016 on full-Expansion dummy (=1 for Full-Expansion States in expansion years; 0 otherwise), and covariates (same as in Figure 2, used in even-numbered regressions. Third difference (regressions (5)-(6)) is ages 55-64 versus aged 65-74. Standard errors use state clusters. *.**, *** indicates statistical significance at the 10%, 5%, and 1% levels, respectively; significant results at 5% level or better in **boldface**.

	DD 55-64 years		**DD 65-74 years**		**Triple diff.**	
	(1)	(2)	(3)	(4)	(5)	(6)
Healthcare Amenable Mortality						
Full Expansion Dummy	**-0.018****	**-0.018****	**-0.013****	-0.008	-0.002	-0.004
	(0.009)	**(0.007)**	**(0.006)**	(0.006)	(0.009)	(0.008)
Full Expansion Dummy x Age 55-64 Dummy					-0.002	-0.004
					(0.009)	(0.008)
Non-amenable Mortality						
Full Expansion Dummy	0.016	0.010	**0.021****	**0.020****	-0.002	-0.006
	(0.010)	(0.009)	**(0.010)**	**(0.009)**	(0.013)	(0.011)
Full Expansion Dummy x Age 55-64 Dummy					-0.002	-0.006
					(0.013)	(0.011)
All Mortality						
Full Expansion Dummy	-0.006	-0.009	-0.003	-0.001	0.000	-0.003
	(0.008)	(0.006)	(0.005)	(0.005)	(0.008)	(0.007)
Full Expansion Dummy x Age 55-64 Dummy					0.000	-0.003
					(0.008)	(0.007)
County Population Weights	Yes	Yes	Yes	Yes	Yes	Yes
Year and County FE	Yes	Yes	Yes	Yes	Yes	Yes
Covariates	No	Yes	No	Yes	No	Yes
Observations	22,464	22,464	22,464	22,464	44,928	44,928

Figure 1. Time Trends in Amenable Mortality for Persons Aged 55-64

Figure shows amenable mortality rate for persons age 55-64 for Full-Expansion, Substantial Expansion, Mild Expansion, and Non-Expansion States, over 1999-2016, using county population weights. State groups are defined in Table 1. Vertical line separate pre-expansion from expansion period.

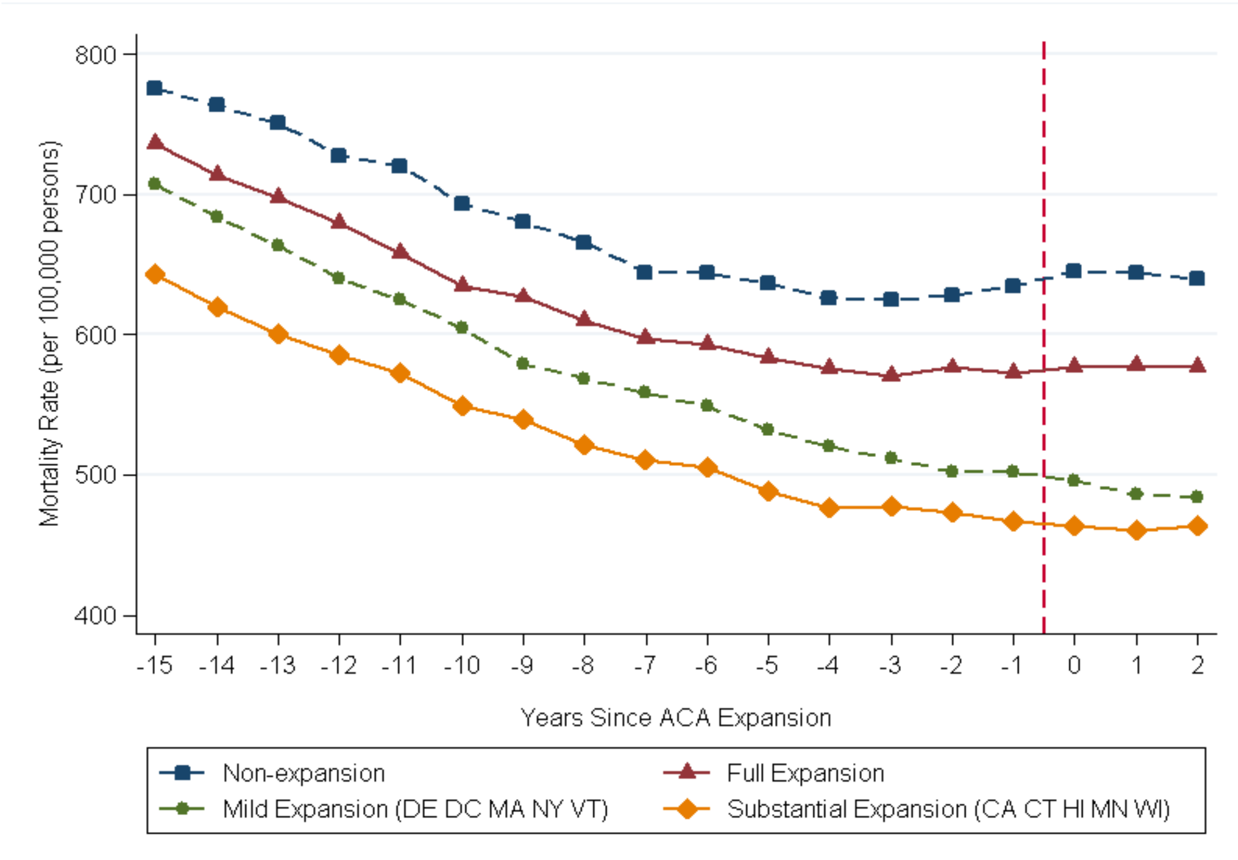
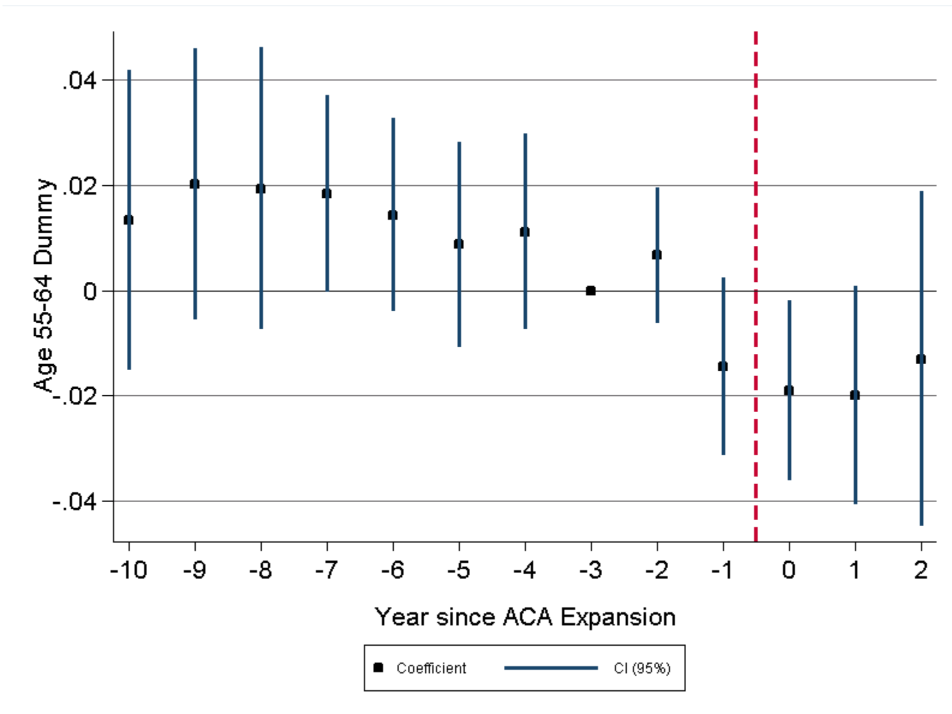


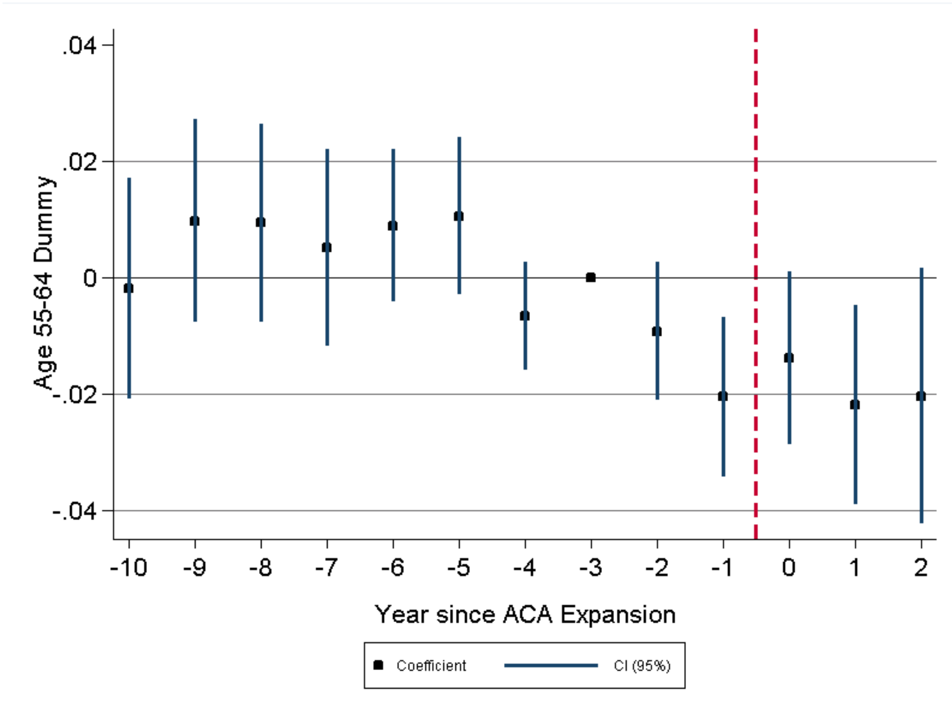
Figure 2. Leads-and-Lags Results for Ages 55-64 and 65-74, Amenable Mortality

Graphs from leads and lags regressions of *ln*((amenable mortality/100,000 persons)+1) for Full-Expansion States versus control group of Non-Expansion States, over 2004-2016 are shown in panels A (age 55-64) and B (age 65-74). Panel C shows triple difference results, with age 55-64 versus 65-64 as the third difference. Panel D shows age discontinuity results, comparing age 55-64 to age 65-74 with state (both Full and No-Expansion States together. Covariates are listed in paper. Regressions include county and year FE, and county-population weights. y-axis shows coefficients on lead and lag dummies; vertical bars show 95% confidence intervals (CIs) around coefficients, using standard errors clustered on state. Coefficient for year -3 is set to zero.

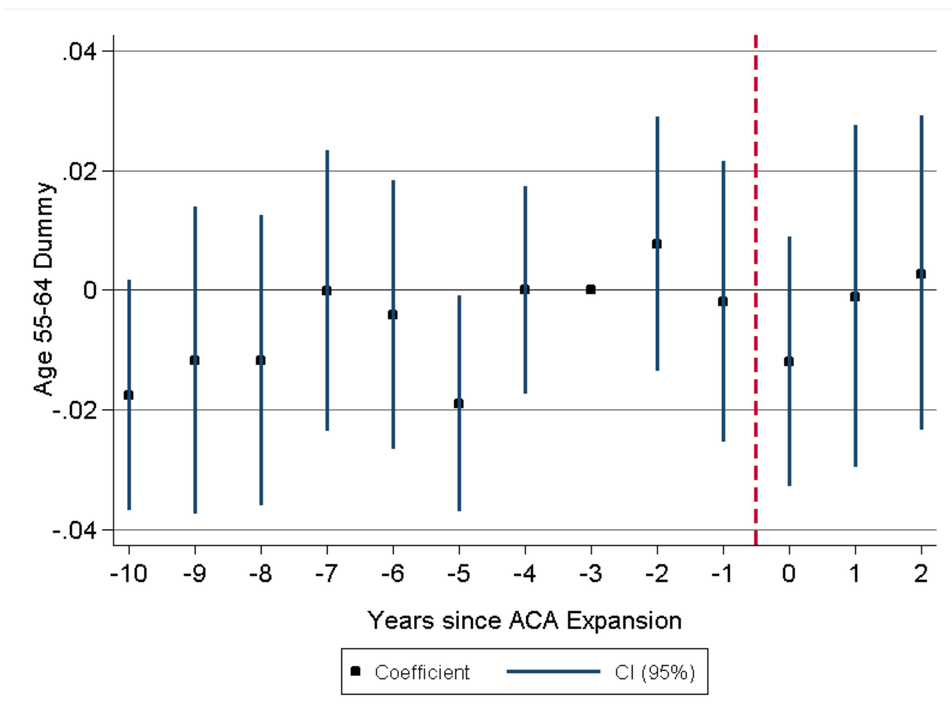
Panel A. Amenable Mortality for Ages 55-64



Panel B. Amenable Mortality for Ages 65-74



Panel C. Triple difference. Leads and lags graphs for amenable mortality for persons age 55-64 in Full-Expansion States, relative to (i) persons age 65-74 in Full-Expansion States, and (ii) persons age 55-64 in Non-Expansion States.



Panel D. Age Discontinuity. Leads and lags graphs for amenable mortality among persons aged 55-64, versus those aged 65-74 old in Full and No-Expansion States.

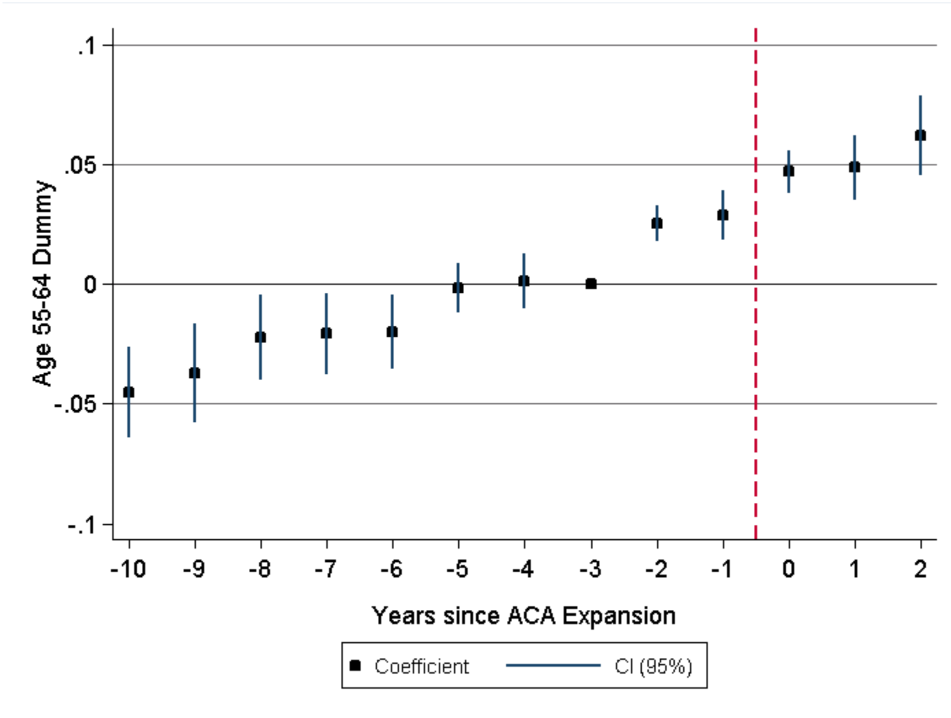
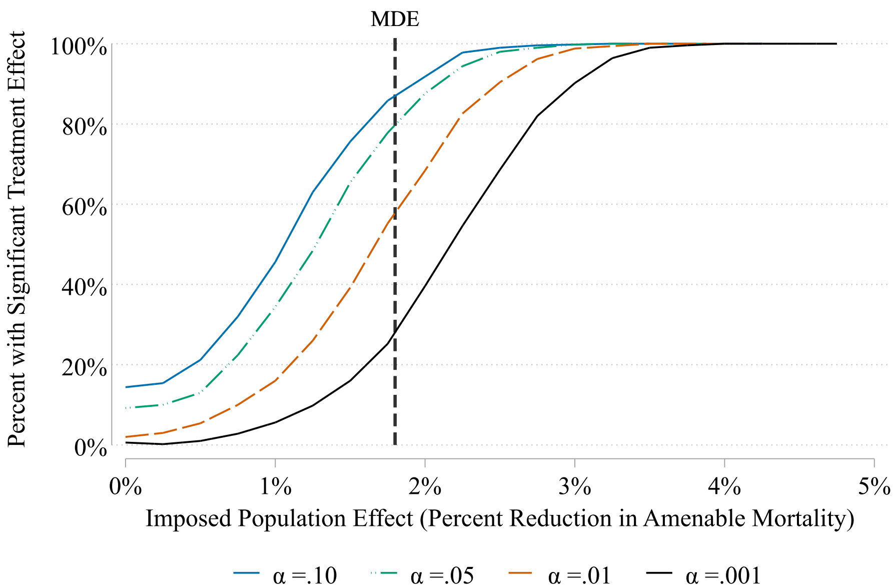


Figure 3: Simulation-Based Power Analysis

Power curves for simulated Medicaid expansion, as of January 1, 2012, applied to persons aged 55-64 during pre-treatment period (2007-2013). Graphs show power (likelihood of detecting a statistically significant effect on amenable mortality, at the indicated confidence levels, for two-tailed test), given imposed "true" population average effect. Curves are based on 1,000 replications of the DD and triple difference regressions models used in Table 2. In each draw, we select 20 pseudo-treated states at random from the combined set of 41 treated and control states, and remove a fraction of the observed deaths at random from the treated states, where the fraction removed corresponds to an assumed true treatment effect, and vary the imposed treatment effect from 0-5% in increments of 0.1%. Curves for α = .10/.05/.01/.001 correspond to 90%/95%/99%/99.9% confidence levels, respectively. Dashed vertical line shows MDE.

Panel A. DD Analysis



Panel B. Triple Difference Analysis

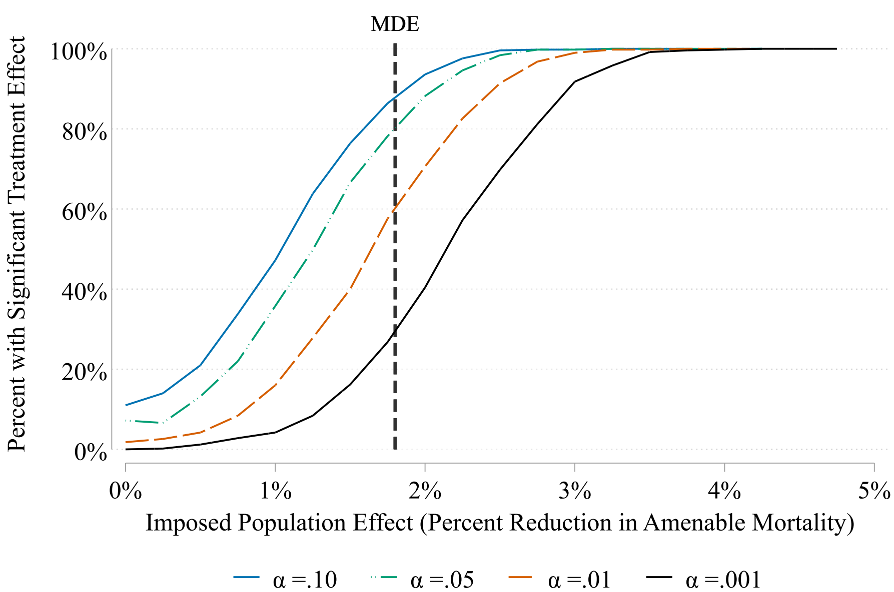
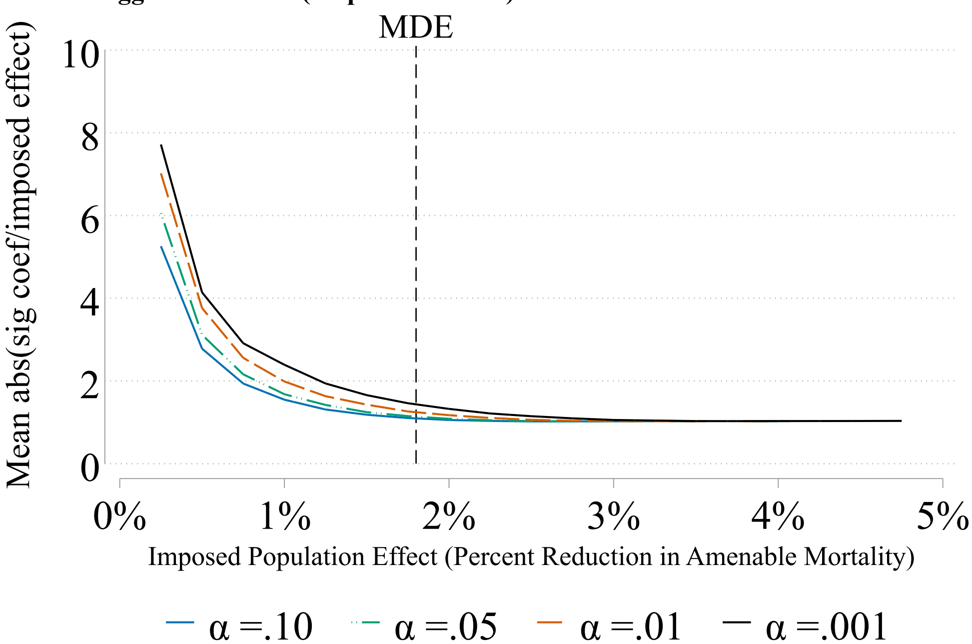


Figure 4. Power Analysis Extensions: Exaggeration Ratio and Likelihood of Wrong Sign

We conduct the same power analyses as in Figure 3 and then plot, for the instances in which a statistically significant effect is found at the indicated confidence levels, the ratio of |estimated effect|/imposed true effect ("exaggeration ratio") (Panel A), and the likelihood that the sign of the estimated effect is opposite from the imposed true effect. Curves for α = .10/.05/.01/.001 correspond to 90%/95%/99%/99.9% confidence levels, respectively. Dashed vertical line shows MDE.

Panel A. Exaggeration Ratio (Triple Difference)



Panel B. Probability that Estimated Effect, if Significant, Has Wrong Sign (Triple Difference)

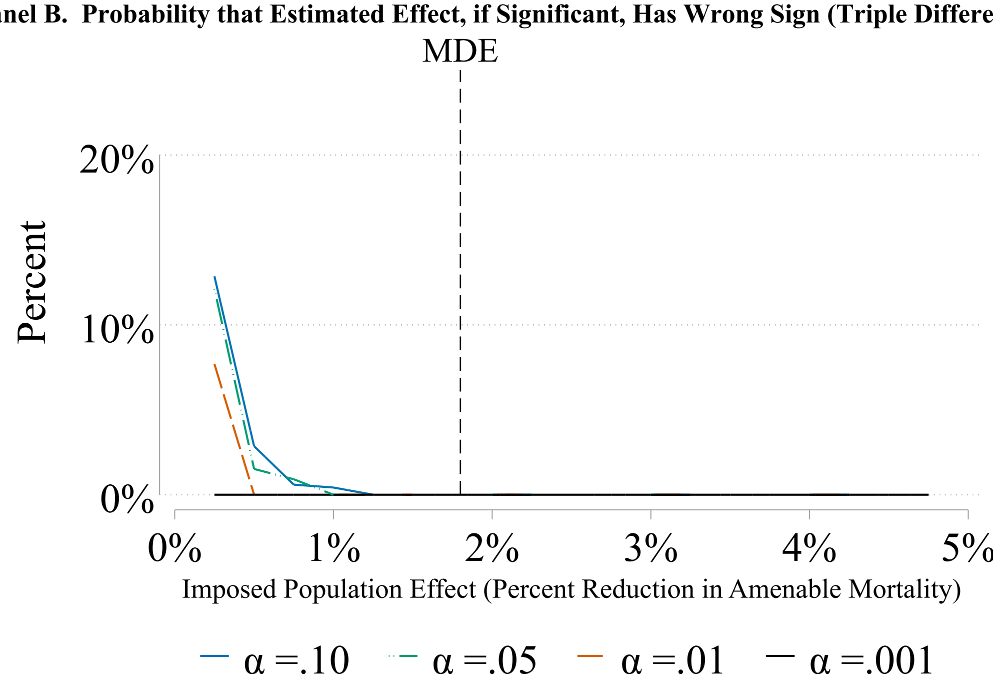


Figure 5. Pseudo-Shocks to Individual States in 2012-2013

Scatter plot of pseudo-treatment effects for individual Full-Expansion and No-Expansion states, using a sample period of 2007-2013 and a pseudo-shock to that state at Jan. 1, 2012, using the remaining Full- and No-Expansion states as a control group. Treatment effects are estimated using the DiD model as in Table 2. Downward sloping line is regression line for regression of pseudo-treatment effect on ln(state population in 2012) and constant term.

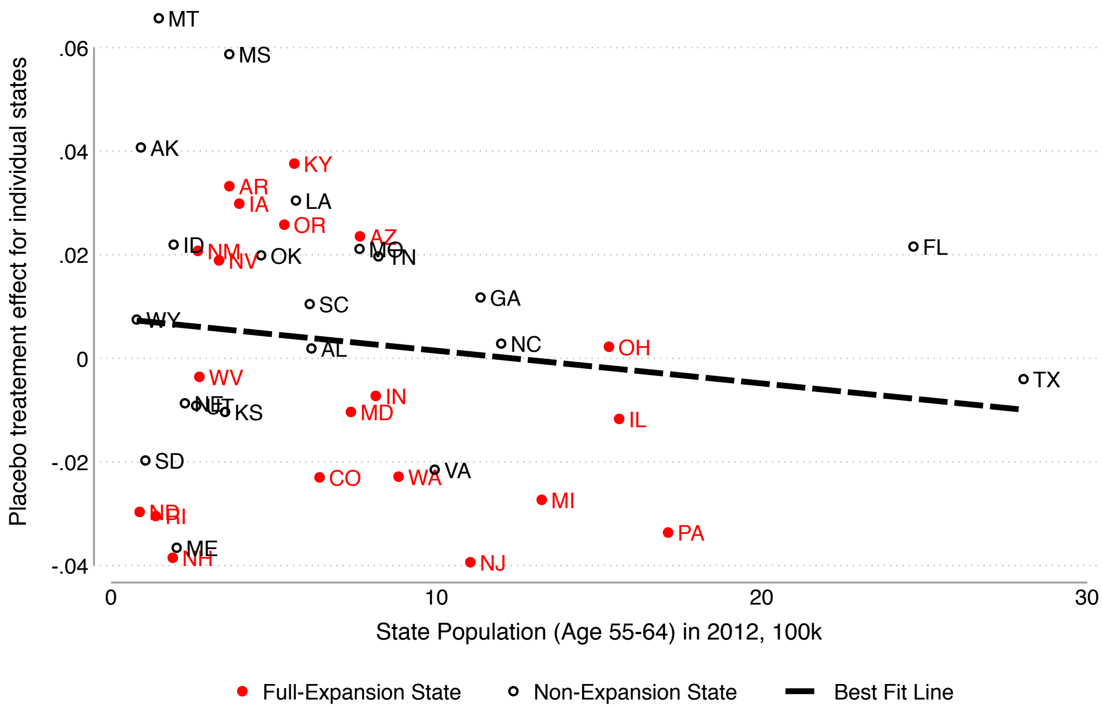
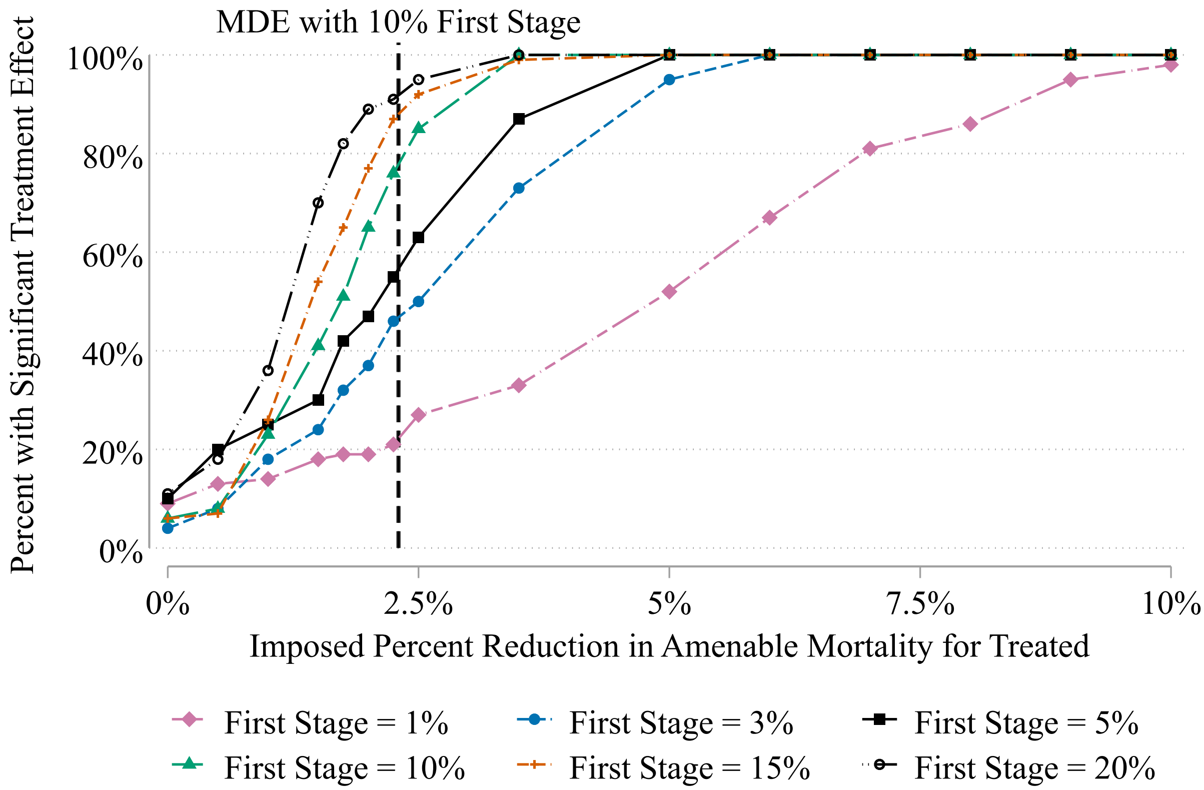


Figure 6. Simulation Based Power Analysis with Known Mortality Status of Decedent

Power curves for simulated Medicaid expansion, as of January 1, 2012, applied to persons aged 55-64 during pre-treatment period (2007-2013). Graphs show power (likelihood of detecting a statistically significant effect on amenable mortality, at the indicated confidence levels, for two-tailed test), given imposed "true" population average effect. Curves are based on 1,000 replications of a triple difference specification. In each draw, we select 20 pseudo-treated states at random from the combined set of 41 treated and control states. We further break each county into a treated and untreated population. We remove a fraction of the observed deaths at random from the treated states and treated portions of each county, where the fraction removed corresponds to an assumed true treatment effect, and vary the imposed treatment effect from 0-5% in increments of 0.1%. Curves for α = .10/.05/.01/.001 correspond to 90%/95%/99%/99.9% confidence levels, respectively. All control variables and standard errors are as in Table 2.



Appendix for

The Effect of Health Insurance on Mortality: Power Analysis and What We Can Learn from the Affordable Care Act Coverage Expansions

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Draft February 2019

Abstract

This Appendix contains additional methods details and results for Black, Hollingsworth, Nunes, and Simon, *The Effect of Health Insurance on Mortality: Power Analysis and What Can We Learn from the Affordable Care Act Coverage Expansions?*

A1. Synthetic Control Results

We sought to assess whether we could obtain a better match between treated and control states, and thus tighter confidence bounds, using synthetic control methods. We used two approaches. In the first, we combined the Full-Expansion States into a single treated unit and used usual synthetic control methods (Abadie, Diamond, and Hainmueller, 2010)[1] to construct a synthetic match using the Non-Expansion States as donor states. We report results in Figure A-2, and report the weights on donor states in Table A-12.

The synthetic control approach minimizes the difference between the pre-treatment mortality rates of the treated states and a weighted combination of the Non-Expansion States. However, the maximum difference between the two series is still sizeable, at around 0.02 in 2007. Moreover, visually, a large gap arises in 2013. Thus, this approach fails to create a close enough match in 2013 for this method to produce a satisfying solution to our concern with non-parallel trends. We were not persuaded that, for our data, the synthetic control approach is an improvement over the triple-difference design.[2]

We also considered an extension of the synthetic control strategy, following Xu (2017). Xu's "generalized synthetic control (gsynth)" method generates a separate synthetic control for each full-expansion state, drawn from the non-expansion states. One can then conduct DD analyses on the resulting treated and control units, and obtain analytical standard errors (which the original method does not provide). This procedure does not allow for weighting different units. We therefore only discuss state-level results.[3] While we cannot exactly replicate our triple difference models using the gsynth method, we constructed an approximation, by using as the treated units each treated state's 55 to 64 year olds, and as the donor pool both every non-expansion state's 55 to 64 year olds and every state's (expansion or not) 65 to 74 year olds. We present results in Appendix Figure A-3. Similar to the simpler synthetic control method presented above, there is a large drop in amenable mortality in Full-Expansion States in 2013; mortality in expansion states then rebounds in 2014. The poor pre-period fit is even more pronounced with county-level data, and is driven by small counties, which have highly varying death

[1] We used code for this approach from Soni (2016).

[2] A further concern with the synthetic control approach is that it gives zero weight to most donor states and assigns positive weights to several very-low-population states (Alaska, Maine, Wyoming) that do not otherwise seem good matches for the Full-Expansion States. Appendix Table A-8 shows the weights on each donor state.

[3] Although we could not directly use population weights within Xu's method, we simulate doing so by repeatedly running his procedure on bootstrapped datasets with draws weighted by population. Results, with both state-level and county-level data, were similar to those we discuss in the text.

rates and are hard to fit even with a large donor pool. We concluded that the gsynth approach cannot be reliably applied to our data

A2. Results for Different Demographic Groups

In this and the next two sections, we assess the effects of Medicaid expansion on mortality for various subgroups. The demographic groups we consider are males, females, non-Hispanic blacks, non-Hispanic whites, and Hispanics. We also consider subgroups based on education and mortality based on cause of death. Our data has limitations for all subgroups except gender. For race and ethnicity, we can obtain estimates of the first stage (change in uninsurance rates) only at the state level, not the county level, due to limitations of the SAHIE data. The DD design does not explicitly use the first stage, but it is central to assessing what coefficient magnitudes are reasonable. For education, population data is available only for broad age groups (45-64 and 65+; 5-year average). For analysis by prior insurance status and by income, we observe percent uninsured and percent below 138% of the FPL threshold for full ACA expansion at the county*year level, but cannot directly study these subsamples because the mortality data does not contain information on income or insurance.

We begin our analysis of demographic subgroups in Figure A-5 with leads-and-lags graphs of the triple differences in amenable mortality for samples subdivided on gender and on race/ethnicity. Most post-expansion point estimates are insignificant. The exception is non-Hispanic Blacks, who show a post-expansion drop in mortality. However, for this subgroup, we observe non-parallel pre-treatment trends even with the triple-difference specification; the post-expansion drop in mortality could merely reflect continuation of those trends. Also, the first stage for non-Hispanic Blacks is not greatly different from that for the population as a whole (Table A-3). Thus, the point estimates in Figure A-5 (around -0.05) are not possible as true effects of Medicaid expansion.

We turn next to DD and triple-difference regression results for amenable mortality for these subsamples, starting with demographic subsamples in Table A-3. The "all" row in Table A-3 is the same as in text Table 2. The first column of Table A-3 shows the first-stage change in uninsurance rates for Full- versus Non-Expansion States, in percent, for persons aged 50-64 (the closest available age match to our main treatment sample). All first stages are small; the largest is for Hispanics at 1.5% (not significant).

In Table A-3, a number of the DD coefficients in column (2) are significant and negative, but significance disappears in the triple-difference specification except for non-Hispanic Blacks. However, as noted above, these estimates are suspect due to non-parallel pre-treatment trends and implausibly large point estimates. We are also wary of assigning too much importance to statistically significant results in particular specifications given the number of estimates we produced, although we did not conduct formal Bonferroni type p-value adjustments.

A3 Variation Based on Education Level

In Figure A-6, we show leads-and-lags graphs for the triple difference in amenable mortality for subsamples stratified on education. Low education predicts poverty and hence eligibility for Medicaid expansion; it may also affect the mortality response to the "treatment" of obtaining Medicaid. Recall that for these subsamples, we study persons aged 45-64, and the triple difference compares these persons to all persons age 65+. We present leads-and-lags graphs for elementary school only; partial high school without graduating; high-school graduate; and some college. There is no evidence of a post-expansion decline in mortality for any subgroup, including the less-than-high-school groups.

In Table A-4, we show regression results by education level. The first row shows full sample results. These differ from text Table 2 due to the broader age range that we use due to data limitations. Note that in our preferred triple-difference specification, the point estimate for overall mortality is now positive (higher mortality) and insignificant, and that Medicaid expansion predicts a significant drop in mortality for the elderly (a placebo group). Both results cast further doubt on whether an effect of Medicaid expansion on mortality can be reliably detected.

The first column shows the relevant first stages. The first stage is close to 4% for persons without a high school degree, but drops to 1.5% for high school graduates with no college, and to 1% for persons with some college. However, the non-high-school graduates are only 12% of the 45-64 age group, so the power gained from a stronger first stage is offset by smaller sample size.

The first row shows full sample results. The second through fifth rows show effects for the four education groups, starting with the lowest group, those with only elementary school completion, while the other rows show successively higher education categories. All DD and triple-difference point estimates are insignificant, consistent with the leads-and-lags graphs in Figure 5. The point estimate for three of the four education groups, including the least educated, are positive (opposite from predicted).

A4. Variation by Primary Cause of Death

In Table A-5, we present results by cause of death, for the top 4 causes of death: cancer, diabetes, cardiovascular causes, and respiratory illnesses, and also for HIV. Figure A-7 provides the corresponding leads-and-lags graphs. All of these causes are within the broad category of amenable mortality. First-stage estimates are not available with our data, because we lack data on Medicaid insurance takeup among those with specific diseases. However, Soni et al. (2018a, 2018b) use a DiD design based on Medicaid expansion and report a 2.4% first stage among persons with cancer diagnoses and a 6.4% increase in early-stage cancer diagnoses. Diabetics could plausibly benefit more strongly from Medicaid expansion given the negative correlation between income and diabetes prevalence and evidence from the Oregon Medicaid Experiment that gaining Medicaid insurance predicts increased diabetes diagnosis (Baicker et al., 2013). HIV is another specific condition, for which health insurance has predicted lower mortality in previous studies (Goldman et al., 2001). However, both DD and triple-difference coefficients are insignificant for all causes of death.

A5. Variation by Pre-ACA Uninsurance and Poverty Rates

We turn next to an effort to exploit pre-AC`A uninsurance rates and poverty levels. We cannot measure the second stage (mortality by individual income and insurance status) from the mortality data, so we address this source of heterogeneity indirectly at the county level. The DD specification is the same as above; the third difference for is high-versus-low pre-ACA uninsurance rates in counties. We compare "treated" high-uninsurance counties (the counties with the highest pre-ACA uninsurance rates, defined so that they together contain 20% of the U.S. population) to "control" counties with the lowest pre-ACA uninsurance rates, also containing 20% of the U.S. population; we drop all other counties. This is similar to the analysis in Finkelstein and McKnight (2008), exploiting pre-Medicare variation in insurance levels, and Courtemanche et al. (2017) for the ACA. The third difference for high-vs-low poverty counties is similar: high-poverty counties (the counties with the highest poverty rates, together containing 20% of the US. population) versus low-poverty counties (counties with the lowest poverty rates, also containing 20% of the U.S. population); we drop all other counties. These comparisons rely on all ACA-induced sources of health insurance expansion, rather than Medicaid expansion alone.

We present leads-and-lags graphs for amenable mortality in Figure A-8. Neither graph shows evidence of a treatment effect. Both graphs show signs of a pre-treatment trend toward lower mortality in the last few years prior to ACA expansion, in both high-uninsurance counties and high-poverty counties, which does *not* continue in the post-expansion period and indeed reverses for the high-uninsurance counties.

We present regression estimates in Table A-6, for the full sample and for demographic subsamples. Data are sufficient to let us compute first-stage estimates only for the full sample and for male and female subsamples. The first stage remain quite small. There is no evidence of significant effects of Medicaid expansion on mortality. For the full sample, the coefficients for both subsamples are insignificant. For the comparison of high-vs-low uninsurance counties, the coefficient is positive (opposite from predicted). For the demographic subsamples, five of the 14 coefficients are positive; and the only significant coefficient is also positive.[4]

A6. Alternative Specifications: ATT Weights; All-Non-Elderly Adults; and Total Mortality

In Tables A-7 through A-11, we present results using a number of different specifications. Table A-7 is similar to text Table 2, but uses the following alternative specifications: (i) ATT * population weights (we use population weights in the text); (ii) using linear state trends; (iii) running regressions at the state instead of the county level, with population weights); and running state-level regressions without population weights. All triple-difference coefficients are insignificant. Figure A-9 provides leads-and-lags graphs for amenable mortality with ATT * population weights.

To generate the ATT (average treatment effect on the treated) weights, we first average the covariates over the pre-treatment period (2009-2013). We then run a logit regression, which predicts whether a county is in a Full- or Non-Expansion State, using all variables in Table A-2 to generate the fitted propensities p for each county. ATT weights are calculated as (p/(1-p)).

Figure A-10 presents leads-and-lags graphs for DD and triple differences for total mortality, instead of amenable mortality. Figure A-10 presents leads-and-lags graphs for DD and triple differences for non-amenable mortality.

In Table A-8, we present triple-difference results using these same alternative specifications with each of the demographic subgroups. The significant, negative coefficient for non-Hispanic Blacks survives in several of these specifications, but loses significance in state-level regressions without population weights. All other coefficients are insignificant, except that we find a significant negative coefficient for men in state-level regressions without population weights. The sizeable differences, for several subgroups, between state-level regressions with and without population weights confirm our initial concern that results from this specification are sensitive to outlier results in a few low-population states. Figure A-12 provides leads-and-lags graphs for amenable mortality for demographic subgroups, with ATT * population weights.

In Table A-9, we present triple-difference results with these alternative specifications with each of the education subgroups. All estimated effects are statistically insignificant. Figure A-13

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4 In Table A-6, we use all counties and estimate continuous versions of the comparisons in Table 6 between high and low uninsurance (or poverty) counties, again with insignificant results.

provides leads-and-lags graphs for amenable mortality for education subgroups, with ATT * population weights.

In Table A-10, we present triple-difference results with these alternative specifications with each cause of death. All estimated effects are statistically insignificant. Figure A-14 provides leads-and-lags graphs for amenable mortality by cause of death, with ATT * population weights.

Figure A-15 presents leads-and-lags graphs for the comparison of high-versus low poverty and high-versus low-uninsurance counties, with ATT * population weights. Figure A-16 is similar, but the sample is all non-elderly adults.

In Table A-11, we present triple-difference results using two alternative specifications (ATT * population weights, and comparing all non-elderly adults to all elderly adults), for each of the demographic subgroups. There are some scattered significant coefficients, positive for women and negative for men (with ATT * population weights) and for non-Hispanic Blacks (for the broad age range), but no consistent results across specifications. Figure A-17 presents leads-and-lags graphs for the comparison of amenable mortality for all non-elderly adults.

Across all tables, the scattered significant coefficients that we find are far too large in magnitude to be true causal effects. Indeed, given our standard errors, only implausibly large coefficients would appear to be statistically significant.

Table A-1. Medicaid Expansion States (2014-2016)

This table includes Medicaid expansions through 2016. It is based on combining and reconciling the classification of states as "full expansion," "None," or in-between ("mild" or "substantial" expansion), by Simon, Cawley and Soni (2017), Lou et al. (2018), and Kaiser Family Foundation (2015). Most states could be classified based on their rules for when and to what level they expanded Medicaid for all adults. Arizona required special care; see detailed analysis below. Because our mortality data are annual, we consider New Hampshire to be a 2015 expansion, Alaska to be a 2016 expansion, and Louisiana to be a 2017 expansion, hence beyond our study period.

In the "expansion details" column, "ACA Expansion" means regular expansion to 138% of FPL, on the date stated in the "Effective Date" column. In the "inclusion/exclusion column, C = control (non-expansion), T = treatment (full expansion); other states are excluded. Simon et al. (2017) classify early expansion states as "mild" or "substantial" expansion, based on their assessment of the extent to which enrollment increase with full Affordable Care Act expansion in 2014. This classification of states based on expansion status is also used in Black et al. (2018) ("BHNS"). % change in uninsured enrollees (2013-20156) come from SAHIE estimates for ages 18-64 and considering all income groups.

State	Abbr.	Expansion Details	Effective Date	% change in uninsured enrollees (2013-2016)	Inclusion/ Exclusion	Expansion type	Compare to BHNS
Alabama	AL	None		6.4	C [.]	None	Consistent
Alaska	AK	Medicaid Expansion	09/01/2015	6.8	T [2016]	None	Consistent for 2014-2015 (expanded late 2015)
Arizona[5]	AZ	§ 1115 Waiver (100% FPL, but closed to new enrollees in 2011) ACA Expansion	2000 01/01/2014	9.6	T[2014]	Full	Consistent
Arkansas[6]	AR	§ 1115 Waiver	01/01/2014	12.4	T [2014] Private Option	Full	Consistent
California[7]	CA	§ 1115 Waiver (LA county) § 1115 Waiver (200% FPL) ACA Expansion	01/01/1995 11/01/2010 01/01/2014	13.5	Excluded (Early expansion)	Substantial	Consistent
Colorado[8]	CO	§ 1115 Waiver (to 10% of FPL)	04/01/2012	8.6	T [2016]	Full	Consistent

[5] Arizona used a § 1115 waiver to expand Medicaid coverage to childless adults up to 100% FPL during 2000-2011. In 2011, the state started to phase out that program (transitioning into Medicaid expansion). Which category Arizona belongs in was unclear based on its rules, so we also examined the extent to which Medicaid enrollment increased in 2014. See details below.

[6] Arkansas operated a limited-benefit premium-assistance program for childless adults who worked for small uninsured employers (ARHealthNetworks waiver) prior to the ACA. Arkansas's Medicaid expansion includes a "private option" under which Medicaid-eligible persons receive health insurance from the state insurance exchange, with a small monthly premium.

[7] California expanded Medicaid in 2010-2011, in selected counties.

State	Abbr.	Expansion Details	Effective Date	% change in uninsured enrollees (2013-2016)	Inclusion/ Exclusion	Expansion type	Compare to BHNS
		ACA Expansion	01/01/2014		T [2014]		
Connecticut[9]	CT	State Plan Amendment (56% FPL) ACA Expansion	04/01/2010 01/01/2014	6.4	Excluded (Early Expansion)	Substantial	Consistent
Delaware[10]	DE	ACA Expansion	01/01/1996 01/01/2014	5.1	Excluded (Early Expansion)	Mild	Consistent
District of Columbia[11]	DC	State Plan Amendment (133% FPL) § 1115 Waiver ACA Expansion	07/01/2010 12/01/2010 01/01/2014	4.2	Excluded (Early expansion)	Mild	Consistent
Florida	FL	None		10.4	C [.]	None	Consistent
Georgia	GA	None		7.6	C [.]	None	Consistent
Hawaii[12]	HI	ACA Expansion	08/01/1994 01/01/2014	4.6	Excluded (Early expansion)	Substantial	Consistent
Idaho	ID	None		8.2	C [.]	None	Consistent
Illinois	IL	ACA Expansion	01/01/2014	9.2	T [2014]	Full	Consistent
Indiana	IN	§ 1115 Waiver	02/01/2015	8.5	T [2015]	Full	Consistent
Iowa[13]	IA	§ 1115 Waiver	01/01/2014	5.8	T [2014]	Full	Consistent
Kansas	KS	None		5.2	C [.]	None	Consistent
Kentucky	KY	ACA Expansion	01/01/2014	13.7	T [2014]	Full	Consistent
Louisiana	LA	ACA Expansion	07/01/2016	9.0	C [.]	None	Consistent
Maine	ME	None		4.2	C [.]	None	Consistent
Maryland	MD	ACA Expansion	01/01/2014	5.8	T [2014]	Full	Consistent

[9] Connecticut, elected to enact the Medicaid expansion in 2010 through a state amended plan at 56%. Connecticut expanded its Medicaid program fully in 2014.

[10] In Delaware, childless adults with incomes up to 100% FPL were eligible for Medicaid through the Diamond State Health Plan waiver, effective on 01/01/1996.

[11] DC expanded its Medicaid program at 133% of FPL in 2010.

[12] In Hawaii, childless adults with incomes up to 100% FPL were eligible for the state's QUEST Medicaid managed care waiver program, effective on 08/01/1994.

[13] Under the IowaCare program, childless adults with income below 200% FPL were eligible for health insurance since 2005. However, IowaCare provided limited services in a limited network, so low-income adults in Iowa received a substantial coverage expansion in 2014 (Damiano et al., 2013). During 2014-2015, Iowa residents with income < 100% of FPL were enrolled in Medicaid managed care plans, while those with income of 100-138% of FPL received private insurance obtained through the Iowa health exchange, with premiums waived (a partial "private option"). See https://www.medicaid.gov/Medicaid-CHIP-Program-Information/By-Topics/Waivers/1115/downloads/ia/Market-Place-Choice-Plan/ia-marketplace-choice-plan-state-term-app-06012016.pdf...

State	Abbr.	Expansion Details	Effective Date	% change in uninsured enrollees (2013-2016)	Inclusion/ Exclusion	Expansion type	Compare to BHNS
Massachusetts[14]	MA	"Romneycare" ACA Expansion	04/12/2006 01/01/2014	1.7	Excluded	Mild	Consistent
Michigan	MI	ACA Expansion	04/01/2014	8.5	T [2014]	Full	Consistent
Minnesota[15]	MN	State Plan Amendment (75% FPL) § 1115 Waiver (200% FPL) ACA Expansion	03/01/2010 08/01/2010 01/01/2014	5.6	Excluded (Early Expansion)	Substantial	Consistent
Mississippi	MS	None		7.3	C [.]	None	Consistent
Missouri	MO	§ 1115 Waiver (St. Louis County Only) (200% FPL) None	07/01/2012	5.7	C [.]	None	Consistent
Montana	MT	ACA Expansion	01/01/2016	11.5	T [2016]	None	Consistent for 2014-2015 (expanded in 2016)
Nebraska	NE	None		4.1	C [.]	None	Consistent
Nevada	NV	ACA Expansion	01/01/2014	11.2	T [2014]	Full	Consistent
New Hampshire[16]	NH	§ 1115 Waiver	08/15/2014	7.0	T [2015]	Full	Consistent
New Jersey[17]	NJ	§ 1115 Waiver (23% FPL) ACA Expansion	04/01/2011 01/01/2014	7.4	T [2014]	Full	Consistent
New Mexico	NM	ACA Expansion	01/01/2014	13.8	T [2014]	Full	Consistent
New York[18]	NY	§ 1115 waiver ACA Expansion	10/01/2001 01/01/2014	6.7	Excluded (Early expansion)	Mild	Consistent
North Carolina	NC	None		7.4	C [.]	None	Consistent

[14] Massachusetts implemented reforms to expand insurance coverage to low-income adults in 2006.

[15] Minnesota conducted early expansion in 2010 two ways. Persons with income $\leq$ 75%FPL were insured through Medical Assistance Medicaid, funded through a State Plan Amendment, persons with income from 75~200% of FPL were insured through MinnesotaCare, funded through a § 1115 Waiver, which had limited benefits and cost-sharing.

[16] New Hampshire implemented a "private option" (mandatory purchase of subsidized private insurance, instead traditional Medicaid, in 2016. See https://www.medicaid.gov/Medicaid-CHIP-Program-Information/By-Topics/Waivers/1115/downloads/nh/health-protection-program/nh-health-protection-program-premium-assistance-appvl-amend-req-06232015.pdf.

[17] New Jersey's expansion in 2011 only extended to 23% FPL; we therefore treated it as a full expansion state.

[18] In New York, childless adults up to 78% FPL were eligible for the Medicaid (Home Relief) waiver program and childless adults up to 100% FPL were eligible for the Family Health Plus waiver program (Heberlein et al., 2011).

State	Abbr.	Expansion Details	Effective Date	% change in uninsured enrollees (2013-2016)	Inclusion/ Exclusion	Expansion type	Compare to BHNS
North Dakota	ND	ACA Expansion	01/01/2014	6.0	T [2014]	Full	Consistent
Ohio	OH	ACA Expansion	01/01/2014	8.1	T [2014]	Full	Consistent
Oklahoma	OK	None		5.3	C [.]	None	Consistent
Oregon	OR[19]	ACA Expansion	01/01/2014	12.2	T [2014]	Full	Consistent
Pennsylvania	PA	ACA Expansion	01/01/2015	6.2	T [2015]	Full	Consistent
Rhode Island	RI	ACA Expansion	01/01/2014	10.5	T [2014]	Full	Consistent
South Carolina	SC	None		8.1	C [.]	None	Consistent
South Dakota	SD	None		2.9	C [.]	None	Consistent
Tennessee	TN	None		6.8	C [.]	None	Consistent
Texas	TX	None		7.5	C [.]	None	Consistent
Utah	UT	None		6.9	C [.]	None	Consistent
Vermont	VT[20]	§ 1115 Waiver ACA Expansion	01/01/1996 01/01/2014	4.7	Excluded (Early expansion)	Mild	Consistent
Virginia	VA	None		5.3	C [.]	None	Consistent
Washington[21]	WA	§ 1115 Waiver (133% FPL) ACA Expansion	01/03/2011 01/01/2014	11.1	T [2014]	Full	Consistent
West Virginia	WV	ACA Expansion	01/01/2014	12.8	T [2014]	Full	Consistent
Wisconsin[22]	WI	New eligibility for BadgerCare but not ACA Expansion	2009	5.5	Excluded	Substantial	Consistent
Wyoming	WY	None		3.6	C [.]	None	Consistent

[19] In 2008, Oregon enacted a small Medicaid expansion for low-income adults through a lottery among applicants. However, less than one-third of the 90,000 people on the waitlist were selected to apply for Medicaid in 2008 (Baicker et al., 2013), some of the denied applicants were then enrolled in 2010. We treat Oregon as full expansion due to the small size of this earlier expansion.

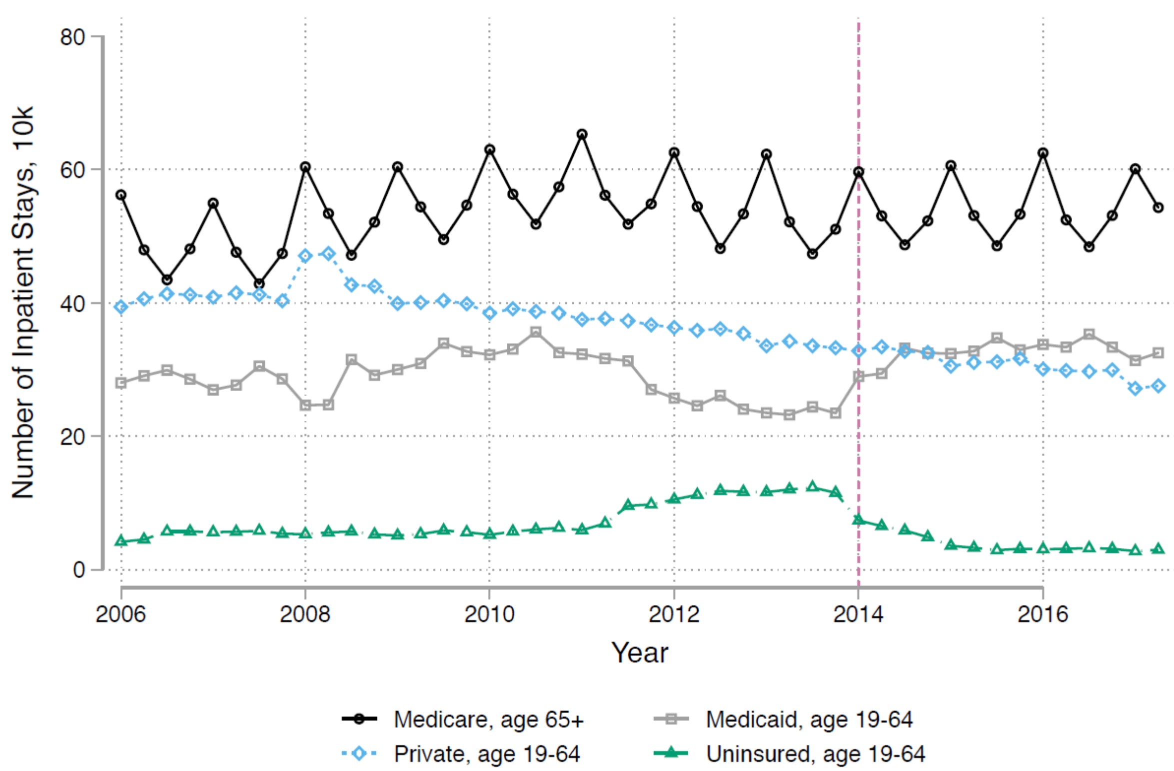
[20] In Vermont, childless adults up to 150% FPL were eligible for Medicaid equivalent coverage through the Vermont Health Access Plan waiver program (Heberlein et al., 2011). Vermont Health Access Plan (Sec. 1115 waiver) was approved in 1995 and effective in 1996.

[21] Washington's early expansion was limited to prior state plan enrollees (Sommers et al., 2013).

[22] Wisconsin received federal approval to offer Medicaid to childless adults below 100% FPL through the BadgerCare program as of 2009 (Gates & Rudowitz, 2014); it did not formally adopt ACA expansion in 2014 and kept the income threshold at 100% FPL.

Arizona Details for Table A-1

Arizona had a S.1931 program providing Medicaid up to 106% FPL for parents. It also had a limited program for childless adults, under a § 1115 waiver, starting in 2001, which was closed to new entrants since 2011.[23] Whether to treat Arizona as a full expansion state or an early expansion state turns on how many childless adults were still covered at the ACA onset in 2014, given churn in eligibility. The tail off in hospital admissions with Medicaid payment, and jump at the start of 2014 (with uninsured admissions showing the opposite pattern), persuades us that Arizona should be treated as a regular expansion state.



Source: Author reproduction of HCUP figure using HCUP Fast Stats at https://www.hcup-us.ahrq.gov/faststats/StatePayerServlet?state1=AZ.

[23] Source: https://www.kff.org/medicaid/fact-sheet/proposed-changes-to-medicaid-expansion-in-arizona/.

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Table A-2. Covariate Balance for Full-Expansion and Non-Expansion States

Table shows summary statistics for county-level covariates and mortality for Full-Expansion and Non-Expansion states during pre-expansion period (means over 2009-2013), using county population weights. *t*-statistics use two-sample *t*-test for difference and robust standard errors with state clusters. Normalized difference is a sample-size independent measure of the difference between two means, scaled by standard deviation): $ND_j = (\bar{x}_{jt} - \bar{x}_{jc}) / [(s_{jt}^2 + s_{jc}^2)/2]^{1/2}$. State groups are defined in Table A-1. Mortality rates are per 100,000 persons. Dollar amounts are in 2010 $.

	Full-Expansion States (1)	Non-Expansion States (2)	Difference t-stat (3)	Normalized Difference (4)
% age 0-19	23.36	24.35	1.11	-0.30
% age 18-34	22.74	23.42	1.40	-0.15
% age 35-44	12.94	13.11	0.71	-0.11
% age 45-54	14.53	13.98	2.32	0.40
% age 55-64	12.56	11.81	2.05	0.36
% age 65-74	7.56	7.48	0.16	0.04
% age 75-84	4.38	4.19	0.52	0.13
% age 85+	1.94	1.66	1.53	0.32
% Male	49.21	49.13	0.47	0.04
% White	82.91	77.43	2.19	0.36
% Black	11.42	18.16	2.61	-0.49
% Other Races	5.67	4.41	1.35	0.15
% Hispanic	11.44	16.33	0.87	-0.38
% In Poverty	14.67	16.89	2.75	-0.36
% Managed Care Penetration	24.55	22.99	0.42	0.15
% Disabled (ages 18-64)	16.31	17.57	1.29	-0.20
Mean Per Capita Income	40,208	37,537	1.72	0.31
Median Household Income	51,691	47,122	1.81	0.44
Unemployment Rate, 16+	8.84	8.28	1.12	0.20
% with Diabetes	8.85	9.72	2.45	-0.46
% Physically Inactive	22.89	24.70	1.85	-0.40
% Obese	27.95	29.11	1.16	-0.28
% Smoker	21.96	21.71	0.27	0.06
Physicians/1,000 people	3.10	2.65	2.88	0.27
% Uninsured (ages 18-64)	18.68	24.96	3.36	-1.09
Amenable Mortality (all ages)	510.52	481.21	0.90	0.18
Amenable Mortality (ages 55-64)	575.22	623.78	1.86	-0.24
Non-amenable Mortality (all ages)	345.28	341.33	0.20	0.04
Non-amenable Mortality (ages 55-64)	278.85	309.76	2.50	-0.30

Table A-3: DD and Triple-Difference Estimates: Different Demographic Groups (ages 55-64)

First column shows annual averages over 2009-2016 for number of deaths and population in millions. Of the full sample (28.8M people), 14.5M were in expansion states. Second column shows mortality rate for persons aged 55-64 for indicated groups. Third column shows first-stage DD estimates of change in uninsurance rates (in percent) from 2013 to 2016 for indicated demographic subsamples, for persons aged 50-64, from regression of percent uninsurance on Full Expansion dummy, with state and year FE and state population weights, using state-level SAHIE data (best available), and same covariates as the DD and triple difference regressions. Remaining columns show coefficients from DD or triple difference regressions on Full-Expansion dummy or, for triple difference column, full-expansion dummy * age 55-64 dummy, from county-level regressions with county-and year FE and population weights, similar to Table 2, for *ln*((amenable mortality/100,000 persons)+1) over 2009-2015. Standard errors use state clusters. *.**, *** indicates statistical significance at the 10%, 5%, and 1% levels, respectively; significant results at 5% level or better in **boldface**.

Demographic Subsamples	Ann. Deaths (Pop. in M) (1)	Mortality rate (2)	First stage (%) 50-64 yrs (3)	DiD 55-64 yrs (4)	DiD 65-74 yrs (5)	Triple diff. (6)
All Amenable	174,379	605.3	**1.113****	**-0.018****	-0.008	-0.004
	(28.8)		**(0.452)**	**(0.008)**	(0.006)	(0.008)
Male	105,465	759.8	0.692	-0.018*	-0.004	-0.004
	(13.9)		(0.747)	(0.010)	(0.008)	(0.010)
Female	68,914	461.7	0.936	**-0.020****	-0.016*	0.004
	(14.9)		(0.705)	**(0.009)**	(0.009)	(0.012)
White (Not Hispanic)	129,542	589.8	**1.130****	-0.015*	-0.011*	-0.003
	(22.0)		**(0.490)**	(0.008)	(0.007)	(0.009)
Black (Not Hispanic)	32,217	917.0	0.994	-0.031*	0.020	**-0.055*****
	(3.5)		(0.852)	(0.016)	(0.015)	**(0.017)**
Other	3,619	321.6	-	-0.050	-0.039	-0.035
	(1.1)		-	(0.060)	(0.052)	(0.078)
Hispanic	9,086	398.2	1.484	**-0.161*****	-0.092	-0.055*
	(2.3)		(1.228)	**(0.057)**	(0.057)	(0.029)
Not Hispanic	165,293	623.1	-	**-0.018****	-0.008	-0.005
	(26.5)		-	**(0.008)**	(0.006)	(0.007)
Pop. Weights			Yes	Yes	Yes	Yes
Covariates			Yes	Yes	Yes	Yes

Table A-4: DD and Triple-Difference Estimates: by Educational Attainment (ages 45-64)

First column shows annual averages over 2009-2016 for number of deaths and population in millions. Second column shows mortality rate for persons aged 55-64 for indicated groups. Third column shows first-stage DD estimates of change in uninsurance rates (in percent) from 2013 to 2016 for indicated education-levels, for persons aged 45-64, from regression of percent uninsurance on Full Expansion dummy, with state and year FE and state population weights. Remaining columns show coefficients from DD or triple difference regressions on Full-Expansion dummy or, for triple difference column, full-expansion dummy * age 45-64 dummy, from county-level regressions with county and year FE and population weights, similar to Table 2, for *ln*((amenable mortality/100,000 persons)+1) among persons with indicated education levels, over 2009-2015. Standard errors use state clusters. *.**, *** indicates statistical significance at the 10%, 5%, and 1% levels, respectively; significant results at 5% level or better in **boldface**.

Education Subsample	Ann. Deaths (Pop. in M) (1)	Mortality Rate (2)	First stage (%) 45-64 yrs (3)	DiD 45-64 yrs (4)	DiD 65+ yrs (5)	Triple diff. (6)
All Amenable	252,285	422.1	1.048	-0.012	**-0.020*** **	0.014
	(59.77)		(0.738)	(0.008)	**(0.006)**	(0.009)
Elementary School	14,776	565.4	3.747	0.047	0.014	0.066
	(2.61)		(2.530)	(0.046)	(0.058)	(0.048)
High School Incomplete	33,698	768.6	**3.912*** **	-0.009	-0.003	-0.011
	(4.38)		**(1.449)**	(0.061)	(0.064)	(0.036)
High School Complete	110,019	607.2	1.533	-0.021	-0.032	0.010
	(18.12)		(0.939)	(0.040)	(0.037)	(0.014)
Some College	86,793	250.5	0.468	-0.015	-0.026	0.013
	(34.65)		(0.572)	(0.035)	(0.031)	(0.011)
Population Weights			Yes	Yes	Yes	Yes
Covariates			Yes	Yes	Yes	Yes

Table A-5: DD and Triple-Difference Estimates: by Cause of Death (age 55-64)

First column shows annual averages over 2009-2016 for number of deaths and population in millions. Second column shows mortality rate for persons aged 55-64 for indicated groups. Remaining columns show coefficients from DD or triple difference regressions on Full-Expansion dummy or, for triple difference column, full-expansion dummy * age 45-64 dummy, from county-level regressions with county and year FE and population weights, similar to Table 2, for *ln*((amenable mortality/100,000 persons)+1) among persons with indicated primary cause of death, over 2009-2016. Standard errors use state clusters. *.**, *** indicates statistical significance at the 10%, 5%, and 1% levels, respectively; significant results at 5% level or better in **boldface**.

By Cause of Death	**deaths (pop. In M)** (1)	**DiD 55-64 yrs** (2)	**DiD 65-74 yrs** (3)	**Triple diff.** (4)
All Amenable	174,379	**-0.018****	-0.008	-0.004
	(28.81)	**(0.008)**	(0.006)	(0.008)
Cancer	87,170	-0.003	0.003	-0.004
	(28.81)	(0.006)	(0.006)	(0.009)
Diabetes	14,394	-0.024	0.001	-0.007
	(28.81)	(0.019)	(0.025)	(0.020)
Cardiovascular	70,677	-0.010	-0.009	0.006
	(28.81)	(0.010)	(0.010)	(0.010)
Respiratory	16,442	-0.030	-0.017	-0.010
	(28.81)	(0.020)	(0.013)	(0.023)
HIV	1,282	-0.058	0.005	-0.051
	(28.81)	(0.037)	(0.038)	(0.060)
Pop. Weights		Yes	Yes	Yes
Covariates		Yes	Yes	Yes

Table A-6: Triple Difference Estimates: Separating Counties by Baseline Health Uninsurance or Poverty Levels (age 55-64)

First column shows annual averages over 2009-2016 for number of deaths and population aged 55-64 in millions, for sample of high-versus low- uninsurance counties. Second and fourth columns column shows full-sample and by gender first stages; we lack the data to compute first stages for the other subsamples. Remaining columns show coefficients from triple difference, county-level regressions with county and year FE and population weights, similar to Table 2, over 2009-2016, for amenable mortality for full sample and indicated subsamples. Third difference in column (3) is between the counties with the highest uninsurance rate in 2013, containing 20% of the U.S. population, and the counties with the lowest uninsurance rate in 2013, containing 20% of the U.S. population. Third difference in column (5) is similar but is between the counties with lowest versus highest poverty rates in 2013. Standard errors use state clusters. *.**, *** indicates statistical significance at the 10%, 5%, and 1% levels, respectively; significant results at 5% level or better in **boldface**.

Sample	Deaths (pop. in M) (1)	First Stage (%) 50-64 yrs (2)	Triple diff. Uninsurance (3)	First Stage (%) 50-64 yrs (4)	Triple diff. Poverty (5)
All	66,329	1.221	0.003	0.720	0.000
	(11.9)	(0.653)	(0.020)	(0.789)	(0.013)
Male	40,750	0.593	-0.020	0.408	-0.024
	(5.8)	(0.657)	(0.028)	(0.721)	(0.018)
Female	26,103	**1.829*** **	0.050*	0.912	**0.037*** **
	(6.1)	**(0.679)**	(0.028)	(0.791)	**(0.014)**
White (Not Hispanic)	51,198		-0.017		-0.015
	(9.1)		(0.018)		(0.010)
Black (Not Hispanic)	11,970		-0.001		-0.073*
	(1.4)		(0.059)		(0.040)
Other	1,496		-0.083		-0.005
	(0.4)		(0.137)		(0.107)
Hispanic	3,421		0.279		0.082
	(0.9)		(0.267)		(0.103)
Not Hispanic	60,879		0.003		-0.005
	(10.4)		(0.021)		(0.015)
Pop. Weights		Yes	Yes	Yes	Yes
Covariates		Yes	Yes	Yes	Yes

Table A-7. Estimated Effect of Medicaid Expansion on Amenable Mortality: Different Specifications

Table 2 in the text shows DD and triple-difference estimates for county-level regressions, with county and year FE and population weights, of ln[(amenable mortality/100,000 persons)+1] over 2009-2016 on full-expansion dummy (=1 for Full-Expansion States in expansion years; 0 otherwise), and covariates. Third difference is ages 55-64 versus ages 65-74. This table provides results for principal coefficients of interest, from regressions in which we vary this specification as follows: Panel A reproduces our results from text Table 2; Panel B uses ATT*population weights instead of only population weights; Panel C adds linear state trends; Panel D reports results from regressions at state- instead of county-level (with population weights); and Panel E reports results from state-level regressions without weights. Standard errors use state clusters. *, **, *** indicates statistical significance at the 10%, 5%, and 1% levels, respectively; significant results at 5% level or better in **boldface**.

	DiD 55-64 years		Triple diff.	
	(1)	(2)	(3)	(4)
Panel A. Main Specification (from text Table 2)				
Full Expansion Dummy	-0.018* (0.010)	**-0.018**** **(0.008)**		
Full Expansion Dummy x Age 55-64 Dummy			-0.002 (0.009)	-0.004 (0.008)
Panel B. With ATT x Population Weights				
Full Expansion Dummy	-0.014 (0.013)	-0.015* (0.009)		
Full Expansion Dummy x Age 55-64 Dummy			-0.014 (0.009)	-0.013 (0.012)
Panel C. With Linear State Trends				
Full Expansion Dummy	-0.006 (0.008)	-0.009 (0.008)		
Full Expansion Dummy x Age 55-64 Dummy			-0.001 (0.009)	-0.003 (0.008)
Panel D. State-Level (with Pop Weights)				
Full Expansion Dummy	**-0.020**** **(0.009)**	-0.011* (0.007)		
Full Expansion Dummy x Age 55-64 Dummy			-0.006 (0.008)	-0.009 (0.010)
Panel E. State-Level (No Weights) Specification				
Full Expansion Dummy	**-0.018**** **(0.009)**	-0.009 (0.009)		
Full Expansion Dummy x Age 55-64 Dummy			-0.009 (0.010)	-0.015 (0.011)
Covariates	No	Yes	No	Yes

Table A-8: Triple-Difference Estimates by Demographic Group: Different Specifications

Table 3 in the text shows DD and triple-difference estimates for different demographic groups, from county-level regressions, with county and year FE and population weights, of ln[(amenable mortality/100,000 persons)+1] over 2009-2016 on full-expansion dummy (=1 for Full-Expansion States in expansion years; 0 otherwise), and covariates. Third difference is ages 55-64 versus ages 65-74. This table provides triple difference results for principal coefficients of interest, from regressions in which we vary this specification as follows: using ATT*population weights; adding linear state trends; and running regressions at state- instead of county-level, with and without population weights. Standard errors use state clusters. *, **, *** indicates statistical significance at the 10%, 5%, and 1% levels, respectively; significant results at 5% level or better in **boldface**.

	Triple Difference Results				
Subsamples	**Main Specification (1)**	**ATT x Pop weights (2)**	**with Linear State Trends (3)**	**State-Level w. pop. weights (4)**	**State-Level unweighted (5)**
All Amenable	-0.004	-0.013	-0.003	-0.009	-0.015
	(0.008)	(0.012)	(0.008)	(0.010)	(0.011)
Male	-0.004	-0.003	-0.003	-0.015	**-0.034****
	(0.010)	(0.022)	(0.010)	(0.012)	**(0.014)**
Female	0.004	-0.022	0.005	0.006	-0.003
	(0.012)	(0.015)	(0.011)	(0.013)	(0.014)
White (Not Hispanic)	-0.003	-0.010	-0.002	-0.015	-0.002
	(0.009)	(0.010)	(0.009)	(0.011)	(0.011)
Black (Not Hispanic)	**-0.055*****	**-0.345****	**-0.055*****	**-0.040*****	0.010
	(0.017)	**(0.172)**	**(0.017)**	**(0.014)**	(0.124)
Other	-0.035	0.168	-0.036	-0.056	-0.038
	(0.078)	(0.269)	(0.078)	(0.036)	(0.059)
Hispanic	-0.055*	-0.153	-0.050*	-0.016	0.054
	(0.029)	(0.153)	(0.027)	(0.023)	(0.156)
Not Hispanic	-0.005	-0.013	-0.004	-0.010	-0.012
	(0.007)	(0.012)	(0.007)	(0.008)	(0.011)
Weights	Pop	ATT x Pop	Pop	Pop	No
Covariates	Yes	Yes	Yes	Yes	Yes

Table A-9: Triple-Difference Estimates by Educational Attainment (ages 45-64) - Different Specifications

Table 4 in the text shows DD and triple-difference estimates for groups with different education levels, from county-level regressions, with county and year FE and population weights, of ln[(amenable mortality/100,000 persons)+1] over 2009-2016 on full-expansion dummy (=1 for Full-Expansion States in expansion years; 0 otherwise), and covariates. Third difference is ages 55-64 versus ages 65-74. This table provides triple difference results for principal coefficients of interest, from regressions in which we vary this specification as follows: using ATT*population weights; adding linear state trends; and running regressions at state- instead of county-level, with and without population weights. Standard errors use state clusters. *, **, *** indicates statistical significance at the 10%, 5%, and 1% levels, respectively; significant results at 5% level or better in **boldface**.

	Triple Difference Results				
Education Subsamples	**Main Specification (1)**	**ATT x Pop weights (2)**	**with Linear State Trends (3)**	**State-Level w. pop. weights (4)**	**State-Level unweighted (5)**
All Amenable	0.014	-0.001	0.014	0.007	0.007
	(0.009)	(0.011)	(0.009)	(0.009)	(0.010)
Elementary School	0.066	0.129*	0.045	0.045	0.062
	(0.048)	(0.068)	(0.046)	(0.031)	(0.040)
High School Incomplete	-0.011	-0.015	0.004	-0.023	-0.039
	(0.036)	(0.031)	(0.036)	(0.031)	(0.035)
High School Complete	0.010	-0.001	0.023	0.005	-0.017
	(0.014)	(0.021)	(0.019)	(0.013)	(0.023)
Some College	0.013	0.011	0.031*	0.011	0.005
	(0.011)	(0.018)	(0.017)	(0.013)	(0.023)
Weights	Pop	ATT x Pop	Pop	Pop	No
Covariates	Yes	Yes	Yes	Yes	Yes

Table A-10: Triple-Difference Estimates by Cause of Death (ages 55-64): Different Specifications

Table 5 in the text shows DD and triple-difference estimates for different causes of death, from county-level regressions, with county and year FE and population weights, of ln[(amenable mortality/100,000 persons)+1] over 2009-2016 on full-expansion dummy (=1 for Full-Expansion States in expansion years; 0 otherwise), and covariates. Third difference is ages 55-64 versus ages 65-74. This table provides triple difference results for principal coefficients of interest, from regressions in which we vary this specification as follows: using ATT*population weights; adding linear state trends; and running regressions at state- instead of county-level, with and without population weights. Standard errors use state clusters. *, **, *** indicates statistical significance at the 10%, 5%, and 1% levels, respectively; significant results at 5% level or better in **boldface**.

	Triple Difference Results				
Cause of Death	**Main Specification (1)**	**ATT x Pop weights (2)**	**with Linear State Trends (3)**	**State-Level w. pop. weights (4)**	**State-Level unweighted (5)**
Amenable	-0.004	-0.013	-0.003	-0.009	-0.015
	(0.008)	(0.012)	(0.008)	(0.010)	(0.011)
Non-Amenable	-0.006	-0.008	-0.006	-0.006	-0.005
	(0.012)	(0.017)	(0.012)	(0.012)	(0.012)
Cancer	-0.004	-0.017	-0.004	-0.006	-0.001
	(0.009)	(0.011)	(0.008)	(0.010)	(0.011)
Diabetes	-0.007	-0.034	-0.005	-0.016	0.018
	(0.020)	(0.025)	(0.020)	(0.016)	(0.030)
Cardiovascular	0.006	-0.005	0.007	-0.002	-0.022
	(0.010)	(0.016)	(0.010)	(0.011)	(0.016)
Respiratory	-0.010	0.003	-0.009	-0.013	-0.023
	(0.023)	(0.035)	(0.022)	(0.016)	(0.026)
HIV	-0.051	-0.022	-0.051	-0.030	0.112
	(0.060)	(0.078)	(0.060)	(0.058)	(0.112)
Weights	Pop	Att x Pop	Pop	Pop	No
Covariates	Yes	Yes	Yes	Yes	Yes

Table A-11: Triple Difference Estimates: Counties with high-vs-low Baseline Health Uninsurance and Poverty Levels: Different Specifications

Table 6 in the text shows DD and triple-difference estimates for high-vs-low pre-ACA uninsurance and high-vs-low poverty counties, from county-level regressions, with county and year FE and population weights, of ln[(amenable mortality/100,000 persons)+1] over 2009-2016 on full-expansion dummy (=1 for Full-Expansion States in expansion years; 0 otherwise), and covariates. Third difference is ages 55-64 versus ages 65-74. This table provides triple difference results for principal coefficients of interest, from regressions in which we vary this specification as follows: using ATT*population weights; and comparing all non-elderly adults (ages 18-64) to all elderly (age 65+). Standard errors use state clusters. *, **, *** indicates statistical significance at the 10%, 5%, and 1% levels, respectively; significant results at 5% level or better in **boldface**.

	Triple Difference Results					
	Main Specification		ATT x Pop Weights		Age 18-64 vs. 65+	
Subsamples	**Unins.**	**Poverty**	**Unins.**	**Poverty**	**Unins.**	**Poverty**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
All Amenable	0.003	0.000	-0.023	-0.018	0.004	0.012
	(0.020)	(0.013)	(0.025)	(0.016)	(0.014)	(0.012)
Male	-0.020	-0.024	-0.045	**-0.046****	-0.025	-0.004
	(0.028)	(0.018)	(0.038)	**(0.020)**	(0.017)	(0.016)
Female	0.050*	**0.037*****	0.024	0.025	**0.054*****	**0.034****
	(0.028)	**(0.014)**	(0.036)	(0.039)	**(0.020)**	**(0.013)**
White (Not Hispanic)	-0.017	-0.015	**-0.053****	**-0.030*****	-0.027*	0.002
	(0.018)	(0.010)	**(0.024)**	**(0.010)**	(0.014)	(0.011)
Black (Not Hispanic)	-0.001	-0.073*	0.393	-0.303	-0.004	**-0.083*****
	(0.059)	(0.040)	(0.365)	(0.385)	(0.038)	**(0.032)**
Other	-0.083	-0.005	-0.354	-0.614	-0.057	0.060
	(0.137)	(0.107)	(0.411)	(0.512)	(0.079)	(0.074)
Hispanic	0.279	0.082	0.369	-0.004	0.056	-0.002
	(0.267)	(0.103)	(0.286)	(0.175)	(0.068)	(0.044)
Not Hispanic	0.003	-0.005	-0.028	-0.019	0.005	0.010
	(0.021)	(0.015)	(0.030)	(0.017)	(0.018)	(0.013)
Weights	Pop	Pop	Att x Pop	Att x Pop	Pop	Pop
Covariates	Yes	Yes	Yes	Yes	Yes	Yes

Table A-12: Synthetic Control Method: Weights on Donor States

Table shows the weights assigned to the Non-Expansion States (donor states)by the regular synthetic control method, used in text Figure 3.

Non-Expansion States	Synthetic Control Weights
Alabama	0
Florida	0.123
Georgia	0
Idaho	0
Kansas	0
Louisiana	0
Maine	0.038
Mississippi	0
Missouri	0.411
Nebraska	0
North Carolina	0
Oklahoma	0
South Carolina	0
South Dakota	0
Tennessee	0
Texas	0.023
Utah	0.041
Virginia	0.272
Wyoming	0.091

Figure A-1. Time Trends in Amenable Mortality for Persons Aged 18-64

Figure shows amenable mortality rate for persons age 18-64 for Full-Expansion, Substantial Expansion, Mild Expansion, and Non-Expansion States, over 1999-2016, using county population weights. State groups are defined in Table 1. Dashed vertical line separate pre-expansion from expansion period.

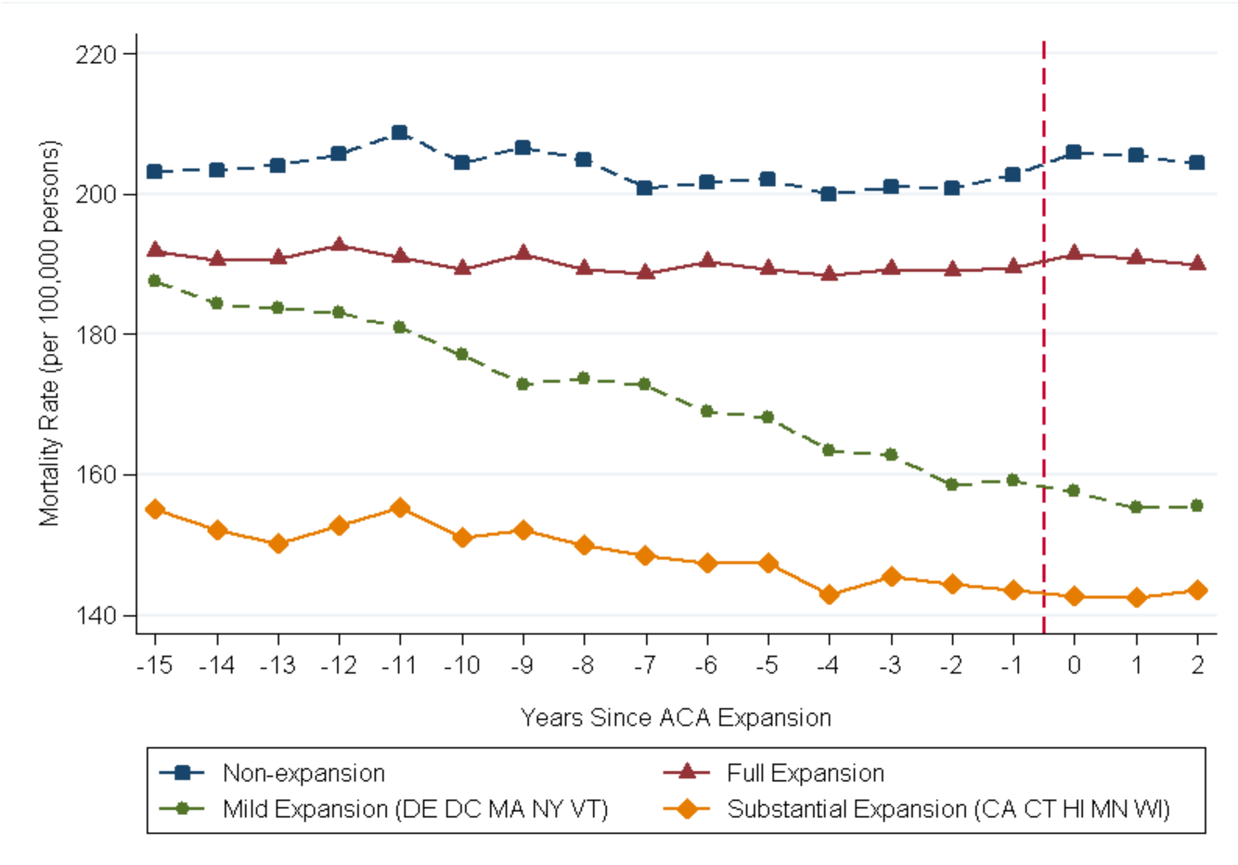


Figure A-2. Synthetic Control Results for Near-Elderly Amenable Mortality

Synthetic control results for *ln*((amenable mortality/100,000 persons)+1) for Full-Expansion States (treated as a single treated unit) versus synthetic control drawn from Non-Expansion States, over 1999-2016. Covariates for constructing donor pool are same as in Figure 2, plus uninsurance rate in 2013. The y-axis shows *ln*((amenable mortality/100,000 persons)+1) for Full-Expansion States, combined into single treated unit (using population weights), and their synthetic control. Vertical dotted line separates pre-expansion from expansion period.

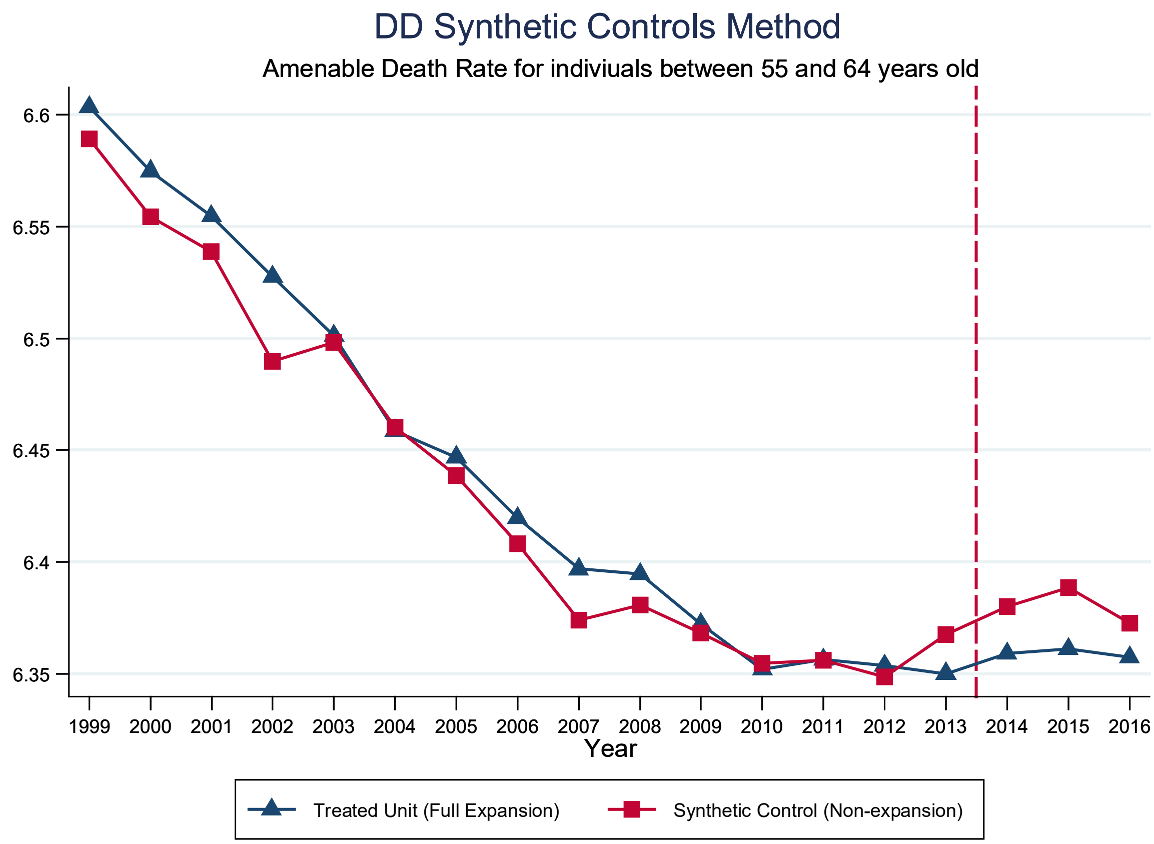


Figure A-3. Generalized Synthetic Control Method (gsynth)

Synthetic control results, using Xu's (2017) generalized synthetic control (gsynth) method, for *ln*(amenable mortality/100,000 + 1) for Full-Expansion States versus synthetic control for each state over 1999-2015. The donor pool consists of every non-expansion state's 55 to 64 year-old death rate as well as every state's untreated 65 to 74 year old population. This design is intended to crudely approximate triple-difference results. States are equally weighted. Covariates for constructing synthetic control are same as in the specifications with covariates in Table 2 of the text. The y-axis shows coefficient on Full-Expansion dummy. Vertical bars around point estimates show 95% CIs. Dashed vertical line separates pre-expansion from expansion period.

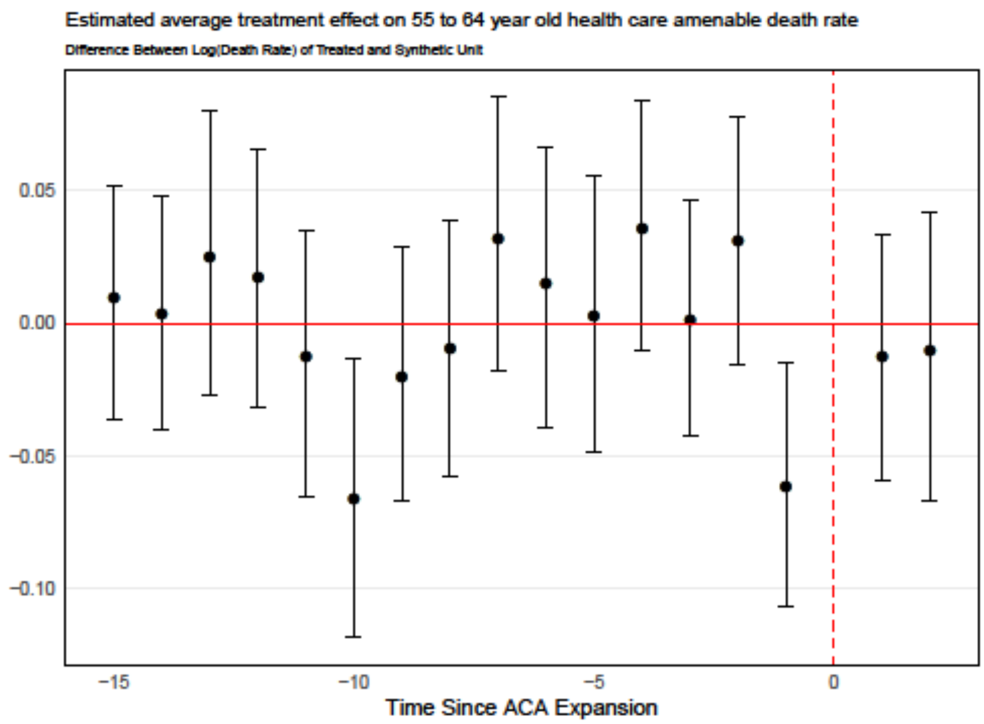
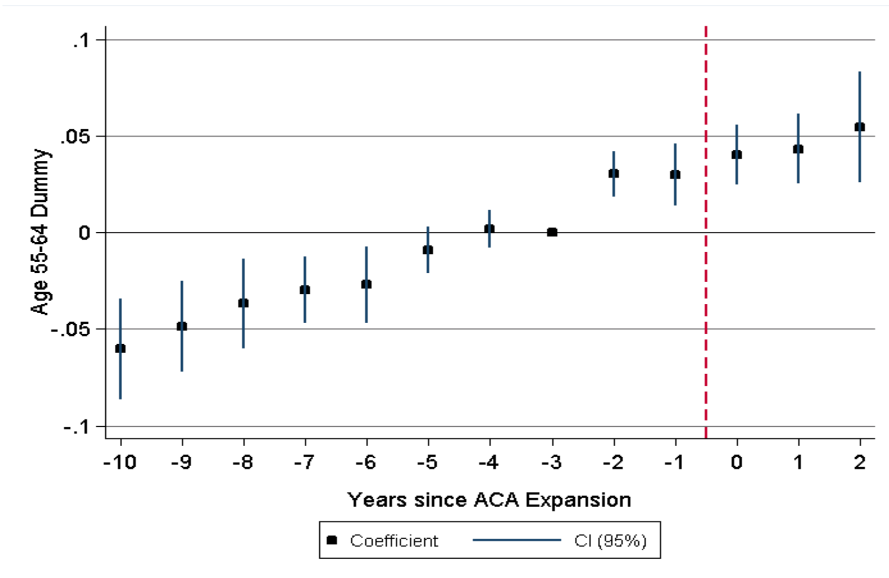


Figure A-4. Age Discontinuity Leads-and-Lags Results, Separately for Full-Expansion and No-Expansion States

Graphs from leads-and-lags regressions of *ln*((amenable mortality/100,000 persons)+1) for 55-64 versus 65-74 age groups in Full-Expansion (Panel A) and No-Expansion States (Panel B), over 2004-2016. Covariates are listed in paper. Regressions include county and year FE, and county-population weights. y-axis shows coefficients on lead and lag dummies; vertical bars show 95% confidence intervals (CIs) around coefficients, using standard errors clustered on state. Coefficient for year -3 is set to zero.

Panel B. Amenable Mortality in Full-Expansion-States



Panel B. Amenable Mortality in No Expansion-States

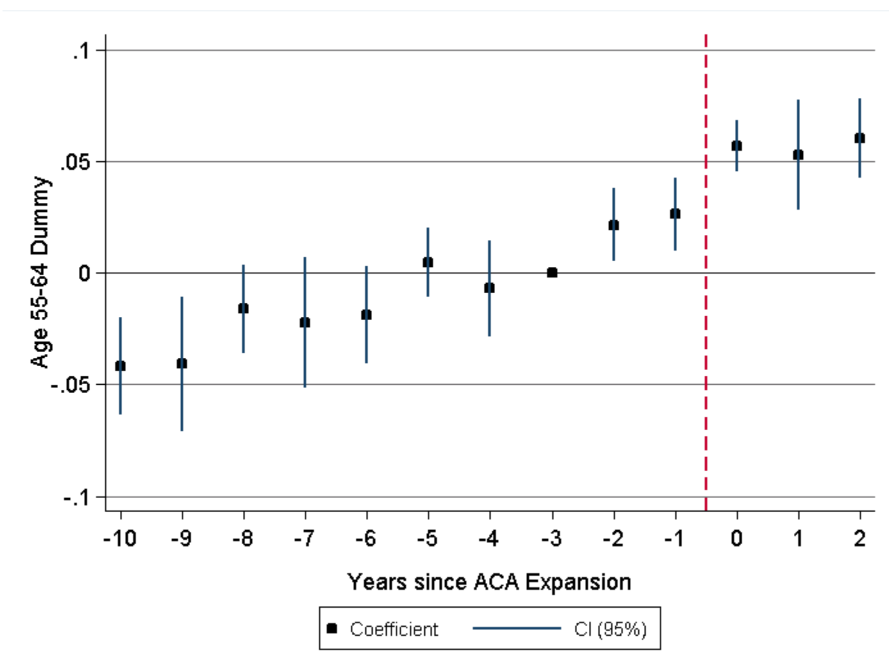


Figure A-5. Triple Difference Leads-and-Lags Graphs: Demographic Groups

Graphs from leads and lags regressions of triple differences for indicated subsamples, of *ln*((amenable mortality/100,000 persons)+1) for persons aged 55-74, in Full-Expansion States versus No-Expansion States, over 2004-2016; the third difference is age 55-64 versus age 65-74. Covariates are same as in Figure 2. Regressions include county and year FE, and county-population weights. y-axis shows coefficients on lead and lag dummies; vertical bars show 95% CIs around coefficients, using standard errors clustered on state. Coefficient for year -3 is set to zero.

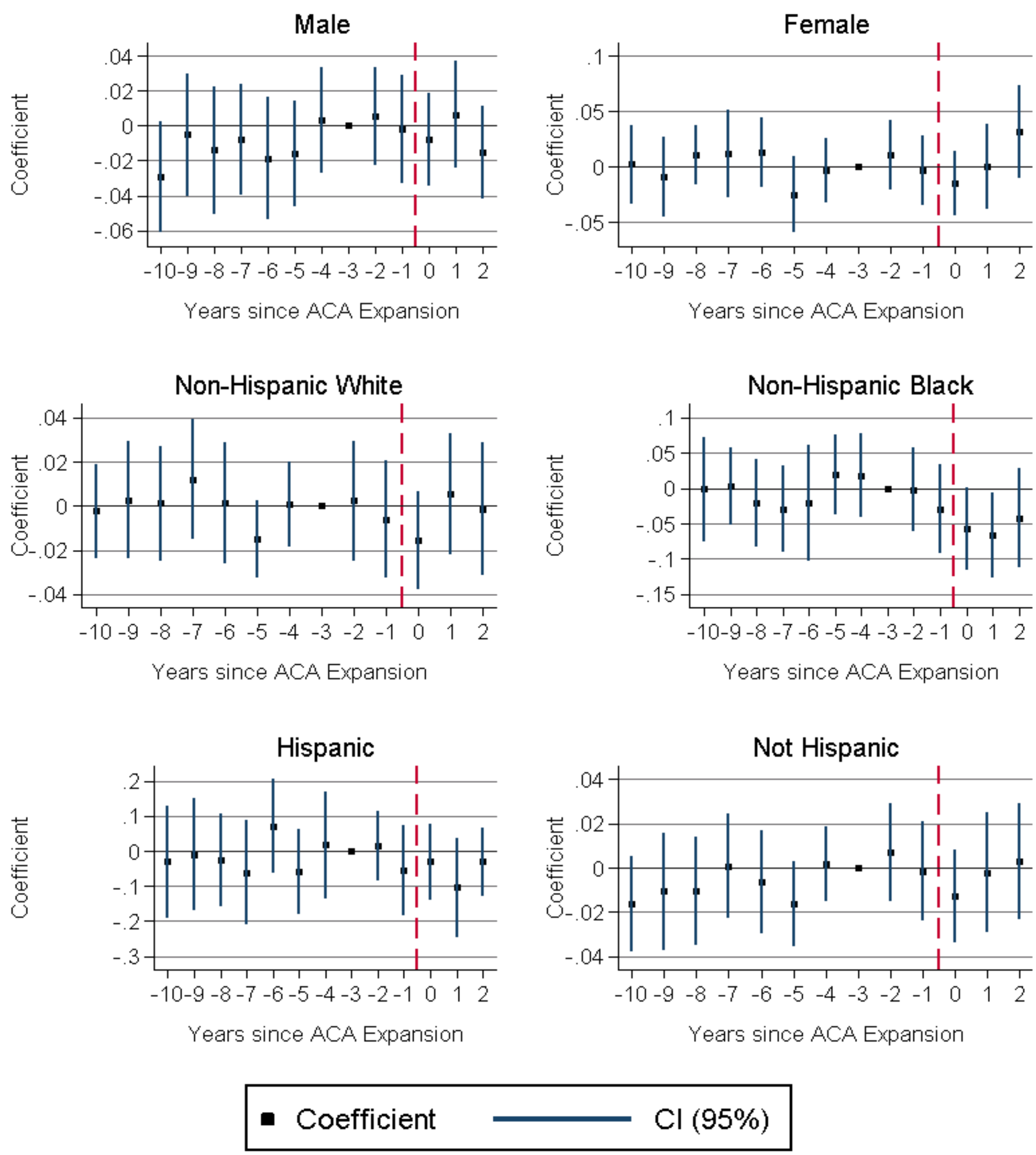


Figure A-6. Triple Difference Leads-and-Lags Graphs: By Education Level

Graphs show leads and lags regressions of triple differences for indicated subsamples, of *ln*((amenable mortality/100,000 persons)+1) for persons aged 45+, in Full-Expansion States versus No-Expansion States, over 2004-2016; the third difference is age 45-64 versus age 65+. Covariates are same as in Figure 2. Regressions include county and year FE, and county-population weights. y-axis shows coefficients on lead and lag dummies; vertical bars show 95% CIs around coefficients, using standard errors clustered on state. Coefficient for year -3 is set to zero.

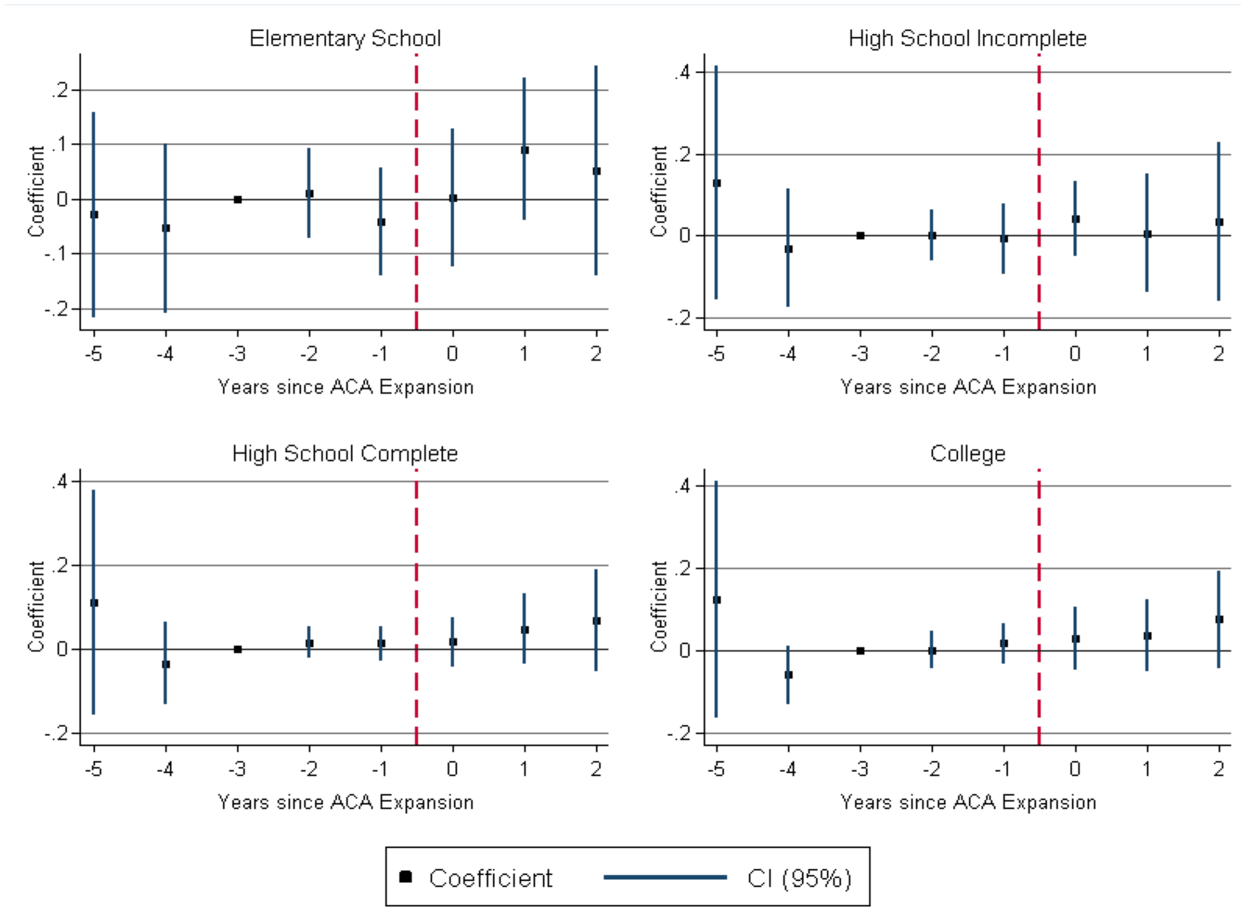


Figure A-7. Triple Difference Leads-and-Lags Graphs: By Causes of Death

Graphs show triple difference leads and lags regressions of *ln*[(mortality/100,000 persons)+1] among persons with indicated primary cause of death, aged 55-74, in Full-Expansion States versus No-Expansion States, over 2004-2016; the third difference is age 55-64 versus age 65-74. Covariates are listed in the paper. Regressions include county and year FE, and county population weights. Y-axis shows coefficients on leads and lags dummies; vertical bars show 95% CIs around coefficients, using standard errors clustered on state. Coefficient for year -3 is set to zero. Dashed vertical line separate pre-expansion from expansion period.

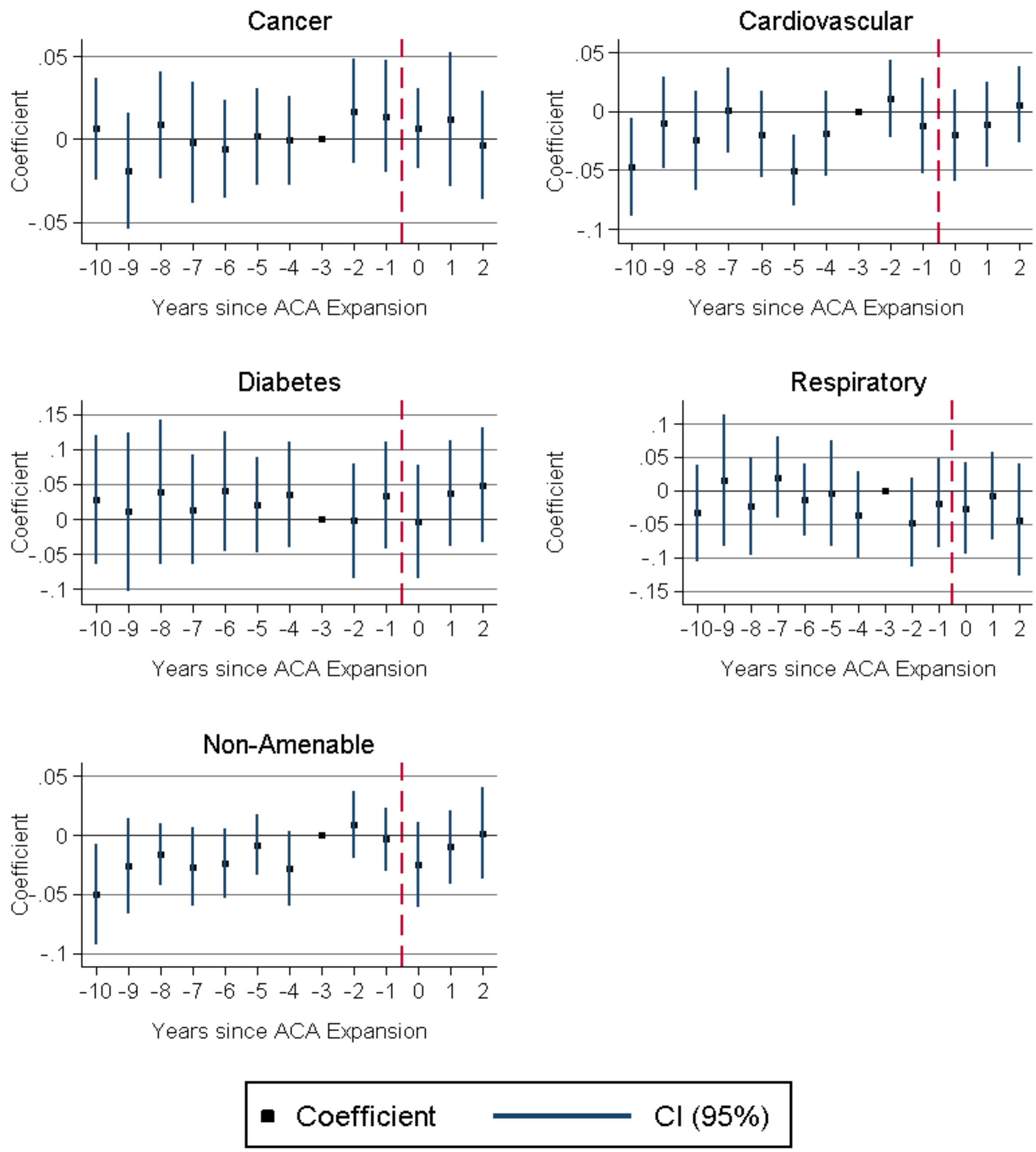
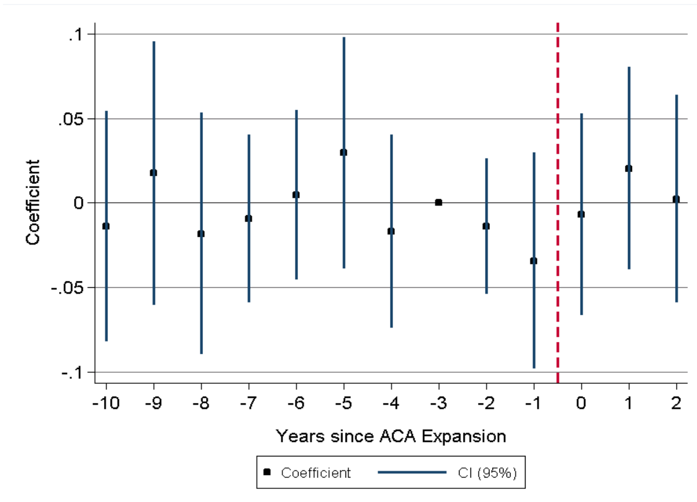


Figure A-8: Leads and Lags Graphs for High-vs-Low Uninsurance and Poverty

Graphs show leads and lags regressions of triple differences for high versus low uninsurance and high vs. low poverty counties, of *ln*((amenable mortality/100,000 persons)+1+ for persons aged 55-64, in Full-Expansion States versus No-Expansion States, over 2004-2016. High (low) uninsurance counties are those with highest (lowest) uninsurance rates in 2013 containing 20% of U.S. population, and similarly for high (low) poverty counties. Covariates are same as in Figure 2. Regressions include county and year FE, and county-population weights. y-axis shows coefficients on lead and lag dummies; vertical bars show 95% CIs around coefficients, using standard errors clustered on state. Coefficient for year -3 is set to zero.

Panel A. High-Uninsurance vs. Low-Uninsurance Counties



Panel B. High-Poverty vs. Low-Poverty Counties

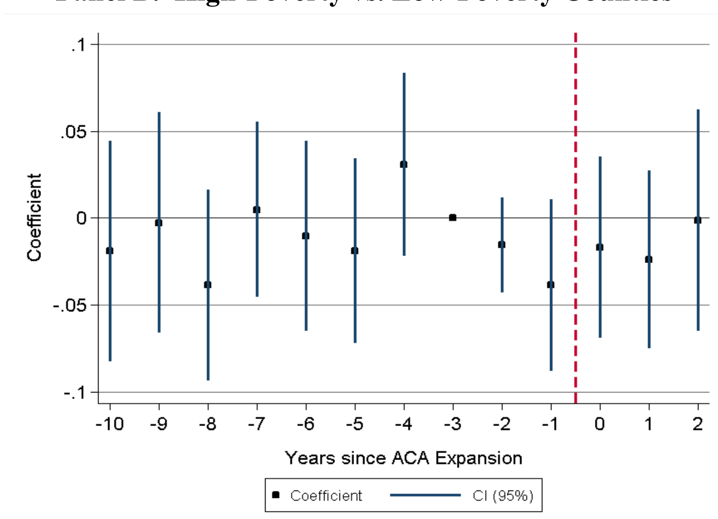
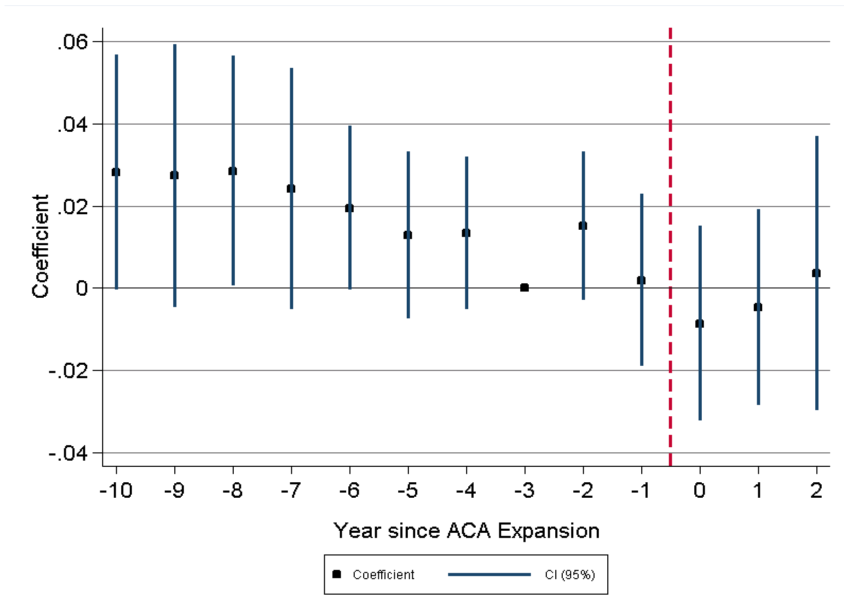


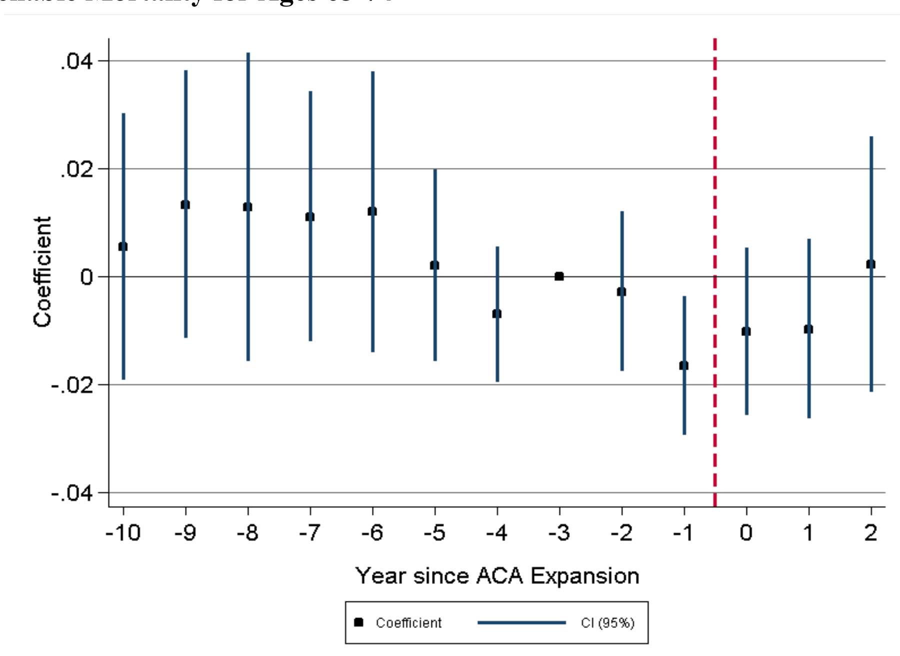
Figure A-9. DiD and Triple Difference Leads-and-Lags Results: Amenable Mortality, with ATT x Population Weights

Graphs from leads and lags regressions of *ln*[(amenable mortality/100,000 persons)+1] for Full-Expansion States versus control group of Non-Expansion States, over 2004-2016. Covariates are listed in paper. Regressions include county and year FE, and ATT x Population weights. Y-axis shows coefficients on lead and lag dummies; vertical bars show 95% confidence intervals (CIs) around coefficients, using standard errors clustered on state. Coefficient for year -3 is set to zero. Dashed vertical line separate pre-expansion from expansion period.

Panel A. Amenable Mortality for Ages 55-64



Panel B. Amenable Mortality for Ages 65-74



Panel C. Triple difference. Leads and lags graphs for amenable mortality for persons age 55-64 in Full-Expansion States, relative to (i) persons age 65-74 in Full-Expansion States, and (ii) persons age 55-64 in Non-Expansion States.

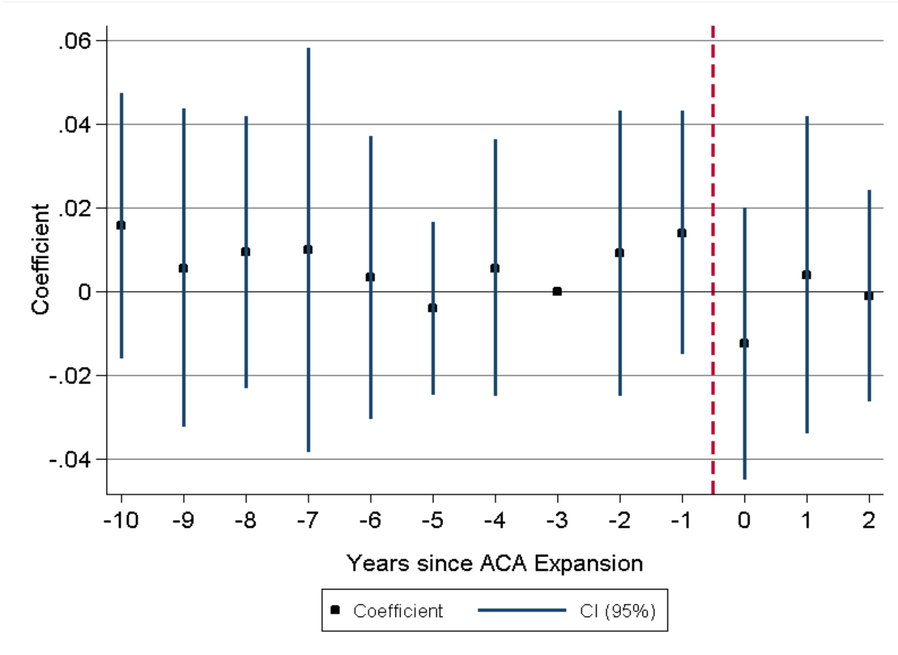
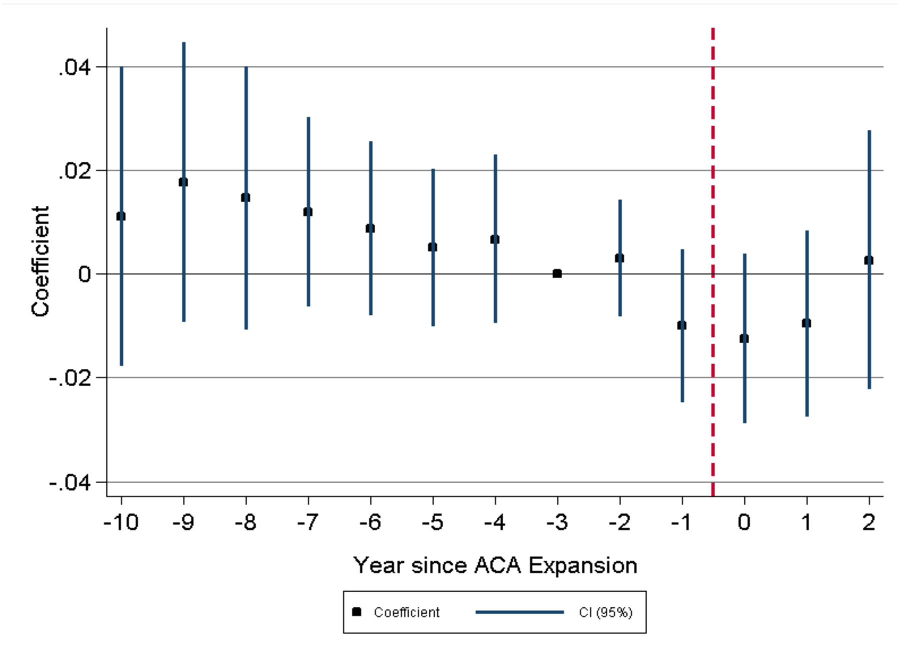


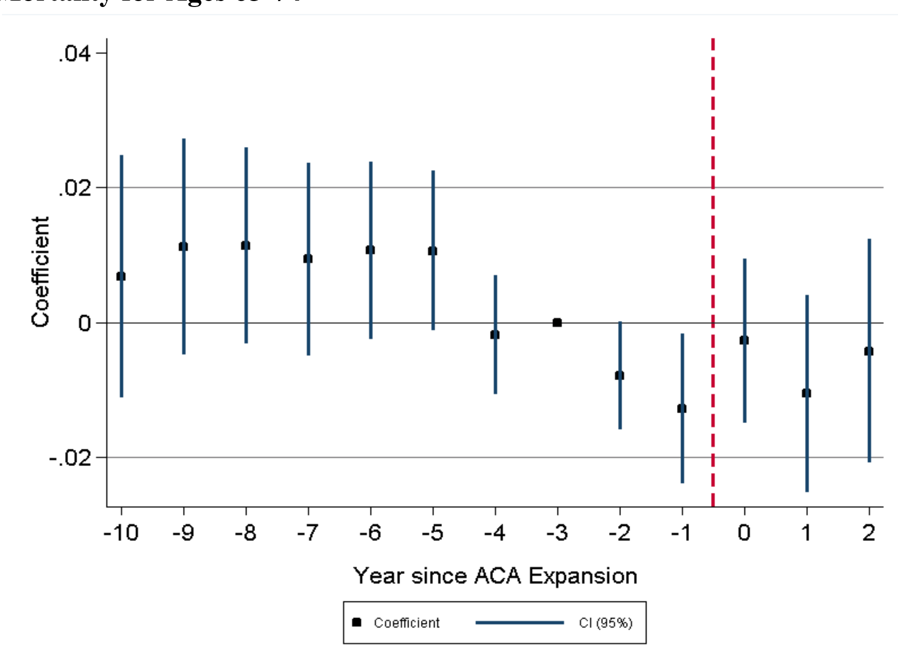
Figure A-10. DiD and Triple Difference Leads-and-Lags Results for Total Mortality

Graphs from leads and lags regressions of *ln*[(all mortality/100,000 persons)+1] for Full-Expansion States versus control group of Non-Expansion States, over 2004-2016. Covariates are listed in paper. Regressions include county and year FE, and county-population weights. Y-axis shows coefficients on lead and lag dummies; vertical bars show 95% confidence intervals (CIs) around coefficients, using standard errors clustered on state. Coefficient for year -3 is set to zero. Dashed vertical line separate pre-expansion from expansion period.

Panel A. All Mortality for Ages 55-64



Panel B. All Mortality for Ages 65-74



Panel C. Triple difference. Leads and lags graphs for all mortality for persons age 55-64 in Full-Expansion States, relative to (i) persons age 65-74 in Full-Expansion States, and (ii) persons age 55-64 in Non-Expansion States.

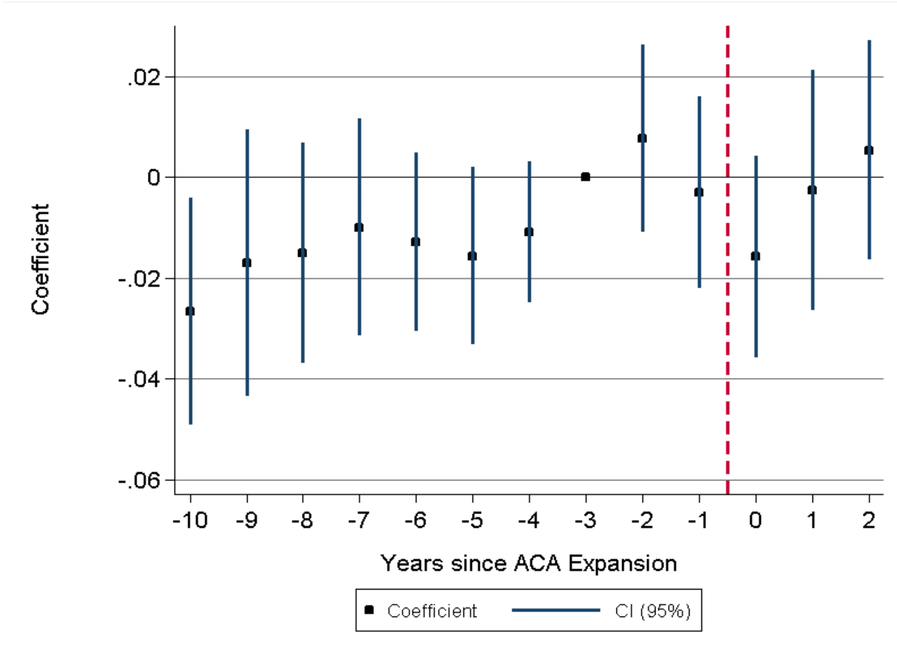
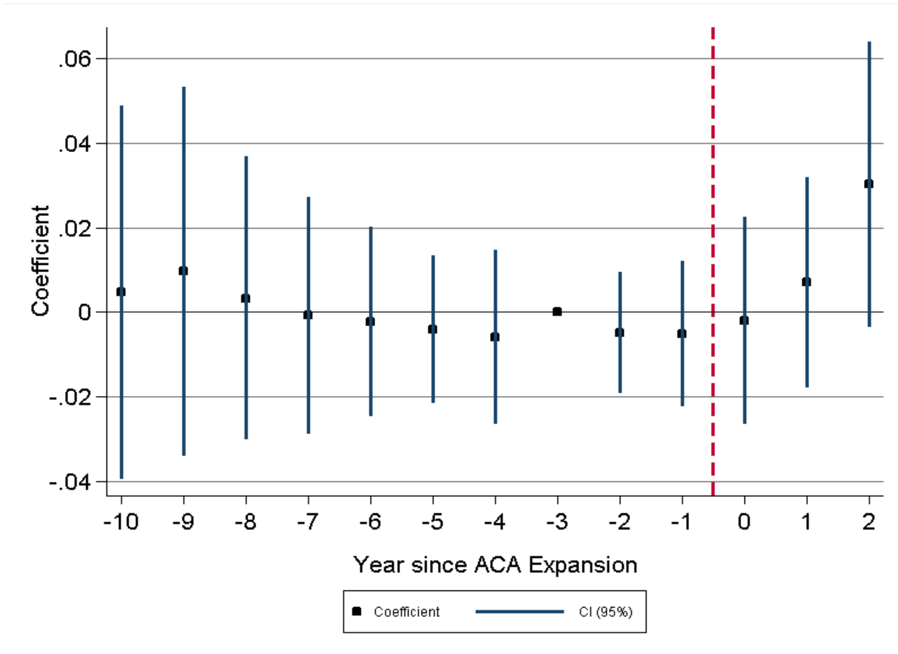


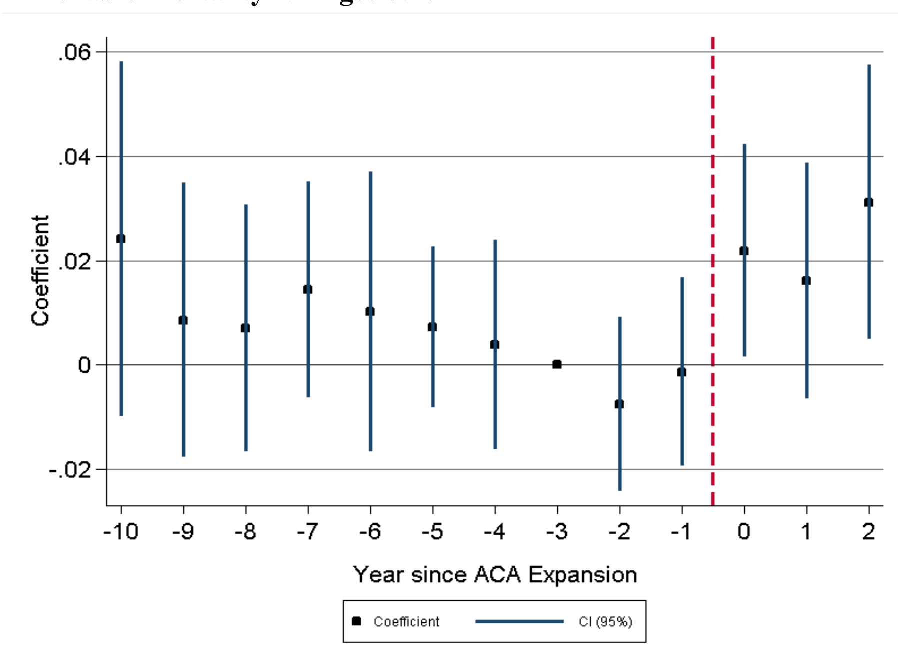
Figure A-11. DiD and Triple Difference Leads-and-Lags Results for Non-Amenable Mortality

Graphs from leads and lags regressions of *ln*[(non-amenable mortality/100,000 persons)+1] for Full-Expansion States versus control group of Non-Expansion States, over 2004-2016. Covariates are listed in paper. Regressions include county and year FE, and county-population weights. Y-axis shows coefficients on lead and lag dummies; vertical bars show 95% confidence intervals (CIs) around coefficients, using standard errors clustered on state. Coefficient for year -3 is set to zero. Dashed vertical line separate pre-expansion from expansion period.

Panel A. Non-Amenable Mortality for Ages 55-64



Panel B. Non-Amenable Mortality for Ages 65-74



Panel C. Triple difference. Leads and lags graphs for non-amenable mortality for persons age 55-64 in Full-Expansion States, relative to (i) persons age 65-74 in Full-Expansion States, and (ii) persons age 55-64 in Non-Expansion States.

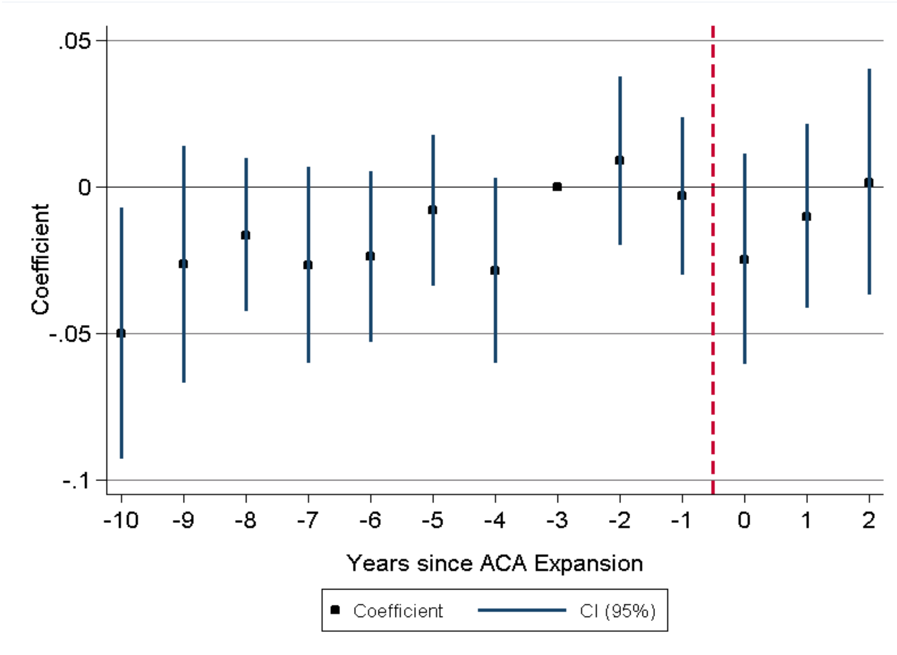


Figure A-12. Triple Difference Leads-and-Lags Graphs: Demographic Groups, with ATT x Population Weights

Graphs from leads and lags regressions of triple differences for indicated subsamples, of *ln*[(amenable mortality/100,000 persons)+1] for persons aged 55-74, in Full-Expansion States versus No-Expansion States, over 2004-2016; the third difference is age 55-64 versus age 65-74. Covariates are listed in the paper. Regressions include county and year FE, and Att x Pop weights. Y-axis shows coefficients on lead and lag dummies; vertical bars show 95% CIs around coefficients, using standard errors clustered on state. Coefficient for year -3 is set to zero. Dashed vertical line separate pre-expansion from expansion period.

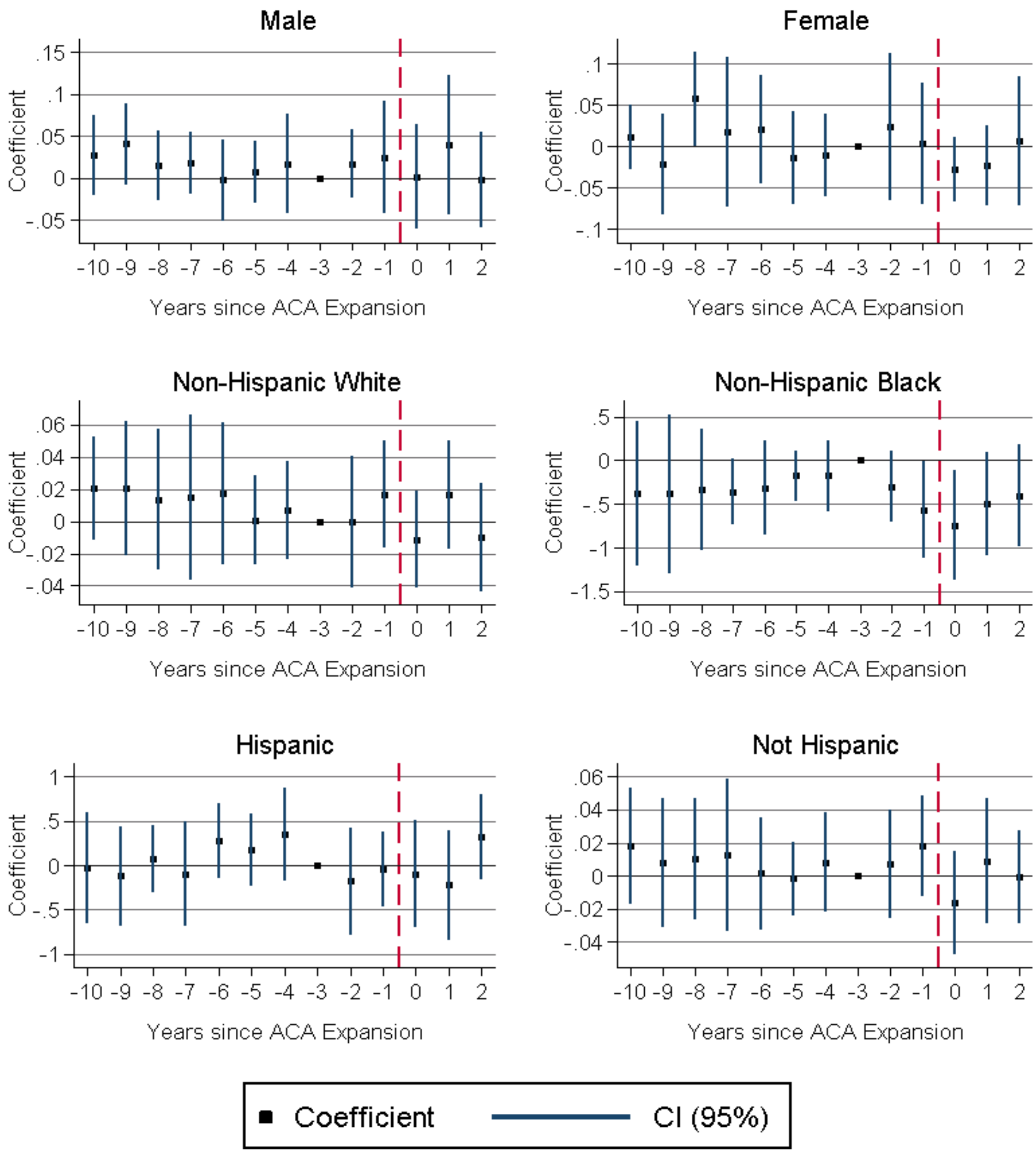


Figure A-13. Triple Difference Leads-and-Lags Graphs: By Education Level, with ATT x Population Weights

Graphs show leads and lags regressions of triple differences for indicated subsamples, of *ln*[(amenable mortality/100,000 persons)+1] for persons aged 45+, in Full-Expansion States versus No-Expansion States, over 2004-2016; the third difference is age 45-64 versus age 65+. Covariates are listed in the paper. Regressions include county and year FE, and ATT x Population weights. y-axis shows coefficients on lead and lag dummies; vertical bars show 95% CIs around coefficients, using standard errors clustered on state. Coefficient for year -3 is set to zero. Dashed vertical line separate pre-expansion from expansion period.

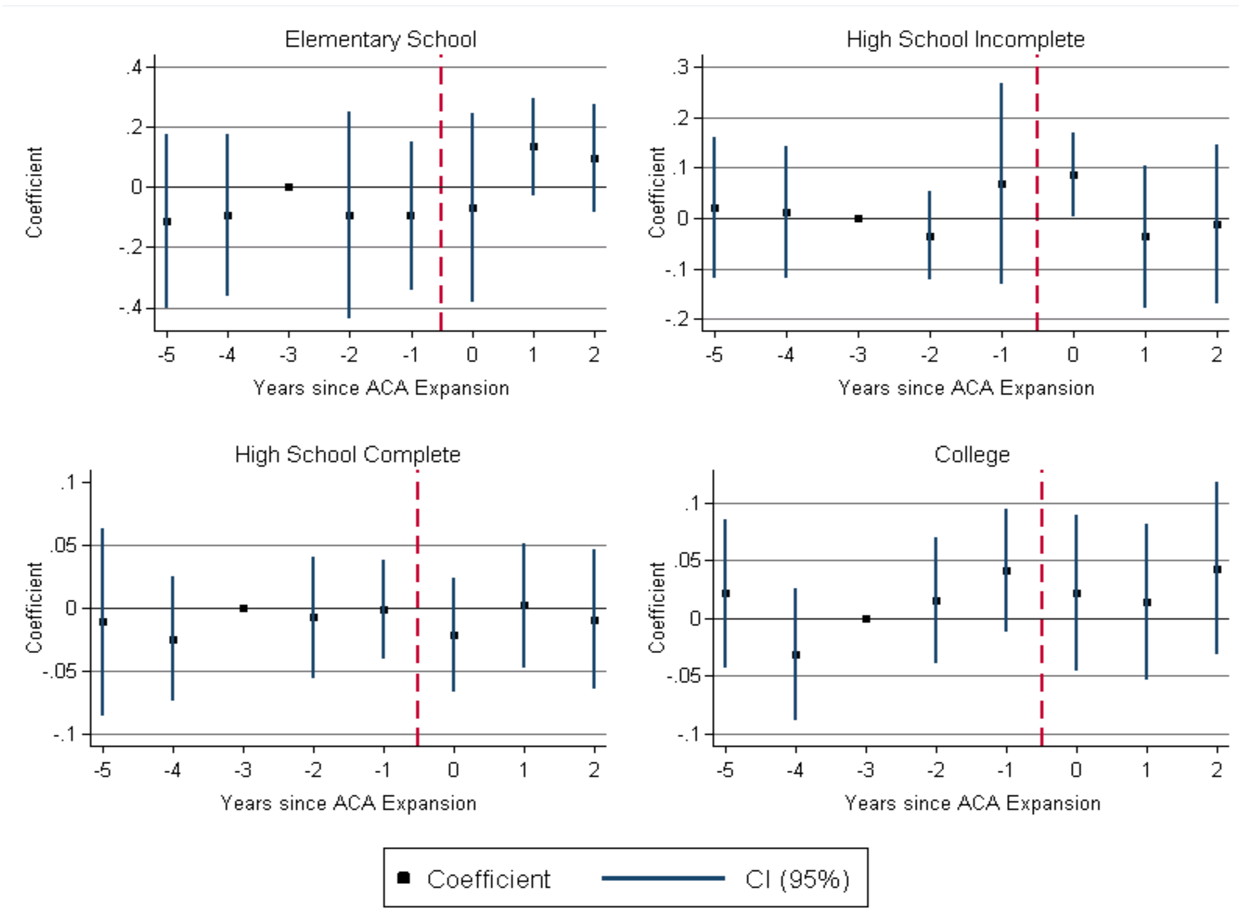


Figure A-14. Triple Difference Leads-and-Lags Graphs: By Causes of Death, ATT x Population Weights

Graphs show triple difference leads and lags regressions of *ln*[(mortality/100,000 persons)+1] among persons with indicated primary cause of death, aged 55-74, in Full-Expansion States versus No-Expansion States, over 2004-2016; the third difference is age 55-64 versus age 65-74. Covariates are listed in the paper. Regressions include county and year FE, and ATT x population weights. Y-axis shows coefficients on leads and lags dummies; vertical bars show 95% CIs around coefficients, using standard errors clustered on state. Coefficient for year -3 is set to zero. Dashed vertical line separate pre-expansion from expansion period.

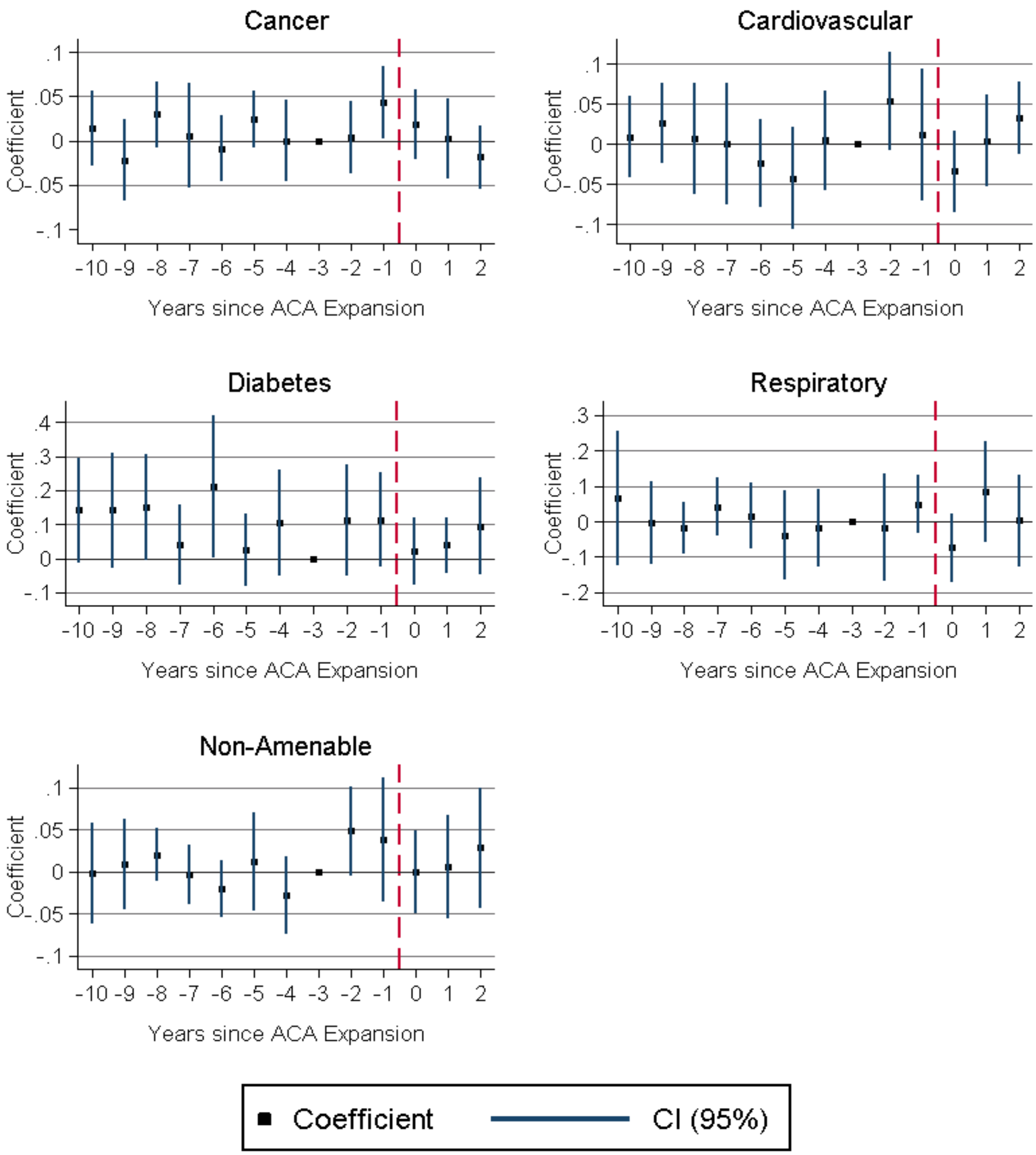
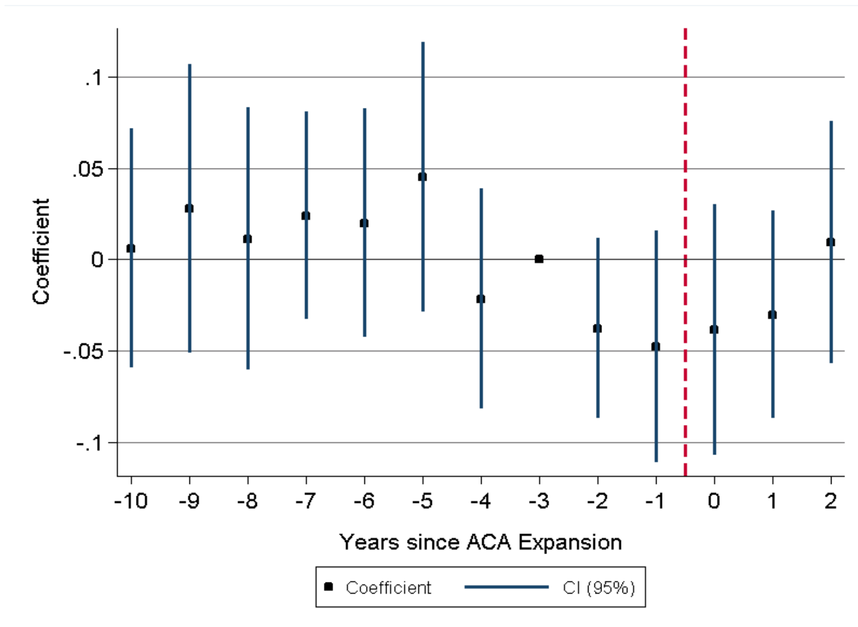


Figure A-15: Leads and Lags Graphs for High-vs-Low Uninsurance and Poverty, ATT x Pop weights

Graphs show leads and lags regressions of triple differences for high versus low uninsurance and high vs. low poverty counties, of *ln*[(amenable mortality/100,000 persons)+1] for persons aged 55-64, in Full-Expansion States versus No-Expansion States, over 2004-2016. High (low) uninsurance counties are those with highest (lowest) uninsurance rates in 2013 containing 20% of U.S. population, and similarly for high (low) poverty counties. Covariates are listed in the paper. Regressions include county and year FE, and ATT x Pop weights. Y-axis shows coefficients on lead and lag dummies; vertical bars show 95% CIs around coefficients, using standard errors clustered on state. Coefficient for year -3 is set to zero. Dashed vertical line separate pre-expansion from expansion period.

Panel A. High-Uninsurance vs. Low-Uninsurance Counties



Panel B. High-Poverty vs. Low-Poverty Counties

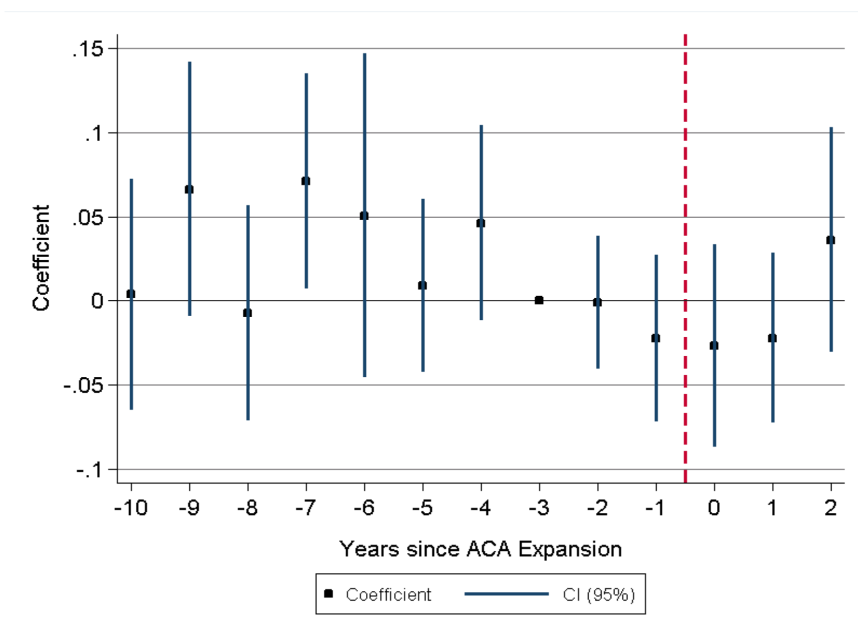
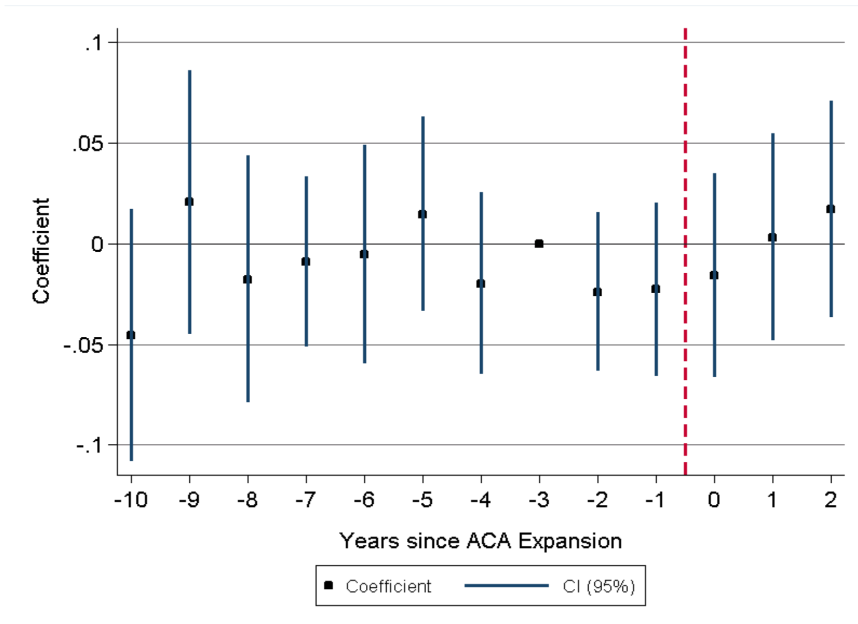


Figure A-16: Leads and Lags Graphs for High-vs-Low Uninsurance and Poverty, 18-64 years

Graphs show leads and lags regressions of triple differences for high versus low uninsurance and high vs. low poverty counties, of *ln*[(amenable mortality/100,000 persons)+1] for persons aged 18-64, in Full-Expansion States versus No-Expansion States, over 2004-2016. High (low) uninsurance counties are those with highest (lowest) uninsurance rates in 2013 containing 20% of U.S. population, and similarly for high (low) poverty counties. Covariates are listed in the paper. Regressions include county and year FE, and county population weights. Y-axis shows coefficients on lead and lag dummies; vertical bars show 95% CIs around coefficients, using standard errors clustered on state. Coefficient for year -3 is set to zero. Dashed vertical line separate pre-expansion from expansion period.

Panel A. High-Uninsurance vs. Low-Uninsurance Counties



Panel B. High-Poverty vs. Low-Poverty Counties

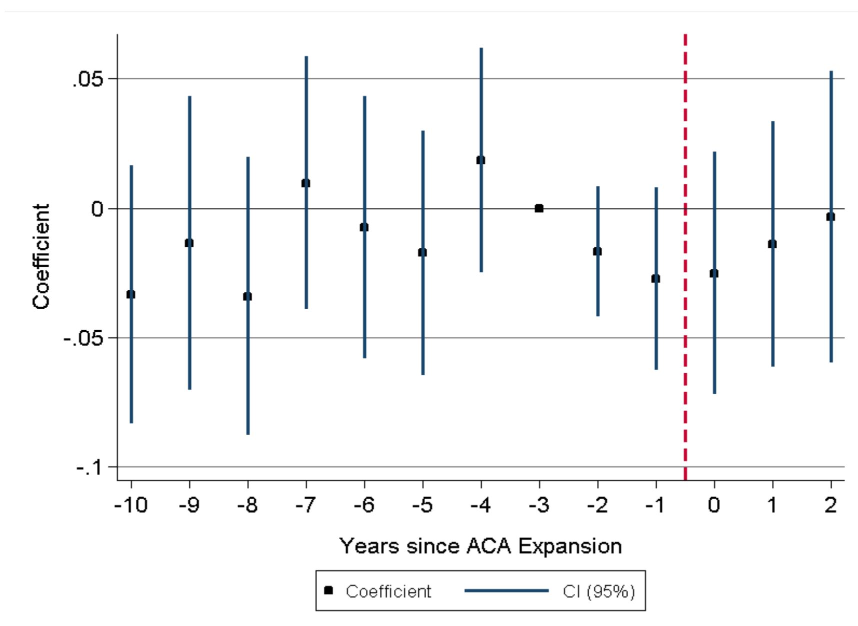


Figure A-17. DiD Leads-and-Lags Results for Ages 18-64, Amenable Mortality

Graphs from DiD leads and lags regressions of *ln*[(amenable mortality/100,000 persons)+1] for Full-Expansion States versus control group of Non-Expansion States, over 2004-2016. Covariates are listed in paper. Regressions include county and year FE, and county population weights. Y-axis shows coefficients on lead and lag dummies; vertical bars show 95% confidence intervals (CIs) around coefficients, using standard errors clustered on state. Coefficient for year -3 is set to zero. Dashed vertical line separate pre-expansion from expansion period.

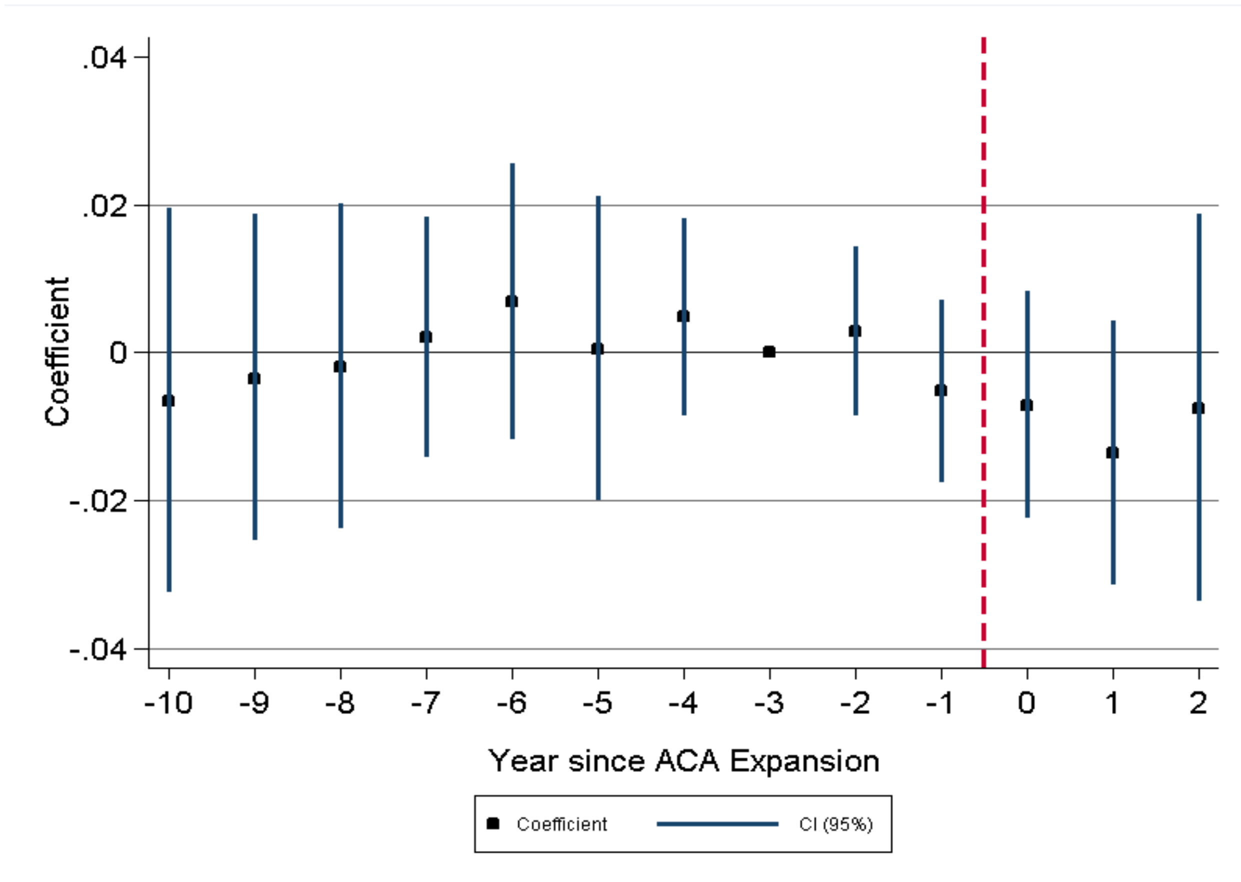
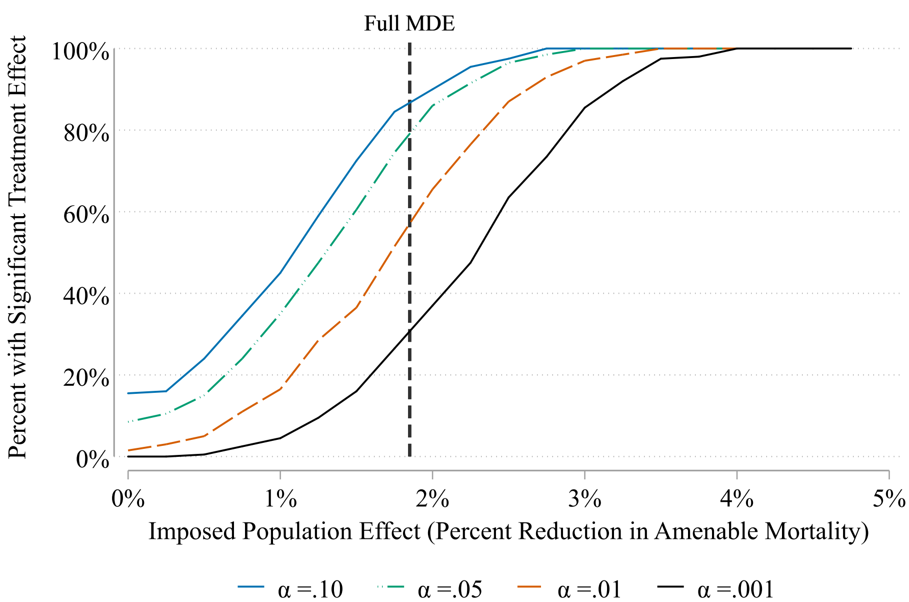


Figure A-18. Power Analyses for Full Sample: State Level DD and Triple Differences

Power curves for simulated Medicaid expansion as of January 1, 2012, applied to persons aged 55-64 during pre-treatment period (2007-2013). Graphs show power (likelihood of detecting a statistically significant effect on amenable mortality, at the indicated confidence levels, for two-tailed test), given imposed "true" population average effect. Curves are based on 1,000 replications of the DD (top graph) and triple difference (bottom graph) regression models used in Table 2, with covariates. In each draw, we select 20 pseudo-treated states at random from the combined set of 41 treated and control states, and remove a fraction of the observed deaths at random from the treated states, where the fraction reflects an imposed treatment effect (for the entire population), and we vary the imposed treatment effect from 0-5% in increments of 0.1%. Curves for α = .10/.05/.01/.001 correspond to 90%/95%/99%/99.9% confidence levels, respectively. Dashed vertical line indicates minimum detectable effect at 95% confidence level, with 80% power, for full sample (Full MDE).



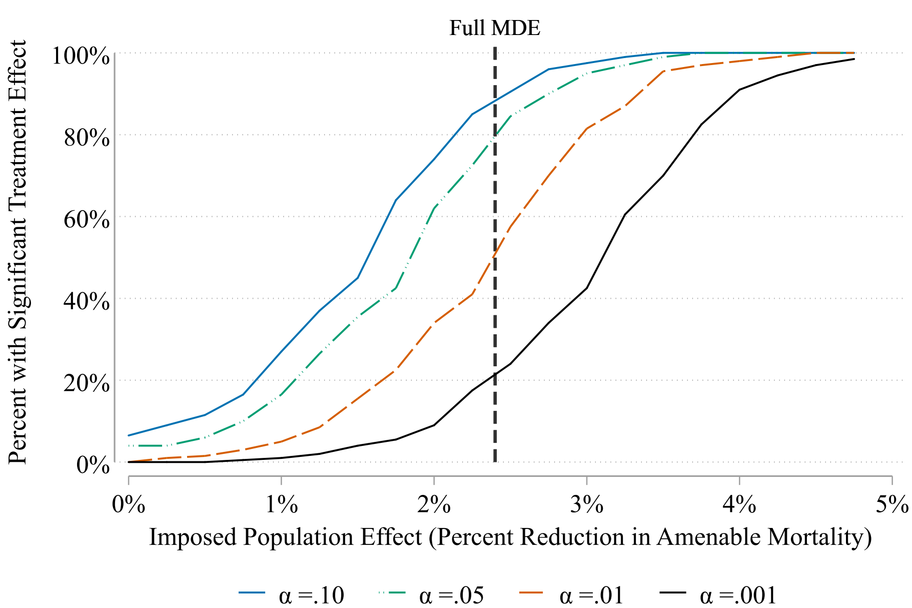
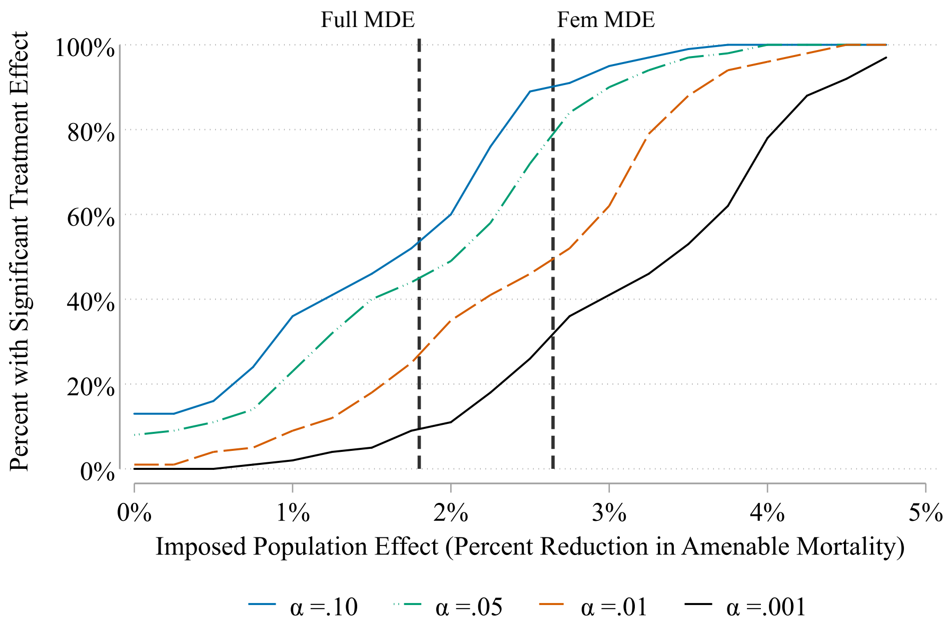


Figure A-19. Power Analysis for Women: DD and Triple Differences

Power curves for simulated Medicaid expansion as of January 1, 2012, applied to females aged 55-64 during pre-treatment period (2007-2013). Graphs show power (likelihood of detecting a statistically significant effect on amenable mortality, at the indicated confidence levels, for two-tailed test), given imposed "true" population average effect. Curves are based on 1,000 replications of the DD (top graph) and triple difference (bottom graph) regression models used in Table 2, with covariates. In each draw, we select 20 pseudo-treated states at random from the combined set of 41 treated and control states, and remove a fraction of the observed deaths at random from the treated states, where the fraction reflects an imposed treatment effect (for the entire population), and we vary the imposed treatment effect from 0-5% in increments of 0.1%. Curves for α = .10/.05/.01/.001 correspond to 90%/95%/99%/99.9% confidence levels, respectively. Dashed vertical lines indicate minimum detectable effects at 95% confidence level, with 80% power, for full sample (Full MDE) and for women (Fem MDE).



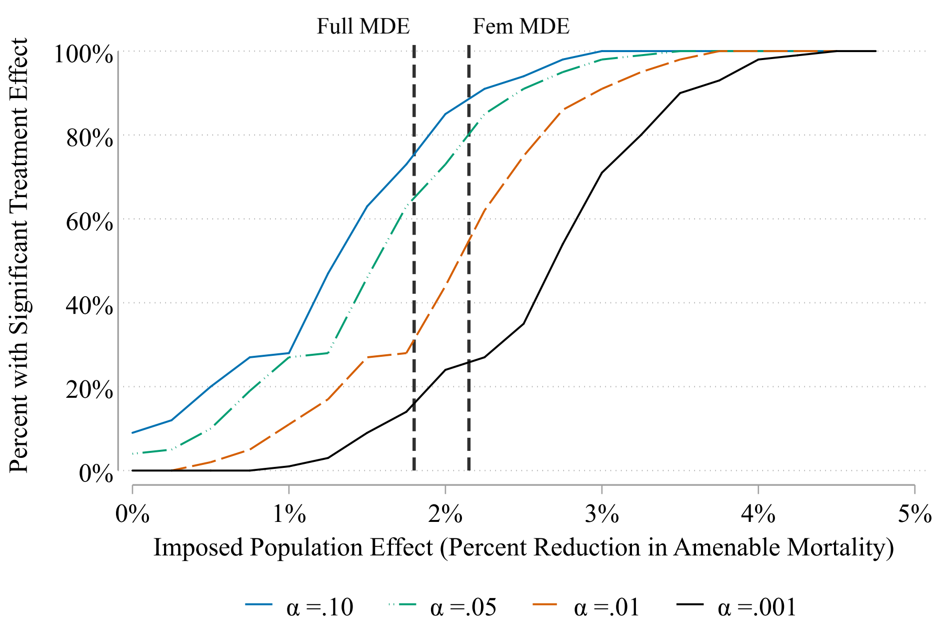
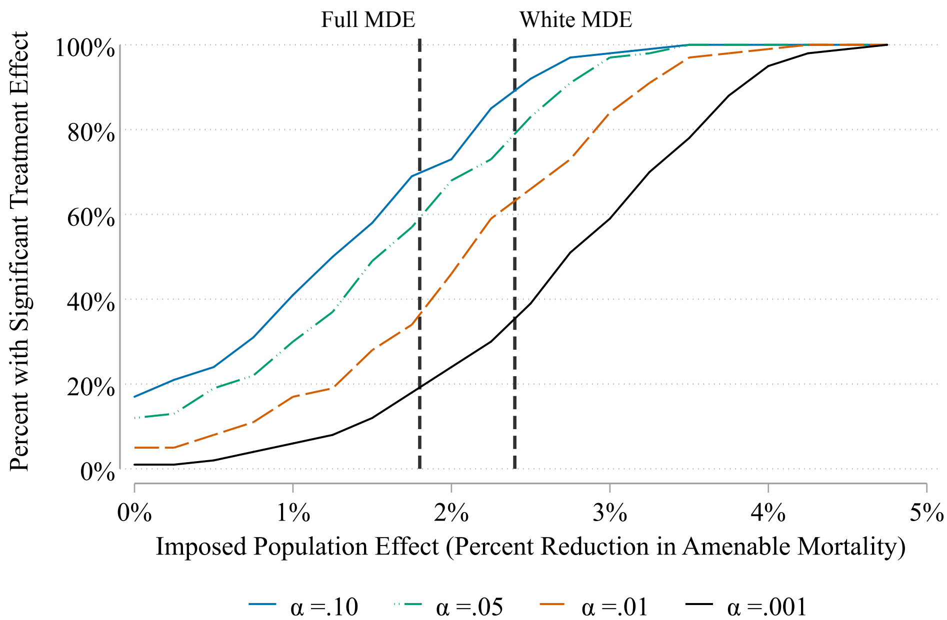


Figure A-20. Power Analysis for Non-Hispanic Whites: DD and Triple Differences

Power curves for simulated Medicaid expansion as of January 1, 2012, applied to non-Hispanic whites aged 55-64 during pre-treatment period (2007-2013). Graphs show power (likelihood of detecting a statistically significant effect on amenable mortality, at the indicated confidence levels, for two-tailed test), given imposed "true" population average effect. Curves are based on 1,000 replications of the DD (top graph) and triple difference (bottom graph) regression models used in Table 2, with covariates. In each draw, we select 20 pseudo-treated states at random from the combined set of 41 treated and control states, and remove a fraction of the observed deaths at random from the treated states, where the fraction reflects an imposed treatment effect (for the entire population), and we vary the imposed treatment effect from 0-5% in increments of 0.1%. Curves for α = .10/.05/.01/.001 correspond to 90%/95%/99%/99.9% confidence levels, respectively. Dashed vertical lines indicate minimum detectable effects at 95% confidence level, with 80% power, for full sample (Full MDE) and for non-Hispanic whites (White MDE).



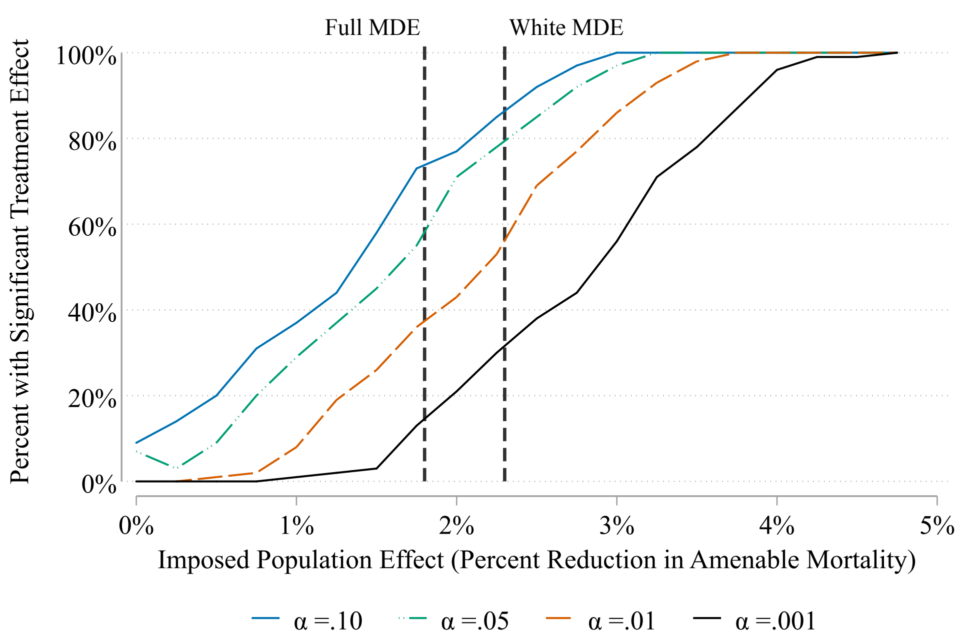
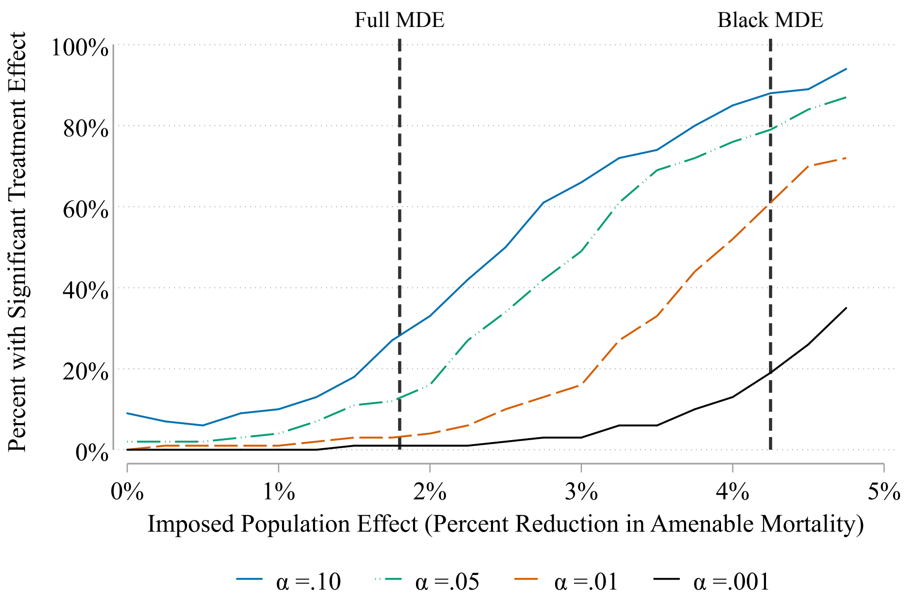


Figure A-21. Power Analysis for Non-Hispanic Blacks: DD and Triple Differences

Power curves for simulated Medicaid expansion as of January 1, 2012, applied to non-Hispanic blacks aged 55-64 during pre-treatment period (2007-2013). Graphs show power (likelihood of detecting a statistically significant effect on amenable mortality, at the indicated confidence levels, for two-tailed test), given imposed "true" population average effect. Curves are based on 1,000 replications of the DD (top graph) and triple difference (bottom graph) regression models used in Table 2, with covariates. In each draw, we select 20 pseudo-treated states at random from the combined set of 41 treated and control states, and remove a fraction of the observed deaths at random from the treated states, where the fraction reflects an imposed treatment effect (for the entire population), and we vary the imposed treatment effect from 0-5% in increments of 0.1%. Curves for α = .10/.05/.01/.001 correspond to 90%/95%/99%/99.9% confidence levels, respectively. Dashed vertical lines indicate minimum detectable effects at 95% confidence level, with 80% power, for full sample (Full MDE) and for non-Hispanic blacks (Black MDE).



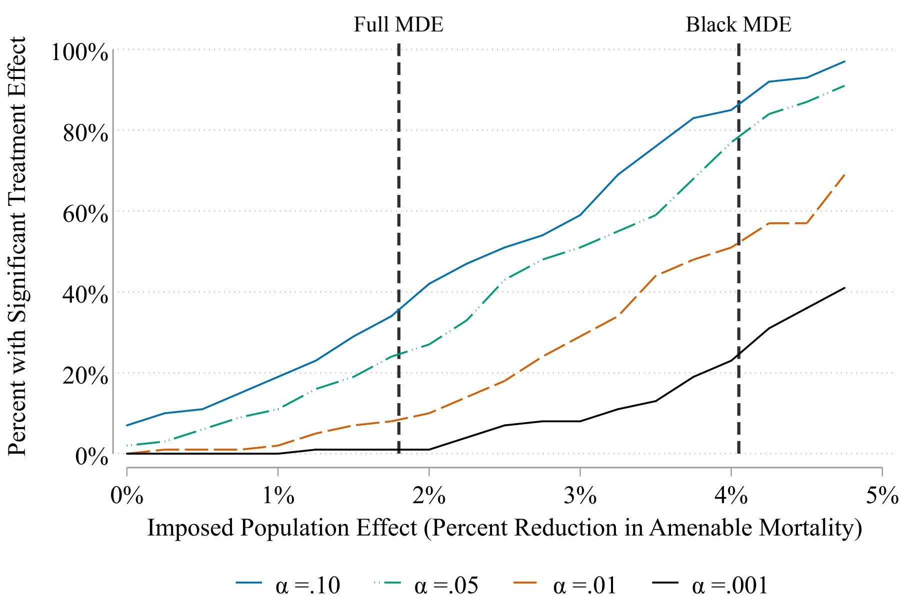
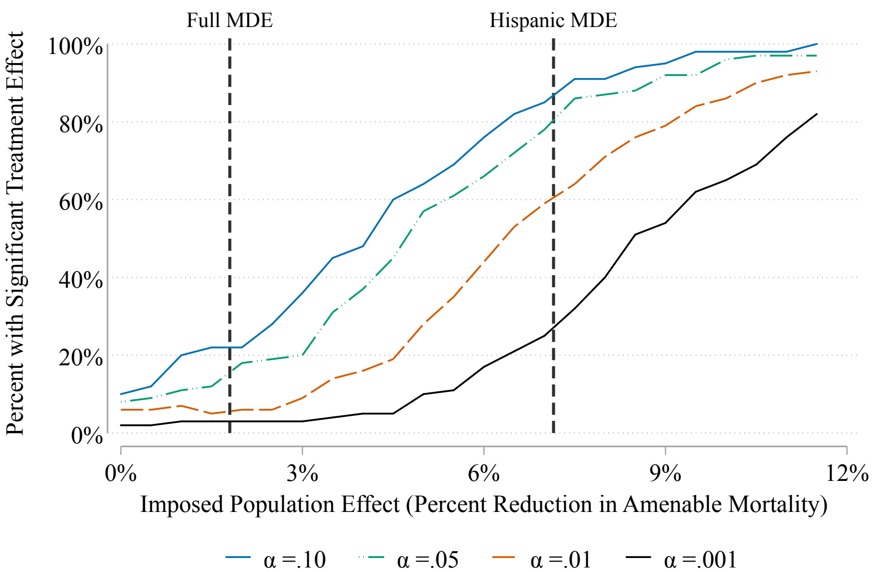


Figure A-22. Power Analysis for Hispanics: DD and Triple Differences

Power curves for simulated Medicaid expansion as of January 1, 2012, applied to non-white, non-black Hispanics aged 55-64 during pre-treatment period (2007-2013). Graphs show power (likelihood of detecting a statistically significant effect on amenable mortality, at the indicated confidence levels, for two-tailed test), given imposed "true" population average effect. Curves are based on 1,000 replications of the DD (top graph) and triple difference (bottom graph) regression models used in Table 2, with covariates. In each draw, we select 20 pseudo-treated states at random from the combined set of 41 treated and control states, and remove a fraction of the observed deaths at random from the treated states, where the fraction reflects an imposed treatment effect (for the entire population), and we vary the imposed treatment effect from 0-5% in increments of 0.1%. Curves for α = .10/.05/.01/.001 correspond to 90%/95%/99%/99.9% confidence levels, respectively. Dashed vertical line indicates minimum detectable effect at 95% confidence level, with 80% power for full sample (Full MDE) and for Hispanics (Hispanic MDE).



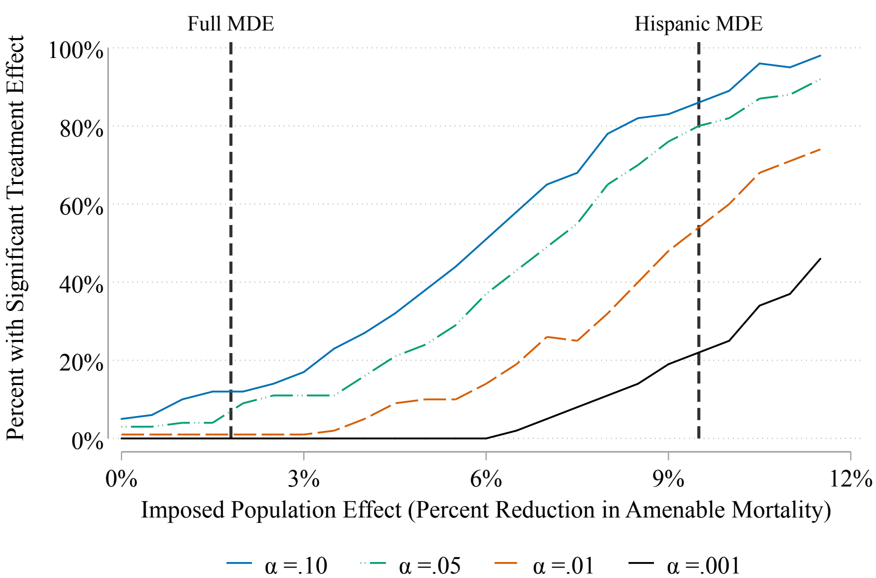


Figure A-23. Power Analysis for Low Education Subsample: DD Design

Power curves for simulated Medicaid expansion as of January 1, 2012, applied to those without a high school education aged 45-64 during pre-treatment period (2007-2013). Demographic data on education is available only for broad age groups (the best available was ages 45-64) so we present only DD and not triple difference results. Graphs show power (likelihood of detecting a statistically significant effect on amenable mortality, at the indicated confidence levels, for two-tailed test), given imposed "true" population average effect. Curves are based on 1,000 replications of the DD regression model used in Table 2, with covariates. In each draw, we select 20 pseudo-treated states at random from the combined set of 41 treated and control states, and remove a fraction of the observed deaths at random from the treated states, where the fraction reflects an imposed treatment effect (for the entire population), and we vary the imposed treatment effect from 0-5% in increments of 0.1%. Curves for α = .10/.05/.01/.001 correspond to 90%/95%/99%/99.9% confidence levels, respectively. Dashed vertical lines indicates minimum detectable effect at 95% confidence level, with 80% power for full sample (Full MDE) and for low-education subsample (Low Educ. MDE).

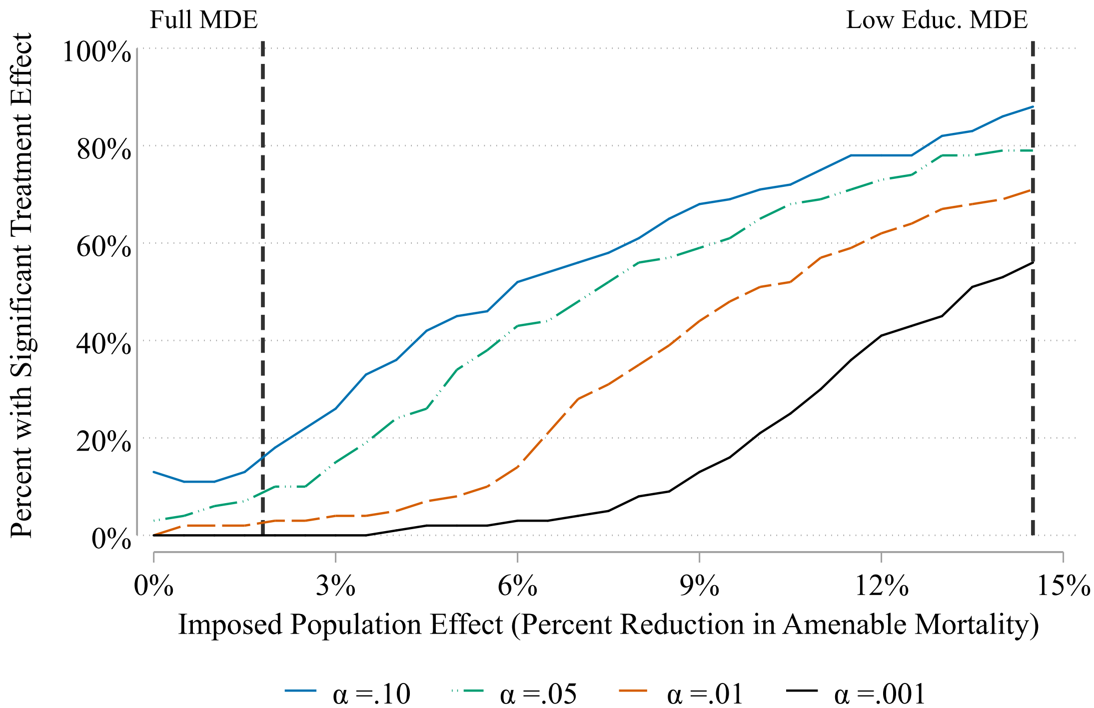


Figure A-24. Uninsurance Rate by Single Year of Age

Source: Authors' calculations from American Community Survey 2009, 2013 and 2015

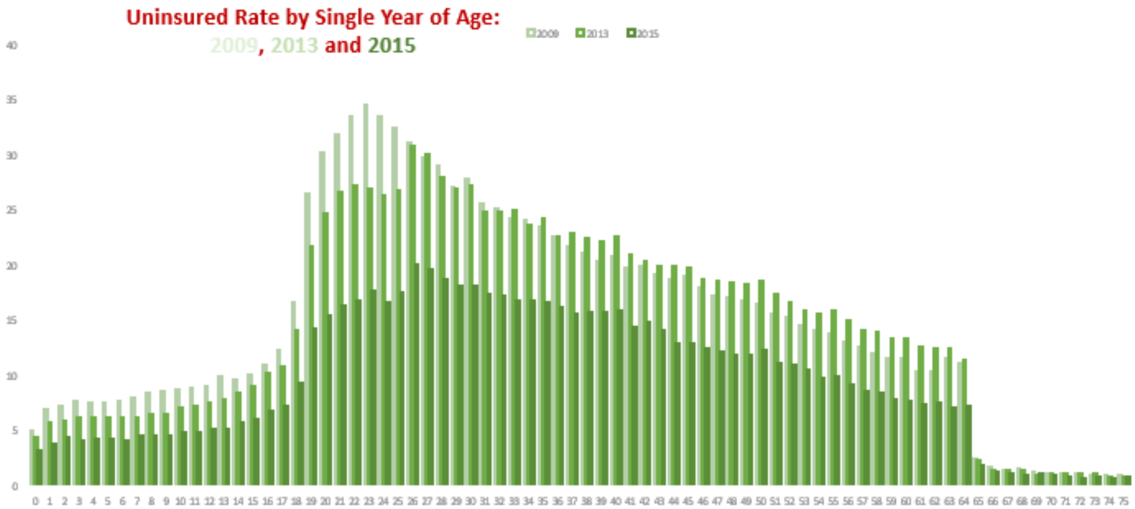


Figure A-25. Difference in Uninsurance Rate from 2012 to 2016 by Expansion Status

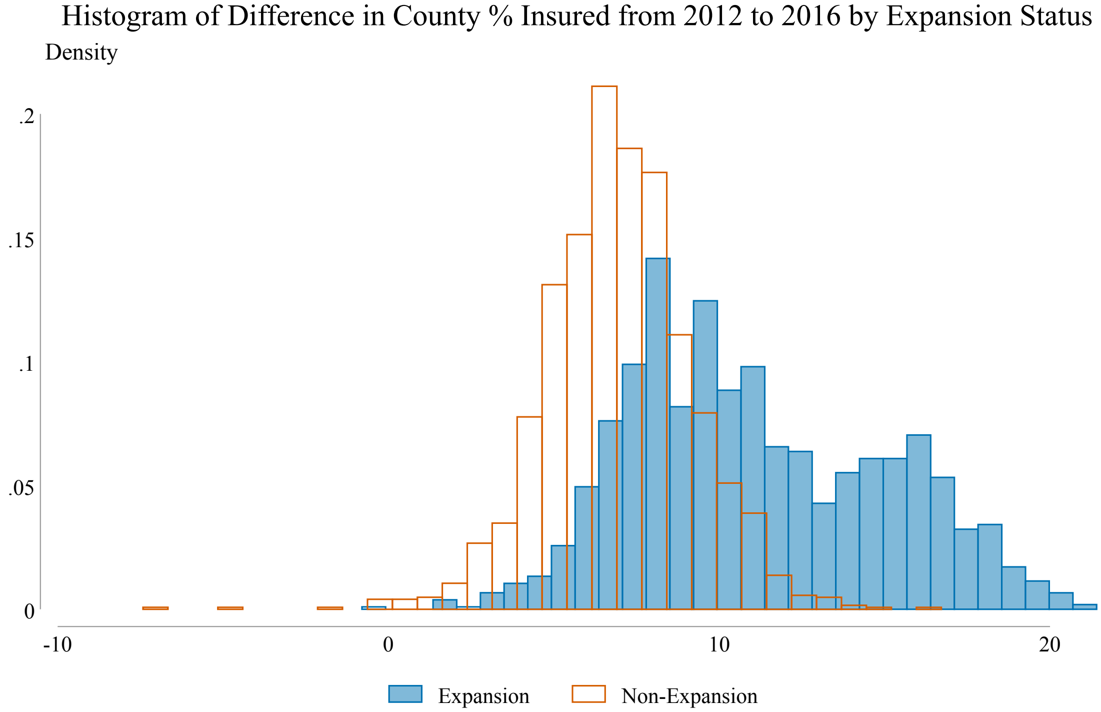
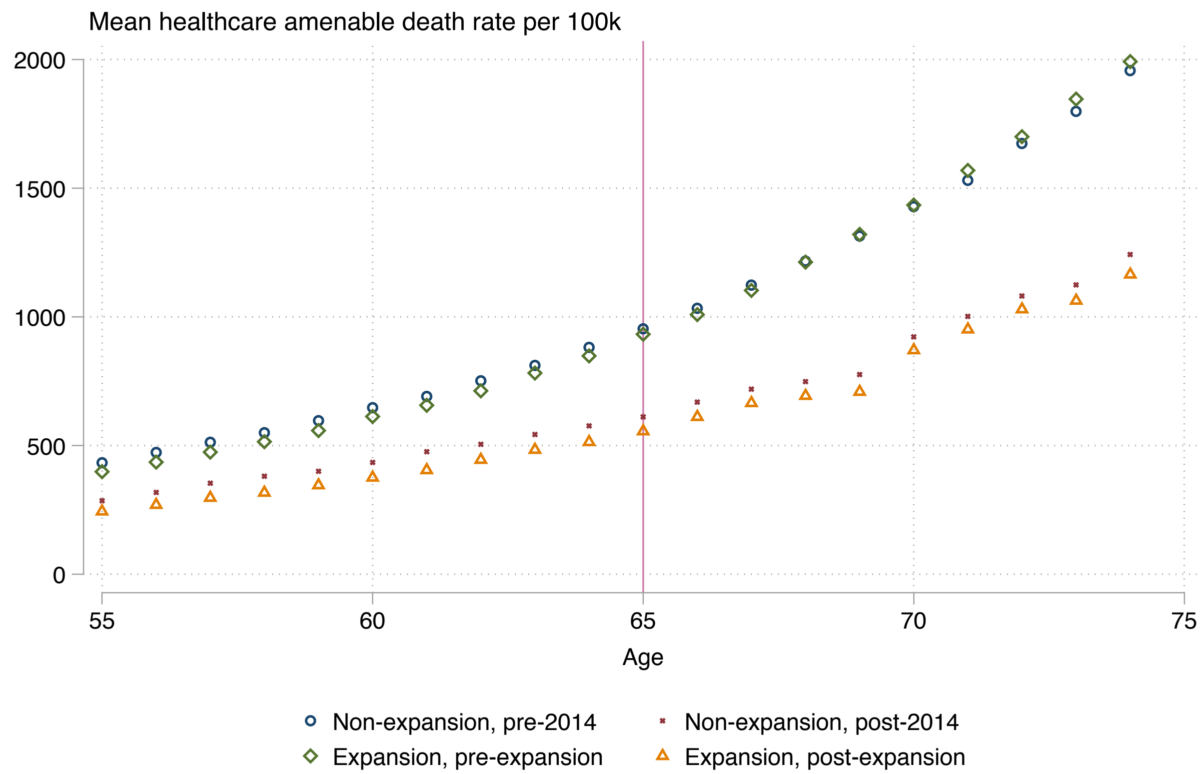


Figure A-26. Changes in mortality by single year of age

Mean health care amenable death rate per 100,000 by single year of age are reported for both expansion and non-expansion states before and after expansion. Difference across time (pre-2014 to post-2014 for non-expansion states; and pre-expansion to post-expansion in expansion states) illustrate that the death rate of each single year of age in expansion states have reduced relative to each analogous group in non-expansion states. The differences across age groups (55-64 v 65-74) illustrate that this improvement was not limited to those eligible for Medicaid. That is, the improvement occurred for Medicare enrollees as well. Thus even with disaggregated data by age, we do not find conclusive evidence of a Medicaid expansion impact on the mortality rate for the near elderly (55-64).

Source: Author calculations from restricted access mortality files.



Appendix References

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Example Simulated Power Analysis from Black, Hollingsworth, Nunes, and Simon (2019)

Alex Hollingsworth

3 January 2019

This is an example of the type of simulated power analysis done in Black et al. (2019). This example is done with publicly available data. You can find the code, data, and output for this example hosted on Alex's GitHub page https://github.com/hollina/health_insurance_and_mortality.

This set-up is designed to mimic a typical DiD setting. Here we will compare 23 randomly chosen treated states to 18 randomly chosen control states. We will impose a series of treatment effects that gradually increase in magnitude and report whether or not these imposed treatment effects are detectable. We will vary the set of randomly chosen treated states. We will calculate the minimum detectable effect size at various power and significance levels. We will also explore a measure of believability, which is based upon Gelman and Carlin (2014) measures of sign and magnitude error.

In this simple design we used 5 years of pre-expansion data and 3 years of post-expansion data. Both state and year fixed-effects are included. Regressions are weighted by state-population and standard errors will be clustered at the state-level. The dependent variable will be the natural log of the all-cause non-elderly mortality rate per 100,000.

This code is simply an example of our simulated power analysis and is not an attempt to identify the impact of Medicaid expansion on mortality. Importantly, changing the research design (e.g. adding control variables, shifting to the county-level, changing the cause of death, using propensity score weights, or using a synthetic control estimator) will impact power. Our approach could be easily modified to accommodate any of these alternative research designs. Any improvements to the research design will very likely increase power and decrease the minimum detectable effect size.

Initial Set-up

Here we will set-up the power analysis and choose various required parameters/options.

First we clear the memory

```
. clear all
```

Choose the number of datasets we want to compose each estimate. For example, if we choose 2, then two sets of psuedo-treated states will be drawn and the power analysis will be conducted twice for each effect size; once for each set of pseudo-treated states and effect size pair.

```
. local max_dataset_number  = 1000
```

Pick the number of psuedo-post-expansion years

```
. local number_post_years = 3

. local last_year = 2013-`number_post_years'+1
```

Set number of psuedo-pre-expansion years

```
. local number_pre_years = 5

. local first_year = `last_year'-`number_pre_years'
```

Set effect size step and max value in percent terms (0-1)

```
. local step_size = .0025 // Quarter of a percent

. local end_value = .05 // End at 5%
```

Create a local macro from the choices above

```
. local step_macro

. forvalues x = 0(`step_size')`end_value' {
  2.     local step_macro `step_macro'  `x'
  3. }
```

Determine the length of the macro above, so percent complete can be displayed later

```
. local num :  word count `step_macro'

. local num = `num'
```

Calculate the max number of rows so percent complete can be displayed later

```
. local max_row = `max_dataset_number'*`num'
```

Create excel sheet to store results from simulation. Note: I have $dropbox set via my profile.do to point to my Dropbox folder.

```
. putexcel set
"$dropbox/health_insurance_and_mortality/state_level_public_dat
> a_example/output/power_simulation_results.xlsx", replace
```

Initialize cells names in excel sheet

```
. putexcel A1 = ("dependent_variable")
file
/Users/hollinal/Dropbox/health_insurance_and_mortality/state_level_public
```

```
> _data_example/output/power_simulation_results.xlsx saved

. putexcel B1 = ("controls")
file
/Users/hollinal/Dropbox/health_insurance_and_mortality/state_level_public
> _data_example/output/power_simulation_results.xlsx saved

. putexcel C1 = ("weight")
file
/Users/hollinal/Dropbox/health_insurance_and_mortality/state_level_public
> _data_example/output/power_simulation_results.xlsx saved

. putexcel D1 = ("treated_states")
file
/Users/hollinal/Dropbox/health_insurance_and_mortality/state_level_public
> _data_example/output/power_simulation_results.xlsx saved

. putexcel E1 = ("effect_size")
file
/Users/hollinal/Dropbox/health_insurance_and_mortality/state_level_public
> _data_example/output/power_simulation_results.xlsx saved
. putexcel F1 = ("deaths_reduced_per_year")
file
/Users/hollinal/Dropbox/health_insurance_and_mortality/state_level_public
> _data_example/output/power_simulation_results.xlsx saved

. putexcel G1 = ("total_deaths_reduced")
file
/Users/hollinal/Dropbox/health_insurance_and_mortality/state_level_public
> _data_example/output/power_simulation_results.xlsx saved
. putexcel H1 = ("coef")
file
/Users/hollinal/Dropbox/health_insurance_and_mortality/state_level_public
> _data_example/output/power_simulation_results.xlsx saved

. putexcel I1 = ("se")
file
/Users/hollinal/Dropbox/health_insurance_and_mortality/state_level_public
> _data_example/output/power_simulation_results.xlsx saved

. putexcel J1 = ("df")
file
/Users/hollinal/Dropbox/health_insurance_and_mortality/state_level_public
> _data_example/output/power_simulation_results.xlsx saved
```

Import and clean mortality data

Import data extracted from CDC wonder. All cause mortality 0-64 by state and year. The data were gathered on 1 January 2019.

```
. import delimited
"$dropbox/health_insurance_and_mortality/state_level_public
> _data_example/data/Multiple Cause of Death, 1999-2017.txt"
(8 vars, 1,077 obs)
```

Drop total variables

```
. drop if missing(year)
(108 observations deleted)
```

Drop unneeded variables from CDC Wonder

```
. drop notes
```

Drop years after expansion

```
. drop if year>=2014
(204 observations deleted)
```

Drop if year before first desired year

```
. drop if year<`first_year'
(357 observations deleted)
```

Change state name to be state postal code

```
. replace state ="AL" if state=="Alabama"
(8 real changes made)

. replace state ="AK" if state=="Alaska"
(8 real changes made)

. replace state ="AZ" if state=="Arizona"
(8 real changes made)

. replace state ="AR" if state=="Arkansas"
(8 real changes made)

. replace state ="CA" if state=="California"
(8 real changes made)

. replace state ="CO" if state=="Colorado"
(8 real changes made)

. replace state ="CT" if state=="Connecticu "
(0 real changes made)

. replace state ="DE" if state=="Delaware"
(8 real changes made)

. replace state ="DC" if state=="District of Columbia"
(8 real changes made)

. replace state ="FL" if state=="Florida"
(8 real changes made)

. replace state ="GA" if state=="Georgia"
(8 real changes made)

. replace state ="HI" if state=="Hawaii"
(8 real changes made)
```

```
. replace state ="ID" if state=="Idaho"
(8 real changes made)

. replace state ="IL" if state=="Illinois"
(8 real changes made)

. replace state ="IN" if state=="Indiana"
(8 real changes made)

. replace state ="IA" if state=="Iowa"
(8 real changes made)

. replace state ="KS" if state=="Kansas"
(8 real changes made)

. replace state ="KY" if state=="Kentucky"
(8 real changes made)

. replace state ="LA" if state=="Louisiana"
(8 real changes made)

. replace state ="ME" if state=="Maine"
(8 real changes made)

. replace state ="MD" if state=="Maryland"
(8 real changes made)

. replace state ="MA" if state=="Massachusetts"
(8 real changes made)

. replace state ="MI" if state=="Michigan"
(8 real changes made)

. replace state ="MN" if state=="Minnesota"
(8 real changes made)

. replace state ="MS" if state=="Mississippi"
(8 real changes made)

. replace state ="MO" if state=="Missouri"
(8 real changes made)

. replace state ="MT" if state=="Montana"
(8 real changes made)

. replace state ="NE" if state=="Nebraska"
(8 real changes made)

. replace state ="NV" if state=="Nevada"
(8 real changes made)

. replace state ="NH" if state=="New Hampshire"
(8 real changes made)

. replace state ="NJ" if state=="New Jersey"
(8 real changes made)

. replace state ="NM" if state=="New Mexico"
(8 real changes made)

. replace state ="NY" if state=="New York"
(8 real changes made)
```

```
. replace state ="NC" if state=="North Carolina"
(8 real changes made)

. replace state ="ND" if state=="North Dakota"
(8 real changes made)

. replace state ="OH" if state=="Ohio"
(8 real changes made)

. replace state ="OK" if state=="Oklahoma"
(8 real changes made)

. replace state ="OR" if state=="Oregon"
(8 real changes made)

. replace state ="PA" if state=="Pennsylvania"
(8 real changes made)

. replace state ="RI" if state=="Rhode Island"
(8 real changes made)

. replace state ="SC" if state=="South Carolina"
(8 real changes made)

. replace state ="SD" if state=="South Dakota"
(8 real changes made)

. replace state ="TN" if state=="Tennessee"
(8 real changes made)

. replace state ="TX" if state=="Texas"
(8 real changes made)

. replace state ="UT" if state=="Utah"
(8 real changes made)

. replace state ="VT" if state=="Vermont"
(8 real changes made)

. replace state ="VA" if state=="Virginia"
(8 real changes made)

. replace state ="WA" if state=="Washington"
(8 real changes made)

. replace state ="WV" if state=="West Virginia"
(8 real changes made)

. replace state ="WI" if state=="Wisconsin"
(8 real changes made)

. replace state ="WY" if state=="Wyoming"
(8 real changes made)
```

Add expansion status to each state

```
. gen expansion4=0

. label define expansion4 0 "0. Non-expansion" 1 "1. Full expansion" ///
>     2 "2. Mild expansion" 3 "3. Substantial expansion"

. label values expansion4 expansion4
```

```
. local full AZ AR CO IL IA KY MD NV NM NJ ND OH OR RI WV  WA

. foreach x in `full' {
  2.     replace expansion4=1 if state=="`x'"
  3. }
(8 real changes made)
(8 real changes made)
(8 real changes made)
(8 real changes made)
(8 real changes made)
(8 real changes made)
(8 real changes made)
(8 real changes made)
(8 real changes made)
(8 real changes made)
(8 real changes made)
(8 real changes made)
(8 real changes made)
(8 real changes made)
(8 real changes made)
(8 real changes made)

. local mild DE DC MA NY VT

. foreach x in `mild' {
  2.     replace expansion4=2 if state=="`x'"
  3. }
(8 real changes made)
(8 real changes made)
(8 real changes made)
(8 real changes made)
(8 real changes made)

. local medium CA CT HI MN WI

. foreach x in `medium' {
  2.     replace expansion4=3 if state=="`x'"
  3. }
(8 real changes made)
(0 real changes made)
(8 real changes made)
(8 real changes made)
(8 real changes made)
```

Account for mid-year expansions

```
. replace expansion4=1 if state=="MI"  //MI expanded in April 2014
(8 real changes made)

. replace expansion4=1 if state=="NH"  //NH expanded in August 2014
(8 real changes made)

. replace expansion4=1 if state=="PA"  //PA expanded in Jan 2015
(8 real changes made)

. replace expansion4=1 if state=="IN"  //IN expanded in Feb 2015
(8 real changes made)

. replace expansion4=1 if state=="AK"  //AK expanded in Sept 2015
(8 real changes made)

. replace expansion4=1 if state=="MT"  //MT expanded in Jan 2016
```

```
(8 real changes made)

. replace expansion4=1 if state=="LA"  //LA expanded in July 2016
(8 real changes made)
```

Keep only full or non-expansion states

```
. drop if expansion4==2 | expansion4==3
(72 observations deleted)
```

Store number of expansion states

```
. distinct statecode  if expansion4==1

           |        Observations
           |      total   distinct
-----------+----------------------
 statecode |        184         23

. scalar number_expand = r(ndistinct)
```

Save data to be called in power analysis

Save temporary dataset to be called

```
. compress
  variable expansion4 was float now byte
  variable population was double now long
  variable state was str20 now str11
  (5,376 bytes saved)

. save
"$dropbox/health_insurance_and_mortality/state_level_public_data_exampl
> e/temp/temp_data.dta", replace
(note: file
/Users/hollinal/Dropbox/health_insurance_and_mortality/state_level
> _public_data_example/temp/temp_data.dta not found)
file
/Users/hollinal/Dropbox/health_insurance_and_mortality/state_level_public
> _data_example/temp/temp_data.dta saved
```

Run simulated power analysis

Start a timer to show how long this takes

```
. timer on 1
```

Set row number for excel sheet

```
. local row =2
```

Run a loop. Performing the power analysis once for each of the desired number of datasets. The following output is supressed for the html document even though it runs. This is to ensure the document is not too long.

```
. forvalues dataset_number = 1(1)`max_dataset_number'    {
  2.     // Display the dataset number
.     qui di "`dataset_number'"
.     // Open main dataset for analysis
.     qui use
"$dropbox/health_insurance_and_mortality/state_level_public_data
> _example/temp/temp_data.dta", clear
.     // Set seed for reproducibility. We want the seed to be the same within
> a dataset.
.     qui local rand_seed = 1234 + `dataset_number'
  5.     qui set seed    `rand_seed'
.
////////////////////////////////////////////////////////////////////////
> ///////
>     // Generate a random variable for each state, then the first N in rank
w
> ill be
.     // considered expansion states. Where N is # of expansion states
.     qui bysort statecode: gen random_variable = runiform() if _n==1
  7.     qui bysort statecode: carryforward random_variable, replace
.     // Rank the states
.     qui egen rank = group(random_variable)
.     // Given this random ordering of states, assign expansion status to the
> # set above
.     qui gen expansion = 0
 10.     qui replace expansion=1 if rank <=number_expand
.     // Do this same thing for the treatment variable
.     qui gen treatment = 0
 12.     qui replace treatment = 1 if expansion==1 & year>=`last_year'
.     // Create Post variable
.     qui gen post = 0
 14.     qui replace post =1 if year>=`last_year'
.     // Store basic data from regression in excel sheet
.     qui putexcel A`row' = ("all_deaths")
 16.     qui putexcel B`row' = ("no controls")
 17.     qui putexcel C`row' = ("population")
.     // Add list of states to excel sheet
.     qui capture drop test
 19.     qui gen test = ""
.     qui levelsof state if treatment ==1, local(treated_states)
 21.     foreach x in `treated_states' {
 22.         qui replace test = test + ", " + "`x'"
 23.     }
.     qui local state_list `=test[1]'
 25.     qui putexcel D`row' = ("`state_list'")
.     // Generate a death rate with no effect
.     qui gen death_rate = (deaths/population)*100000
.     // Gen order variable
.     qui gen order = _n
.
////////////////////////////////////////////////////////////////////////
> /////
>     // Create a reduced deaths variable by a given percentage using the
bino
> mial for each effect size
```

```
.     qui local counter = 1
.     foreach x in `step_macro' {
 30.         qui gen reduced_deaths_`counter' = 0
 31.         qui replace reduced_deaths_`counter' = rbinomial(deaths,`x') if
t
> reatment==1
 32.         qui replace reduced_deaths_`counter'=0 if
missing(reduced_deaths_
> `counter')
.         qui gen deaths_`counter' = deaths - reduced_deaths_`counter'
 34.         qui replace deaths_`counter'=0 if missing(deaths_`counter')
.         qui gen death_rate_`counter'=
ln((deaths_`counter'/population)*10000
> 0+1)
.         // Store the effect size in excel sheet
.         qui putexcel E`row' = (`x')
.         // Store the number of reduced deaths in excel sheet
.         qui sum reduced_deaths_`counter' if year>=`last_year'
 38.         qui putexcel F`row' = (`r(sum)'/`number_post_years')
 39.         qui putexcel G`row' = (`r(sum)')
.         // Move the row and counter one forward
.         qui local counter = `counter' + 1
 41.         qui local row = `row' + 1
 42.     }
.     // Move the row counter back to the top
.     qui local row = `row' - `num'
.
////////////////////////////////////////////////////////////////////////
> /////
>     // Run regression of treatment on reduced deaths variable for each
effec
> t size
.     // Reset the counter
.     qui local counter = 1
.     forvalues counter = 1(1)`num' {
.         qui reghdfe death_rate_`counter' ///
>             treatment ///
>             i.post i.expansion ///
>             [aweight=population] ///
>             ,  absorb(statecode year)  vce(cluster statecode)
.         // Store results
.         qui putexcel H`row' =(_b[treatment])
 48.         qui putexcel I`row' = (_se[treatment])
 49.         qui putexcel J`row' =(`e(df_r)')
.         // Display Percent Complete
.         qui di
"/////////////////////////////////////////////////////////////
> //////////"
 51.         qui di "//////////////////////////Percent
Complete/////////////
> ////////////"
 52.         qui di ((`row'-1)/`max_row')*100
 53.         qui di
"//////////////////////////////////////////////////////////
> /////////////"
.         qui local row = `row' + 1
 55.         qui local counter = `counter' + 1
 56.     }
 57. }
```

Stop timer

```
. timer off 1

. timer list
   1:  79905.50 /        1 =   79905.5020
```

Erase temporary dataset used for analysis

```
. erase
"$dropbox/health_insurance_and_mortality/state_level_public_data_examp
> le/temp/temp_data.dta"
```

Import and clean results from simulated power analysis

Import simulation results

```
. import excel
"$dropbox/health_insurance_and_mortality/state_level_public_dat
> a_example/output/power_simulation_results.xlsx", sheet("Sheet1") firstrow
cl
> ear
```

Calculate z-scores and p-values

```
. gen z_score = abs(((coef - 0)/se))

. gen p_value =  2*ttail(df,z_score)
```

Calculate indicator for power threshold for each observation

```
. gen power_10 = 0

. gen power_05 = 0

. gen power_01 = 0

. gen power_001 = 0
. replace power_10 =  1 if p_value<= .1
(12,536 real changes made)

. replace power_05 =  1 if p_value<= .05
(11,065 real changes made)

. replace power_01 =  1 if p_value<= .01
(8,209 real changes made)

. replace power_001 = 1 if p_value<= .001
(4,872 real changes made)
```

Calculate a count variable

```
. gen count = 1
```

Make sign error

```
. gen s_error_10 = 0

. replace s_error_10 =1 if power_10==1 & coef>=0
(174 real changes made)

. gen s_error_05 = 0

. replace s_error_05 =1 if power_05==1 & coef>=0
(85 real changes made)

. gen s_error_01 = 0

. replace s_error_01 =1 if power_01==1 & coef>=0
(17 real changes made)

. gen s_error_001 = 0

. replace s_error_001 =1 if power_001==1 & coef>=0
(0 real changes made)
. replace s_error_10 =. if effect_size==0
(1,000 real changes made, 1,000 to missing)

. replace s_error_05 =. if effect_size==0
(1,000 real changes made, 1,000 to missing)

. replace s_error_01 =. if effect_size==0
(1,000 real changes made, 1,000 to missing)

. replace s_error_001 =. if effect_size==0
(1,000 real changes made, 1,000 to missing)
```

Make magnitude error

```
. gen m_error = abs(coef/effect_size)
(1,000 missing values generated)

. gen m_error_10 = m_error
(1,000 missing values generated)

. replace m_error_10 = . if power_10==0
(6,628 real changes made, 6,628 to missing)

. gen m_error_05 = m_error
(1,000 missing values generated)

. replace m_error_05 = . if power_05==0
(8,030 real changes made, 8,030 to missing)

. gen m_error_01 = m_error
(1,000 missing values generated)

. replace m_error_01 = . if power_01==0
```

```
(10,820 real changes made, 10,820 to missing)

. gen m_error_001 = m_error
(1,000 missing values generated)

. replace m_error_001 = . if power_001==0
(14,130 real changes made, 14,130 to missing)
```

Generate Beliveabilitiy

```
. gen believe_10 = 0

. replace  believe_10 = 1 if power_10 ==1 & s_error_10==0 & m_error_10<=2
(11,081 real changes made)
. gen believe_05 = 0

. replace  believe_05 = 1 if power_05 ==1 & s_error_05==0 & m_error_05<=2
(9,934 real changes made)
. gen believe_01 = 0

. replace  believe_01 = 1 if power_01 ==1 & s_error_01==0 & m_error_01<=2
(7,502 real changes made)
. gen believe_001 = 0

. replace  believe_001 = 1 if power_001 ==1 & s_error_001==0 & m_error_001<=2
(4,519 real changes made)
```

Collapse by effect size to calculate power, % sign error, average magnitude error and % believable

```
. collapse (sum) count *power_* *s_error_* *believe_* (mean) *m_error_*,
by(ef
> fect_size)
```

Generate sign error ratio, rather than raw count

```
. replace s_error_10 = (s_error_10/power_10)*100
(5 real changes made)

. replace s_error_05 = (s_error_05/power_05)*100
(4 real changes made)

. replace s_error_01 = (s_error_01/power_01)*100
(2 real changes made)

. replace s_error_001 = (s_error_001/power_001)*100
(0 real changes made)
. replace s_error_10 = . if effect_size==0
(1 real change made, 1 to missing)

. replace s_error_05 = . if effect_size==0
(1 real change made, 1 to missing)

. replace s_error_01 = . if effect_size==0
(1 real change made, 1 to missing)

. replace s_error_001 = . if effect_size==0
```

```
(1 real change made, 1 to missing)
```

Make power and believability out of 100

```
. ds *power* *believe_*
power_10      power_01      believe_10    believe_01
power_05      power_001     believe_05    believe_001

. foreach x in `r(varlist)' {
  2.       replace `x' = (`x'/count)*100
  3. }
(20 real changes made)
(20 real changes made)
(20 real changes made)
(20 real changes made)
(16 real changes made)
(15 real changes made)
(14 real changes made)
(13 real changes made)
```

Make effect size 0-100

```
. replace effect_size=effect_size*100
(19 real changes made)
```

Plot power curves

First determine closest point where the power_05 hits 80%

```
. gen distance_from_80 = (power_05-80)^2

. sort distance_from_80

. sum effect_size in 1

    Variable |        Obs        Mean    Std. Dev.       Min        Max
-------------+---------------------------------------------------------
 effect_size |          1           3           .          3          3

. local mde=`r(mean)'
```

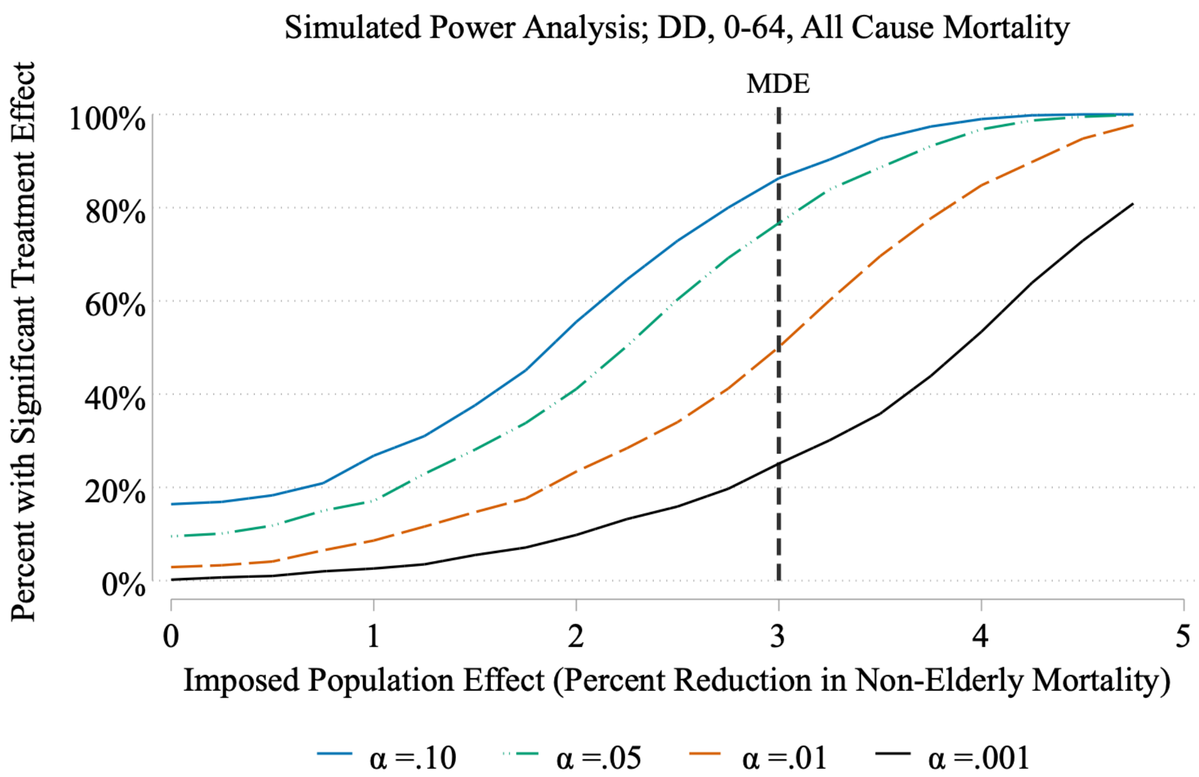
Add label to graph with this MDE

```
. capture drop mde_label

. gen mde_label = ""
(20 missing values generated)

. set obs `=_N+1'
number of observations (_N) was 20, now 21

. replace mde_label = "MDE" in `=_N'
variable mde_label was str1 now str3
```

```
(1 real change made)

. replace effect_size = `mde' in `=_N'
(1 real change made)
. capture drop full_power

. gen full_power = 102.5
```

Plot power curve

```
. sort effect_size

. twoway connected power_10 effect_size ,  lpattern("l") color(sea)
msymbol(no
> ne) mlabcolor(sea) mlabel("") mlabsize(3) mlabpos(11) ///
>     || connected  power_05 effect_size ,  lpattern(".._") color(turquoise)
m
> symbol(none) mlabcolor(turquoise) mlabel("") mlabsize(3) mlabpos(3) ///
>     || connected  power_01 effect_size , lpattern("_") color(vermillion)
msy
> mbol(none) mlabcolor(vermillion) mlabel("") mlabsize(3) mlabpos(3) ///
>     || connected  power_001  effect_size ,  lpattern("l") color(black)
msymb
> ol(none) mlabcolor(black) mlabel("") mlabsize(3) mlabpos(3) ///
>     || scatter full_power effect_size , mlabel(mde_label) msymbol(none)
mlab
> pos(12) mlabsize(3.5) ///
>         xline(`mde', lpattern(dash) lcolor(gs3) lwidth(.5) noextend) ///
>         ytitle("Percent with Significant Treatment Effect", size(4)) ///
>         xtitle("Imposed Population Effect (Percent Reduction in Non-Elderly
> Mortality)", size(4) ) ///
>         xscale(r(0 5)) ///
>         xlabel(, nogrid labsize(4)) ///
>         ylabel(0 "0%" 20 "20%"  40 "40%" 60 "60%" 80 "80%" 100 "100%",gmax
n
> oticks labsize(4)) ///
>         legend(order( 1 2 3 4) pos(6) col(4) ///
>             label(1 "{&alpha} =.10") label(2 "{&alpha} =.05") ///
>             label(3 "{&alpha} =.01") label(4 "{&alpha} =.001") size(4)) ///
>             title("Simulated Power Analysis; DD, 0-64, All Cause Mortality"
> " ", size(4))
.     graph export
"$dropbox/health_insurance_and_mortality/state_level_public
> _data_example/scripts/markdown/simulated_power_analysis.png",  replace
width
> (800)
(file
/Users/hollinal/Dropbox/health_insurance_and_mortality/state_level_publi
> c_data_example/scripts/markdown/simulated_power_analysis.png written in PNG
> format)
```

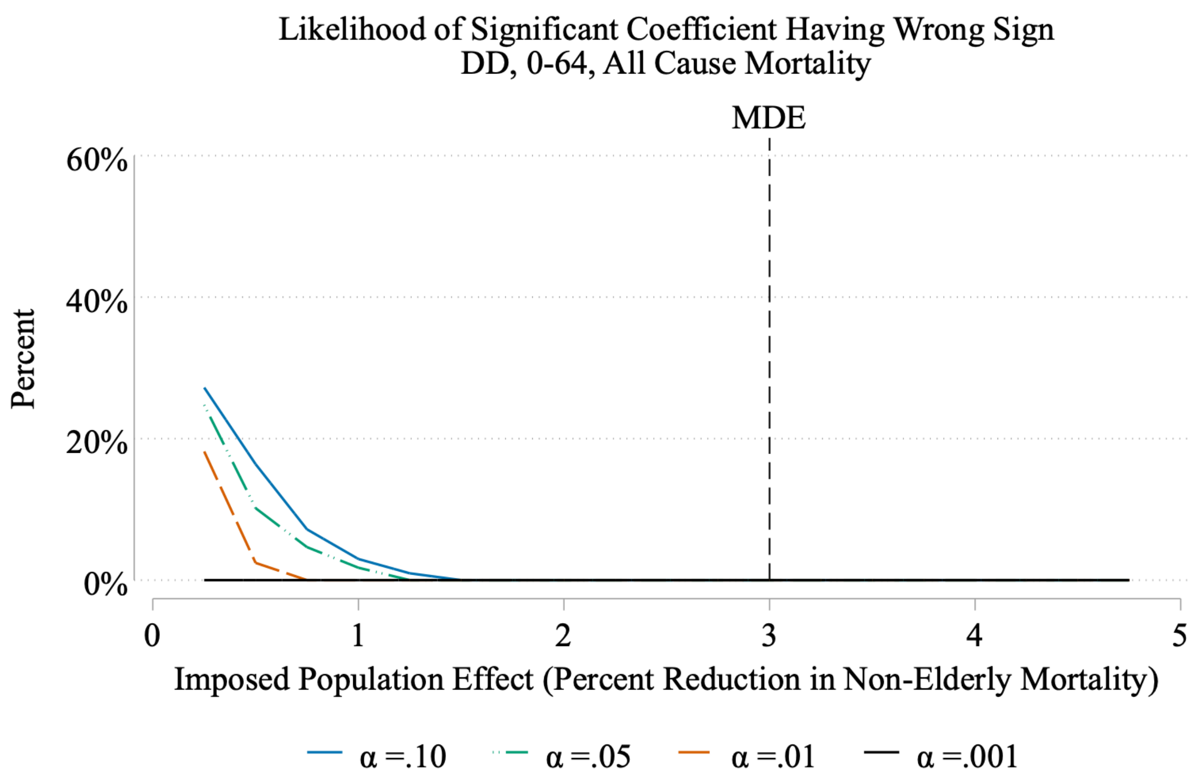


Simulated Power Analysis; DD, 0-64, All Cause Mortality

Plot sign error

```
. sum s_error_10

    Variable |        Obs        Mean    Std. Dev.       Min        Max
-------------+---------------------------------------------------------
  s_error_10 |         19     2.88117    7.122931          0   27.21893

. gen  s_error_label= 62.5

. twoway connected s_error_10 effect_size ,  lpattern("l") color(sea)
msymbol(
> none) mlabcolor(sea) mlabel("") mlabsize(3) mlabpos(11) ///
>     || connected s_error_05 effect_size  ,  lpattern(".._")
color(turquoise)
>  msymbol(none) mlabcolor(turquoise) mlabel("") mlabsize(3) mlabpos(3) ///
>     || connected s_error_01 effect_size  , lpattern("_") color(vermillion)
m
> symbol(none) mlabcolor(vermillion) mlabel("") mlabsize(3) mlabpos(3) ///
>     || connected s_error_001  effect_size  ,  lpattern("l") color(black)
msy
> mbol(none) mlabcolor(black) mlabel("") mlabsize(3) mlabpos(3) ///
>     || scatter s_error_label effect_size  , mlabel(mde_label) msymbol(none)
>  mlabpos(12) mlabsize(4)  ///
>     ytitle("Percent", size(4)) ///
>         xtitle("Imposed Population Effect (Percent Reduction in Non-Elderly
> Mortality)", size(4)) ///
>         legend(size(4) order(1 2 3 4) pos(6) col(4) label(1 "{&alpha}
=.10")
```

```
>  label(2 "{&alpha} =.05") label(3 "{&alpha} =.01") label(4 "{&alpha}
=.001")
> ) ///
>         xscale(r(0 5)) ///
>         xline(`mde', lpattern(dash) lcolor(grey) noextend) ///
>         xlabel( , nogrid labsize(4)) ///
>         ylabel(0 "0%" 20 "20%"  40 "40%" 60 "60%",gmax noticks labsize(4))
/
> //
>         title("Likelihood of Significant Coefficient Having Wrong Sign"
"DD,
>  0-64, All Cause Mortality" " ", size(4))
(note:  named style grey not found in class color, default attributes used)
.     graph export
"$dropbox/health_insurance_and_mortality/state_level_public
> _data_example/scripts/markdown/s_error.png", replace width(800)
(file
/Users/hollinal/Dropbox/health_insurance_and_mortality/state_level_publi
> c_data_example/scripts/markdown/s_error.png written in PNG format)
```

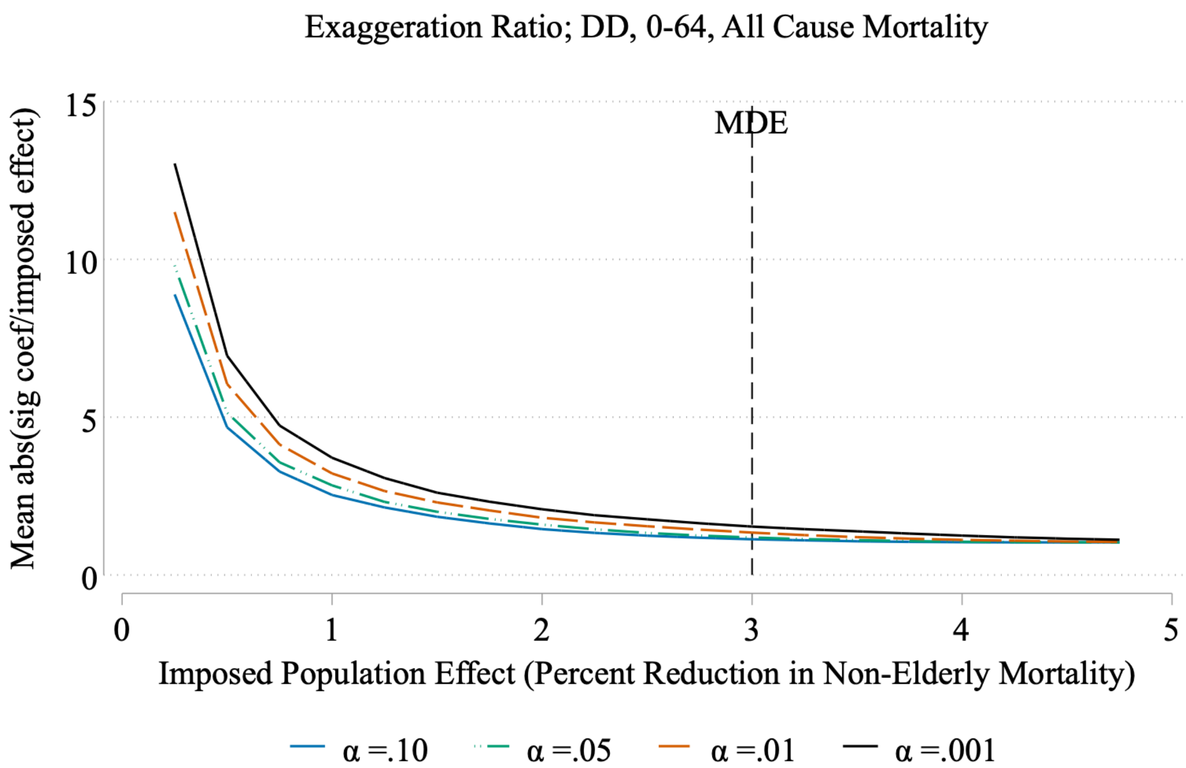


Likelihood of Significant Coefficient Having Wrong Sign DD, 0-64, All Cause Mortality

Plot magnitude error

```
. sum m_error_001

    Variable |        Obs        Mean    Std. Dev.       Min        Max
-------------+---------------------------------------------------------
 m_error_001 |         19    2.851967    2.875496   1.114921   13.03762

. gen  height= `r(max)'*1.05
```

```
. twoway connected m_error_10 effect_size ,  lpattern("l") color(sea)
msymbol(
> none) mlabcolor(sea) mlabel("") mlabsize(3) mlabpos(11) ///
>     || connected m_error_05 effect_size ,  lpattern(".._") color(turquoise)
> msymbol(none) mlabcolor(turquoise) mlabel("") mlabsize(3) mlabpos(3) ///
>     || connected m_error_01 effect_size , lpattern("_") color(vermillion)
ms
> ymbol(none) mlabcolor(vermillion) mlabel("") mlabsize(3) mlabpos(3) ///
>     || connected m_error_001  effect_size ,  lpattern("l") color(black)
msym
> bol(none) mlabcolor(black) mlabel("") mlabsize(3) mlabpos(3) ///
>     || scatter height effect_size , mlabel(mde_label) msymbol(none)
mlabpos
> (12) mlabsize(4)  ///
>     ytitle("Mean abs(sig coef/imposed effect)", size(4)) ///
>         xtitle("Imposed Population Effect (Percent Reduction in Non-Elderly
> Mortality)", size(4)) ///
>         legend(size(4) order(1 2 3 4) pos(6) col(4) label(1 "{&alpha}
=.10")
>  label(2 "{&alpha} =.05") label(3 "{&alpha} =.01") label(4 "{&alpha}
=.001")
> ) ///
>         xscale(r(0 5)) ///
>         xline(`mde', lpattern(dash) lcolor(grey) noextend) ///
>         xlabel(, nogrid labsize(4)) ///
>         ylabel(, gmax noticks labsize(4)) ///
>         title("Exaggeration Ratio; DD, 0-64, All Cause Mortality"  " ",
size
> (4))
(note:  named style grey not found in class color, default attributes used)
.         graph export
"$dropbox/health_insurance_and_mortality/state_level_pu
> blic_data_example/scripts/markdown/m_error.png", replace width(800)
(file
/Users/hollinal/Dropbox/health_insurance_and_mortality/state_level_publi
> c_data_example/scripts/markdown/m_error.png written in PNG format)
```

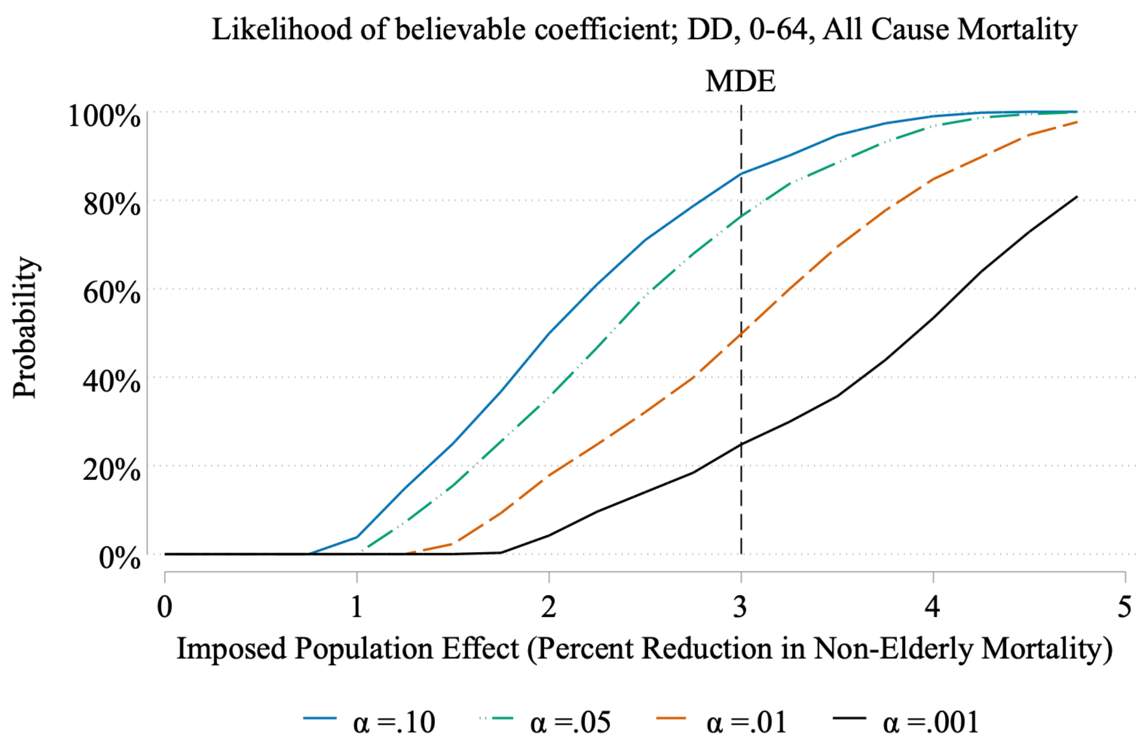


Exaggeration Ratio; DD, 0-64, All Cause Mortality

Plot believability

```
. twoway connected believe_10 effect_size ,  lpattern("l") color(sea)
msymbol(
> none) mlabcolor(sea) mlabel("") mlabsize(3) mlabpos(11) ///
>     || connected believe_05 effect_size ,  lpattern(".._") color(turquoise)
> msymbol(none) mlabcolor(turquoise) mlabel("") mlabsize(3) mlabpos(3) ///
>     || connected believe_01 effect_size , lpattern("_") color(vermillion)
ms
> ymbol(none) mlabcolor(vermillion) mlabel("") mlabsize(3) mlabpos(3) ///
>     || connected believe_001  effect_size ,  lpattern("l") color(black)
msym
> bol(none) mlabcolor(black) mlabel("") mlabsize(3) mlabpos(3) ///
>     || scatter full_power effect_size , mlabel(mde_label) msymbol(none)
mlab
> pos(12) mlabsize(4)  ///
>     xtitle("Imposed Population Effect (Percent Reduction in Non-Elderly
Mort
> ality)", size(4)) ///
>         legend(size(4) order(1 2 3 4) pos(6) col(4) label(1 "{&alpha}
=.10")
>  label(2 "{&alpha} =.05") label(3 "{&alpha} =.01") label(4 "{&alpha}
=.001")
> ) ///
>                 ytitle("Probability", size(4)) ///
>         xscale(r(0 5)) ///
>         xline(`mde', lpattern(dash) lcolor(grey) noextend) ///
>         xlabel(, nogrid labsize(4)) ///
```

```
>         ylabel(0 "0%" 20 "20%"  40 "40%" 60 "60%" 80 "80%" 100 "100%",gmax
n
> oticks labsize(4)) ///
>         title("Likelihood of believable coefficient; DD, 0-64, All Cause
Mor
> tality" " ", size(4))
(note:  named style grey not found in class color, default attributes used)
.      graph export
"$dropbox/health_insurance_and_mortality/state_level_publi
> c_data_example/scripts/markdown/believable.png", replace width(800)
(file
/Users/hollinal/Dropbox/health_insurance_and_mortality/state_level_publi
> c_data_example/scripts/markdown/believable.png written in PNG format)
```



Likelihood of believable coefficient; DD, 0-64, All Cause Mortality

Conclusion

Using this simple example, we can see that for this simple research design the minimum mortality reduction that is believable, well-powered, and significant at the 5% level is around 3%. Changing the research design (e.g. adding control variables, shifting to the county-level, changing the cause of death) would certainly impact power.

This simple research design is a DiD comparing 23 random treated states to 18 random control states. In this simple design we used 5 years of pre-expansion data and 3 years of post-expansion data. Both state and year fixed-effects were included. Regressions were weighted by state-population and standard errors were clustered at the state-level. The dependent variable was the natural log of the all-cause non-elderly mortality rate per 100,000.

Notice of Benefit and Payment Parameters for 2020
Summary of proposed changes

DISCLAIMER: This is not intended as complete legal analysis of the proposed regulations, but rather a summary guide to assist with future analysis.

Comments are due Feb. 19, 2019. Rule language and submission instructions are found here.

Change	Details
Insurer Plan Management	

Changes premium adjustment factor from a standard based on employer coverage, to one that also includes changes in individual market coverage.
 	
156.130
	Data will be taken from National Health Expenditure Account (NHEA) Data collected by the Centers for Medicare & Medicaid Services (CMS). The changes:
	
	• Will result in:
	  ○ Higher maximum annual limitation on cost sharing;
	  ○ A higher required contribution percentage for individuals (see section below on raising required contribution percentage);
	  ○ Higher employer shared responsibility payment amounts (meaning fewer employed individuals would qualify for the Advanced Premium Tax Credit - APTC);
	  ○ Adjustment in APTC corresponding to revised higher required contribution percentages (to be officially determined by the Department of the Treasury); and
	  ○ Fewer employed individuals who qualify for APTC.
	
	• Set maximum annual limitation on cost sharing at $8,200 for self-only coverage and $16,400 for coverage of two or more people -- this number was $6,350 in 2014, and 3.8 percent higher than in 2019.
	
	• Reduces cost-sharing reduction plan variations to $2,700 for self-only coverage and $5,400 for other coverage for individuals earning less than 200 percent of the federal poverty level (FPL), from $2,600 and $5,200 in 2019, and to $6,550 and $13,100 for individuals earning from 200 to 250 percent FPL ($6,300 and $12,600 in 2019).
	
	This allows for better compliance with actuarial value (AV) standards established under federal law based on the new premium adjustment factor.
	
	It reiterates existing permission for states to submit their own state-specific datasets for AV calculations, subject

Change	Details
	to the Department of Health and Human Services (HHS) approval. ***<u>Rationale</u>*** Premiums for coverage through the exchanges have grown faster than employer-sponsored insurance premiums. The new premium measure would reflect cumulative, historic growth in premiums for private health insurance markets (excluding Medigap and property and casualty insurance) from 2013 onwards. This change would more closely track with changes in the individual market and lower federal spending on APTC. **HHS estimates premium increases of $181 million per year from 2020 to 2023, and decreased federal spending on tax credits of $900 million in 2020 and 2021, and $1 billion in 2022 and 2023. HHS estimates 100,000 individuals would drop exchange coverage.** This is partially aimed at slowing rate of APTC growth caused by silver-loading practices. ***<u>Questions posed in the Notice of Benefit Payment and Parameters (NBPP):</u>*** • General request for comments. • Request for comments on proposed maximum annual limitation on cost-sharing. • Is the NHEA the correct source of premium data to use for the premium adjustment factor? • Should employer-sponsored insurance premiums continue to be the standard?
Allows insurers to make mid-year changes to their drug formulary. 147.106(e)(5) 146.152 148.122	**<u>To the Extent Permitted by Applicable State Law</u>** An insurer *may* make a formulary change upon the new availability of a generic equivalent. An insurer may add the generic and remove the equivalent brand-name drug, or move it to a higher cost-sharing tier. It also: • Requires insurers to make modifications within a reasonable time period. • Insurers must notify enrollees of the change in writing 60 days before it takes place. Notice must include the name of the brand-name drug and the generic alternative, and specify the dates the changes will be effective and the process of appeals; • Changes must meet standards for a uniform modification of coverage, including that it be available at least in a majority of the same service area (further defined under 147.106(e); • Requires insurers to submit an annual report to HHS of any mid-year formulary changes.

Change	Details
	Applies to small group, large group, and individual market insurers and both grandfathered and non-grandfathered coverage. Plans would not lose grandfathered status for this change. Enrollees may appeal to request coverage of a brand drug that was removed. Changes do not preempt state or federal agencies (e.g., Office of Personnel Management for federal benefits) from prohibiting or narrowing the circumstances under which insurers may make mid-year changes. Estimates 37 drug equivalents could have been made available in 2018 if this change had been in effect. Estimated annual costs: • For an insurers to remove a drug mid-year: $8.5 million • For an insurer to change a drug's tier: $8.4 million ***<u>Rationale</u>*** To increase the use of lower-cost prescription drugs, Because generic equivalents are approved by the Food and Drug Administration throughout the year. ***<u>Questions posed in NBPP</u>*** • Should notice to consumers be mandatory 90 or 120 days prior to change (rather than 60)? • Should these changes be limited to individual and small group insurers? • Are the conforming amendments made to grandfathered and non-grandfathered plans appropriate (146.152 & 148.122)? • Should therapeutic substitutions also be allowed, like generic substitutions? Are there any existing standards of practice for therapeutic substitutions and are those standards nationally recognized and readily available for providers to use?
Allows for plans to eliminate coverage of a brand-name drug as an essential health benefit when a generic is available.	**<u>To the extent permitted by applicable state law</u>** In a case where an insurer covers both a brand-name drug and its generic equivalent, the insurer may choose to specify that the generic ONLY qualifies as a benefit covered under Essential Health Benefit (EHB) standards. In this case, the brand name drug would not qualify as an EHB. In opting to do this: • APTC would not apply to any portion of the premium attributable to coverage of the brand name drug.

Change	Details
156.122 156.130	Insurers would be required to calculate the portion of premiums used to cover the brand-name drug and report that amount to the exchange that offers that plan. • The spending on the brand-name drug would not qualify toward annual and lifetime limits. Under the Affordable Care Act (ACA), only benefits classified as EHB can apply toward annual and lifetime limits. HHS proposes two alternative strategies to handle annual and lifetime cost-sharing limits in the case an individual purchases a brand-name drug. In the first, insurers would apply the cost of the generic toward cost-sharing limits; in the other, no amount would be applied to cost sharing. HHS requests comment on these proposed alternates. Changes to calculation of annual and lifetime limits would apply not just to individual market plans, but also group health plans, which are governed by the same laws governing the prohibition of annual and lifetime limits. The policy only applies when the generic drug is available to and medically appropriate for the enrollee. Insurers must establish an appeals process for an enrollee to petition for the brand-name drug. ***<u>Questions posed in the NBPP:</u>*** • Should insurers be allowed to exempt the entire amount paid by a patient for a brand-drug for which there is a medically appropriate generic alternative available from the annual limitation on cost sharing? • What are the limitations imposed on group health plans' and health insurance insurers' information technology systems ability to accumulate the cost sharing consistent with this policy? • Should this be subject to or preempt any state laws? • Should HHS require, instead of permit, insurers to exclude brand-name drugs from being EHB if the generic drug is available and medically appropriate for the enrollee?
Deadlines for states to submit EHB plan selections. 156.115	States must submit EHB benchmark selections for 2021 by May 6, 2019. It sets the deadline as May 8, 2020 for 2022 plan selections. This is earlier than prior years when the deadlines had been set in July. HHS suggest states submit their applications about 30 days in advance of these document submission deadlines. It encourages states to explore flexibility granted in last year's notice to revise EHB benchmarks, particularly as a means to address the opioid epidemic. Any states wishing to take up the new option of making a substitution in benefits between categories, must give notice to HHS by May 6, 2020.

Change	Details
	Questions posed in NBPP: General request for comments on EHB submission timelines.
Limits use of prescription coupons (accumulator adjustment program). 156.130	Insurers do not have to count amounts paid via "direct support offered by drug manufacturers to reduce or eliminate out-of-pocket costs for a brand-name drug when there is a generic equivalent" (e.g., coupons from manufacturers for brand-name drugs) toward the annual limitation on cost sharing. ***Rationale*** Coupons incentivize use of brand-name drugs, increasing overall costs. The intent of the ACA enables CMS to address issues related to enrollee cost sharing. ***Questions posed in NBPP:*** • Should states decide how coupons are treated? • Would it be difficult for insurers to determine these amounts? Are there practical limitations? • Should this be applied to QHPs only?
Requirement that QHP insurers offering non-Hyde abortion coverage offer coverage omitting abortion as well. 156.280	If a QHP insurer provides coverage of non-Hyde abortion services in one or more QHPs, the QHP insurer must also offer at least one "mirror QHP" that omits coverage of non-Hyde abortion services throughout each service area in which it offers QHP coverage through the exchange, **to the extent permissible under state law.** The QHP insurer would only be required to offer at least one "mirror QHP" throughout each service area that the QHP insurer offers plans covering non-Hyde abortion coverage, even if the insurer has multiple plans that offer non-Hyde abortion services in a single service area. QHPs have the discretion to determine the metal level at which the mirror plan is offered. HHS estimates the change will affect 75 insurers in 17 states. ***Rationale*** Some consumers are not enrolling in coverage because they object to having non-Hyde abortion benefits in their plans. HHS acknowledges potential burden for insurers to develop new plans and state-based marketplaces (SBMs) that would have to review more plans. HHS suggests this regulation does not conflict with 42 U.S. Code

Change	Details
	18023, which states that an insurer has authority over whether or not to offer non-Hyde coverage. ***<u>Questions posed in NBPP:</u>*** • Should QHPs have discretion to choose the metal level? Will it inhibit access to plans that do not offer abortion services? • How can exchanges better differentiate between the QHP that covers non-Hyde abortions and the QHP that does not cover non-Hyde abortions? • What is the extent to which direct enrollment entities and agents and brokers should be required to adhere to standards for differential display of non-Hyde abortion and other plans? • What requirements should be put in place to limit confusion of consumers who to not carefully study the differences between available plans.
Cost-sharing reduction payments and silver-loading	No changes made. HHS claims that silver loading is the result of Congresses' lack of appropriating funds for the program and expresses support for a legislative solution to appropriate cost-sharing reduction payments. ***<u>Questions posed in NBPP:</u>*** Seeks comments on what policies HHS should pursue sans a legislative solution. Suggests HHS may take action on this policy in a future rule.
Use of reference-based drug pricing	HHS acknowledges that reference-based pricing is one strategy to address increases in pharmaceutical spending and is seeking comment on the opportunities and risks of implementing or incentivizing reference-based pricing for prescription drugs. Within this proposed rule, HHS defines reference-based pricing as an issuer in a commercial market covering a group of similar drugs, such as within the same therapeutic class, up to a set price, with the enrollee paying the cost difference if the enrollee desires a drug that exceeds the reference price. Note, the reference price would be set by the plan and not based on another state or country's prices; rather, prices are set depending on therapeutic class. (For example, all NSAIDs are covered at a set/reference price, and if enrollees want NSAIDs that cost more than the reference price, they will pay the cost differences.)

Change	Details
	<u>Questions posed in NBPP:</u> Opportunities and risks of implementing or incentivizing reference-based pricing for prescription drugs.
Non-discrimination and how it addresses opioid addiction	HHS encourages insurers to take every opportunity to address opioid use disorder, including increasing access to medication-assisted treatment (MAT) and normalizing its use. For plan year 2018, 2,553 QHPs (95 percent) in these 39 federally-facilitated exchanges (FFE) and state-based exchanges using the federal platform states cover all four of MAT drugs; 105 QHPs (4 percent) cover three; and 25 QHPs (less than 1 percent) cover two. Non-discrimination: The rule includes several reminders that any indication of a reduction in the generosity of a benefit in some manner for subsets of individuals that is not based on clinically indicated, reasonable medical management practices is potentially discriminatory and that the ACA prohibits discrimination against individuals who participate in or have completed substance use disorder treatment, including MAT. This reminder is in response to concerns that insurers are not covering MAT for opioid treatment, even if covering those services for other issues.
Quality improvement	The proposed rule includes a general statement to encourage QHP insurers to use performance measures that are aligned with the CMS Meaningful Measures Initiative in fulfilling Quality Improvement Strategy requirements. The proposed rule states that HHS will continue to assess quality measures to ensure use of a meaningful set of measures.
Eligibility and Enrollment	
New special enrollment period Exchanges are permitted to offer a special enrollment period (SEP) to off-exchange enrollees who experience a decrease in household income.	Applies when a member of the household newly qualifies for APTC based on reduced income AND had minimum essential coverage for at least 1 of 60 days prior to the change in circumstance. Previously, this SEP was only available to those who previously had employer-coverage. Exchange enrollment must occur within 60 days of the financial change. Individuals would be required to submit documentation verifying their change in circumstances within 30 days of plan selection for the FFE.

Change	Details
155.420	Clarifies minimum essential coverage includes pregnancy Medicaid, CHIP unborn child, and medically needy Medicaid. ***Questions posed in NBPP:*** • General solicitation for comments on these changes. • Requests comments on the number of state-based exchanges that will adopt this SEP. • Requests any information on cost-estimates associated with implementation of this SEP for exchanges insurers direct enrollment entities, and consumers.
Allows for greater flexibility in the ability of consumers to claim exemptions in 2018, without a certification from the exchange. 155.605	Exemptions include all those specified in new guidance released in 2018 including: https://www.irs.gov/pub/irs-drop/n-19-05.pdf and https://www.cms.gov/CCIIO/Resources/Regulations-and-Guidance/Downloads/Authority-to-Grant-HS-Exemptions-2018-Final-91218.pdf ***Questions posed in NBPP:*** General solicitation for comments on these changes.
Raises the required contribution percentage to 8.39 percent. 155.605	While percentage is less relevant without the federal mandate, the threshold is still necessary for determination of eligibility for enrollment in catastrophic coverage. Began at 8 percent in 2014. ***Question posed in NBPP:*** General solicitation for comments on these changes.
Auto-enrollment policies	No change proposed, but proposed rule includes a statement that current automatic re-enrollment practices give rise to many concerns. ***Rationale*** Auto-enrollment makes consumers less aware of their options. Lack of yearly updates due to changes in personal circumstance leads to eligibility errors, tax credit miscalculations, unrecoverable federal spending, and consumer confusion. ***Questions posed in NBPP:*** What are additional policies or program measures that can be used to reduce eligibility errors and potential government misspending (and applicable not sooner than plan year 2021)?

Change	Details
Consumer Assistance	
SHOP toll-free hotline Allows for SHOP exchanges to operate a toll-free hotline rather than a full call center. 155.205	Toll-free hotline includes the capability to provide information to consumers and appropriately direct consumers to the federally operated call center or HealthCare.gov to apply for, and enroll in, coverage through the exchange. A toll-free hotline includes the capability to provide information to consumers about eligibility and enrollment processes, and to appropriately direct consumers to the applicable exchange website and other applicable resources. Consists of a toll-free number linked to interactive voice response capability, with prompts to pre-recorded responses and frequently asked questions, information about locating an agent and broker in the caller's area, and the ability for the caller to leave a message regarding any additional information needed
Navigator requirements Make optional (rather than required) for FFE navigators to provide assistance with certain topics post-enrollment. 155.210 155.215	**Topics include:** • Filing exchange eligibility appeals; • Understanding and applying for exemptions from the individual mandate; • APTC reconciliation processes; • Understanding basic concepts and rights related to health coverage and how to use it; and • Referrals to licensed tax advisers, tax preparers, or other resources for assistance with tax preparation and tax advice related to exchange application and enrollment process, exemptions from the requirement to maintain minimum essential coverage and from the individual shared responsibility payment, and premium tax credit reconciliations. The proposed rule revises training requirements to conform with navigator changes. The current FFE navigator training for annual certification or recertification might continue to include training on some of the topics. SBEs retain autonomy to require these topics. Eliminates corresponding requirements that exchanges conduct training on these topics. ***Rationale***

<table>
<tr><th>Change</th><th>Details</th></tr>
<tr><td></td><td>To reduce burden, increased flexibility, enable easier, more cost-effective operations of navigator programs. Helps navigators concentrate their resources on enrollment, rather than post-enrollment activities.

<u>Questions posed in NBPP:</u>
• How many hours per month do FFE navigator grantees and individual navigators currently spend providing the assistance on these topics?
• What percentage of their work is spent meeting these requirements?
• How will their work be impacted, including how would they reprioritize their work?</td></tr>
<tr><td colspan="2">Increased Transparency</td></tr>
<tr><td>Enrollee cost-sharing transparency

155.220(d)</td><td>No proposed changes, but under current law and regulation, insurers must post and make available to the public, data related to transparency in coverage in plain language and submit this data to HHS, the exchange, and the state's insurance commissioner.

HHS is considering different options for disclosure of cost-sharing information, such as:
• Whether to require that insurers disclose a consumer's anticipated costs for services within a specific timeframe.
• Whether to require insurers to disclose anticipated d costs for a number of common coverage scenarios.

<u>Rationale</u>
Consumers would benefit from a greater understanding of what their potential out-of-pocket costs would be for various services, based on which QHP they are enrolled in and which provider they see.

Promote consumers' ability to shop for coverage and play an active role in health care.

<u>Questions posed in NBPP:</u>
• How can HHS further implement requirements that QHP insurers must make available the amount of cost-sharing the enrollee may incur under his or her coverage plan for specific services by participating providers?
• What types of data would be most useful to improving consumers' abilities to make informed health care choices?
• How can HHS improve consumers' access to information about health care costs?</td></tr>
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Change	Details
	• Are there any existing regulatory barriers that stand in the way of privately-led efforts at pricing transparency? • Are there ways HHS can facilitate or support increased private innovation in price transparency? • How can HHS promote transparency related to value-based insurance design? • How can HHS promote the offering and take-up of high-deductible health plans paired with health savings accounts, especially on Healthcare.gov?
Expansion of Direct Enrollment Pathway	
Formalizes definition of web-broker. 155.220; 155.221	Web-broker is an individual agent or broker, a group of agents or brokers, or an agent or broker business entity, registered with an exchange under §155.220(d)(1) that develops and hosts a non-exchange website that interfaces with an exchange to assist consumers with the selection and enrollment in QHPs offered through the exchange, a process referred to as direct enrollment. Means that any general reference to agent or broker would include web-broker.
Formalizes definition of "direct enrollment technology providers." 155.220; 155.221	A direct enrollment technology provider is a type of web-broker who is not a licensed agent, broker, or producer under state law and has been engaged or created by, or is owned by, an agent or broker to provide technology services to facilitate participation in direct enrollment as a web-broker. References to web-brokers are intended to include direct enrollment technology providers, as well as licensed agents or brokers that develop and host non-exchange websites to facilitate QHP selection and enrollment, unless otherwise indicated.
Streamlines and consolidates the requirements applicable to direct enrollment entities. 155.220; 155.221	Formalizes that both QHP insurers and web-brokers may serve as direct enrollment entities. ***Display of plan information*** • Prohibits web-broker websites from displaying recommendations for QHPs based on compensation the web-broker, agent, or broker receives from QHP insurers. • Prohibits web-broker websites from displaying QHP recommendations based on compensation received from QHP insurers. • Does not prohibit web-brokers from otherwise implicitly making recommendations based on how they display QHPs. • Requires direct enrollment entities to display and market QHPs and non-QHPs on separate website pages. Clarifies requirements for disclaimers that must be posted to assist consumers in distinguishing

Change	Details
	QHP products for which they could be APTC and CSR eligible. A direct enrollment entity could begin marketing and displaying the non-QHP health plans and/or off-exchange products after the consumer completes the exchange eligibility application and QHP selection process, but before he or she has completed the shopping experience. ***Relationships with other entities*** • Requires a web-broker to provide HHS with a list of the agents or brokers who, through a contract or other arrangement, use the web-broker's non-exchange website. Considers reporting on a quarterly or monthly bases, with daily or weekly reporting during the open enrollment period, and a month before. • Allow HHS to immediately terminate an agent or broker's agreement with the FFEs for cause, including not meeting state specific licensure requirements. HHS may also immediately suspend an agent or brokers ability to transact information with the exchange. • Web-broker agreement may be suspended or terminated if it is under common control or affiliated with another web-broker who has had an agreement suspended or terminated. • Enables direct enrollment entities to utilize "direct enrollment entity application assisters" for their programs. Assisters must be trained and certified regarding QHP option and eligibility and enrollment processes (similar to what is required of agents and brokers). These assisters may include insurers application assisters, or employees, contractors, or agents of direct enrollment entities who are not licensed agents, brokers, or producers under state law, but who assist consumers with exchange eligibility. HHS estimates 490,000 applications would be completed by these entities in 2019. This could yield $12.2 million in savings achieved by not paying agent and broker fees. ***Compliance and oversight*** • Auditing agencies for direct enrollment entities must be independent from the entities they are auditing. • A written agreement must be established between the entity and auditor stating compliance with oversight over provisions outlined in federal regulation. • Direct enrollment entities must contract with a third-party entity to certify operational readiness. • Extends authority of HHS to suspend the ability of direct enrollment entities to transact information with an exchange, including in cases where HHS finds that there is unacceptable risk to the accuracy of exchange eligibility determinations.

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<tr><th>Change</th><th>Details</th></tr>
<tr><td></td><td>Other requirements
Exempts the registering entity for the web-broker from completing training requirements, though all agents and brokers working with the web-broker must complete the training.
Web-brokers who offer enhanced direct enrollment must include the same fields in their applications as required in the application for Healthcare.gov.
<u>Questions posed in NBPP:</u>
What form and manner should submission of agent and broker information take? How frequently should it occur?
What requirements should be adopted in reference to how disclaimers should be displayed on web-broker websites?</td></tr>
<tr><td>Greater flexibility for use of web-brokers by assisters, certified application counselors, and navigators.

155.225</td><td>Grants new permission for assisters and certified application counselors to use web-broker websites to assist consumer with QHP selection and enrollment.

SBEs have discretion over this permission in their states.

Suggests that web-brokers may consider building assister friendly interfaces. Web-brokers must display all QHP data provided by an exchange in order to be used by assisters. If the website does not allow for enrollment in all QHPs, it must provide a prominent disclaimer that a consumer can enroll in those missing QHPs through the exchange. Considering if web-brokers should be prohibited from making plan recommendations or prioritizing plans on their websites if used by assisters.

Proposes allowing, but not requiring, navigators and certified application counselors to assist consumers with applying for eligibility for insurance affordability programs and QHP enrollment through web-broker websites under certain circumstances.

<u>Rationale</u>
Moving forward, it is essential for assisters to evolve by collaborating with new partners to better accomplish the shared goals of educating consumers and helping them to enroll in QHPs.

<u>Questions posed in NBPP:</u></td></tr>
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Change	Details
	• Considers addition of an optional annual certification process for web-brokers related to compliance with these requirements. • Should HHS maintain a public list of web-brokers for assister to find? • Should web-brokers be prohibited from making plan recommendations or prioritizing plans on their websites if the site is used by assisters? • How should disclaimers be displayed in the case of web-brokers that do not enable enrollment in all QHPs? • General solicitation for comment on proposal for how QHP recommendations are displayed as it relates to assister utilization of web-brokers.
FFE User Fees	
Reduces assessment rate from 3.5 to 3.0 percent for FFE and from 3.0 to 2.5 percent for SBE-FPs	Calculated based on the proportion of FFE costs that are associated with the FFE information technology infrastructure, the consumer call center infrastructure, and eligibility and enrollment services. ***<u>Question posed in NBPP:</u>*** General solicitation for comments on these changes.
Risk Adjustment Methodology	
Data for risk adjustment (RA) calculation: Calculations will use 2016-2017 EDGE data in recalibration of risk adjustment, with Market Scan data from 2017 153.320	Proposes use of blended data sourced from both EDGE and Market Scan. This is similar to the approach used for the 2019 benefit year, which also blended data from these two sources. This approach is intended to enable the use of the most recent data available for RA calculations. Caveats that calculations to develop coefficients used for RA in this proposed rule come from 2016 Market Scan (rather than EDGE) data. Indicates this should be a close approximation of what the final numbers will be from the EDGE data. If 2017 EDGE data is not available by the time of publication of the final rule, the coefficients will be published later in guidance. ***<u>Question posed in NBPP:</u>*** Are there any issues with the use of blended data from separate data sets to determine risk adjustment calculations?
Changes to calculation parameters 153.320	No changes in the categories for risk adjustment from 2019. Pricing adjustment to the RXC coefficient for hepatitis C.

Change	Details
	Sets a permanent threshold ($1 million) and coinsurance rate (60 percent) to account for high-cost enrollees in RA calculations -- same as thresholds set for 2018 and 2019 benefit years. Proposes to maintain them for 2020 and beyond. Allows for further amendment in future rules. Maintains cost-sharing reduction adjustment established in 2019. ***Rationale*** Hepatitis C changes are to account for insurer gaming, over-prescribing incentives, and notable increases in the cost of these drugs. Thresholds intended to prevent insurers with disproportionate high risk from skewing risk adjustment calculations. A stable threshold is designed to promote market stability. ***Questions posed in NBPP:*** • Are there ways to better anticipate and more precisely adjust drug categories to account for rapidly changing drug prices and plan liability expenditures? • Are there comments on how the thresholds are determined as a means to mitigate skewed calculations and system gaming? • Are there comments on the current coinsurance and threshold and the decision to maintain each from year to year? • Are there comments on the decision to maintain the same cost-sharing reduction adjustment?
Adds prescription drugs into error estimations 153.320	HHS will begin to add prescription drug categories (RXCs) into its error estimation beginning with data from the 2018 benefit year. **Rationale** To better ensure that prescriptions are fully accounted for in risk adjustment validations.
Process of state requests for risk adjustment modifications	States must submit any requested reductions to risk adjustments by Aug. 1, two years before the applicable benefit year.

Change	Details
153.320	Allows states to request that HHS not make public information and analysis used to support requested RA requests to protect against the release of information that may contain trade secrets, or confidential commercial financial information. States must provide a version of their request for public release that does not include this information. State requests would be applied to both catastrophic and non-catastrophic risk pools unless otherwise requested by states. Alabama was the only state to request a risk adjustment transfer — 50 percent for its small group market. Alabama regulators assessed the transfer would not increase premiums by more than 1 percent. Their full request can be viewed at: https://www.cms.gov/CCIIO/Programs-and-Initiatives/Premium-Stabilization-Programs/index.html ***Questions posed in NBPP:*** • Solicitation for comments on any part of this process. • Are there comments about Alabama's specific request?
Sequesters the risk adjustment and reinsurance programs at a rate of 6.2 percent.	Funds sequestered in fiscal year 2019 from reinsurance and risk adjustment will be available for payment in FY 2020 without Congressional action. ***Rationale*** To maintain budget neutrality of the program. ***Question posed in NBPP:*** General solicitation for comments on these changes.
Adjusts risk adjustment data validation methodology 153.630	HHS will use the 2017 benefit year risk adjustment data validation results as an initial basis for determining 2019 benefit year initial validation samples. For the initial year of validation, HHS will require a minimum sample of 400 enrollees for large insurers (with 500,000+ enrollees) with larger-than-average failure rates, and 200 of those with lower-than-average failure rates. Sample sizes will be maintained at 200 for smaller insurers. Proposes several alternative strategies for determination of sample size. HHS will not increase a sample above 200 enrollees when it performs its second validation audit.

Change	Details
	Applies the Neyman allocation method to the 10th stratum of enrollees without Hierarchical Condition Categories (HCCs). This is the same of the method used for all other categories of enrollees. Codifies that insurers with total annual premiums of $15 million or less are exempt from annual validation audits. They will be subject to random audits every three years. Insurers in or entering liquidation would also be exempt. ***Questions posed in NBPP:*** • Should another benefit year be used to calculate enrollment for the applicable data validation year? • Are there comments on the proposed methods for varying validation audit sample sizes? Should HHS failure rates be used to determine sample size? Should HHS only use the latest available failure rates, or rates from multiple prior years? • Are there any issues with the extension of the Neyman allocation to the10th stratus of enrollees without HCCs? • Should any insurer be allowed to seek a larger sample size? • Should sample sizes vary by any factors other than insurer size? • Requests comments on the estimates of costs to insurers to conduct sampling as proposed in this rule.
Risk adjustment data availability 153.610 153.710	In the 2018 NBPP, HHS proposed the release of a public use file with enrollee-level EDGE data. Rule proposes the alternative release of an only a limited data set that can include more information such as dates associated with enrollees. The data set would be made available on an annual basis. This data will be available by request for research, public health, or health care operations purposes. Requestors must sign a data use agreement to access the data. Data would be available beginning with the 2016 benefit year. Data would not include direct identifiers of individuals, relatives, employers, or household members. ***Rationale***

Change	Details

	To comply with HIPAA requirements, data cannot include dates (other than the year) and ages of enrollees aged 90 or older.
	
	<u>Questions posed in NBPP</u>
	• Solicitation for comments on any part of this release of EDGE data.
	• Should HHS extract state and rating area information for enrollees as part of the enrollee-level EDGE data?
	    o If so, should it be made available as part of the limited data set described above?
	    o How can these data elements be used for HHS-operated risk adjustment programs?
	    o What would be advantages and disadvantages of using state and rating area information for recalibration of the HHS-operated risk adjustment program, the AV calculator and methodology, and other HHS individual and small group market programs?
	    o What are possible research purposes for these data elements?
	    o Would the benefits of extracting these elements outweigh risks to insurer proprietary information?
	    o Is extraction of this data consistent with the goals of a distributed data environment?
	• How could collection of other data elements, not currently included in EDGE collection, benefit calibration of the risk adjustment program, AV calculator, other HHS programs, research, public health, or health care operations?

Shortens time insurers have to confirm second validation audit findings from 30 to 15 days. 153.630	
Risk adjustment program fee raised from $.15 per member per month (PMPM) to $.18 PMPM 153.610	