

10



*10 Years of Research with Impact 2009-2018*

**USC** Schaeffer  
Leonard D. Schaeffer Center  
for Health Policy & Economics



*A Decade of Research with Relevance*

10 *for ten*

“The Schaeffer Center focuses on the major healthcare challenges facing this country — access, quality and cost. The Center’s goal is to improve access for all Americans to quality care, when they need it, while keeping the cost to families, and the nation, affordable. Through rigorous, evidence-based research, Schaeffer Center faculty produce relevant and effective solutions that inform policymakers and lead to better policy decisions.” —*Leonard D. Schaeffer*

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OUR MISSION

*The mission of the Leonard D. Schaeffer Center for Health Policy & Economics is to measurably improve value in health through evidence-based policy solutions, research and educational excellence, and private and public-sector engagement.*

**Letter from the Director**

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## Improving Value in Health

Ten years ago, Leonard Schaeffer shared a vision with USC leadership for an academic center that would seek solutions to the seemingly intractable health policy challenges gripping our nation. Leonard and his wife, Pamela, made that vision a reality by generously establishing the USC Leonard D. Schaeffer Center for Health Policy & Economics.

Since the Center's inception, I have had the distinct honor of overseeing a gifted group of faculty, staff and graduate students in pursuing evidence-based approaches to make our healthcare system work better. As you will see in the following pages, we have accomplished a great deal in the first decade — even as we acknowledge that the Center must do so much more in the years to come. We have made considerable progress in regulatory reform, covering the uninsured and many other issues — but new challenges await, including the opioid crisis, a rapidly aging society, market consolidation and drug pricing.



**Dana P. Goldman**

*Leonard D. Schaeffer Director's Chair  
USC Schaeffer Center*

**Leonard D. Schaeffer**

*Advisory Board Chair  
USC Schaeffer Center*

**Unique Vantage Point and Resources**

In just one decade, the Schaeffer Center has become a trusted resource for outstanding analysis of healthcare issues for policymakers, media and the private sector. Our unique vantage point within both a school of pharmacy and a school of public policy gives the Center a singular perspective. We are proud to be a part of the USC School of Pharmacy (nationally ranked first among private schools) and the USC Price School of Public Policy (ranked second among all public affairs schools).

We also actively collaborate across the university — with faculty from medicine, gerontology, business, social work, economics and engineering — and with partners around the globe. Our USC-Brookings Schaeffer Initiative for Health Policy expands our presence in Washington, D.C., and has become a forum for policy analysis and discussion among top officials.

Our data core team mines big data from many sources to answer questions about efficacy and efficiency of health-care, and our microsimulation team has lent its expertise to the Congressional Budget Office, White House, National Academy of Sciences and other agencies. The models developed at the Center are being adopted in Europe, Korea, Singapore, Mexico, Japan, Canada and beyond.

**A Guiding Vision**

We owe much of our success to Leonard Schaeffer, who is not only a benefactor but also an ardent mentor. He has had a remarkable career in both the private and public sectors, including shepherding the creation of what became the Centers for Medicare & Medicaid Services as well as founding WellPoint Health Networks. Leonard understood — well before anyone else — the power of data to inform debate, answer questions and ensure meaningful impact. His example inspires us.

Our Advisory Board has also provided a steadfast stream of support and counsel in advancing our shared mission to measurably improve value in health through evidence-based policy solutions, research excellence, and public and private-sector engagement. They have given graciously of their time and resources to further our work.

Our rigorous, data-driven approach to health policy defines everything we do at the Schaeffer Center. We will continue to ask the big questions. If we are successful in answering them, a better healthcare system will be the Schaeffer Center's most enduring legacy.

**Dana P. Goldman**

*Leonard D. Schaeffer Director's Chair  
and Distinguished Professor of Public Policy,  
Pharmacy and Economics*



**10 for 10: Research *with Impact*** From its inception a decade ago, the USC Schaeffer Center for Health Policy & Economics has steadfastly pursued innovative solutions rooted in evidenced-based research to measurably **improve value in health**. Schaeffer faculty focus on work that informs lawmakers, media and private-sector leaders on today's pressing healthcare challenges — and, most importantly, research that makes a real impact on improving the health of individuals. The following pages feature **10 areas of research** that already have made a lasting impact. While they barely scratch the surface of the breadth and depth of Schaeffer Center efforts, they are powerful illustrations of the importance of relevant, big-picture thinking and **grounded, collaborative research** that move health policy forward. From predicting the impact of changes in demographics and promoting healthier communities globally to enhancing Medicare, combating the opioid crisis and redefining value in cancer treatments, the Schaeffer Center does more than inform policy — it helps drive decisions to improve delivery of care, foster innovation and enhance healthcare markets. These efforts span the healthcare landscape and will continue to inform policy.

Then and now: Schaeffer Center faculty and staff in 2018. The team has grown from four in 2009 to 114.

# 1

## Making Medicare Work Better

Nearly 60 million older adults and people with disabilities depend on Medicare, which is expected to account for 18 percent of federal spending by 2028. Policymakers rely on Schaeffer Center research as they strive to enhance the program's effectiveness and sustainability.

The nation's growing debt threatens Medicare and Medicaid, which have helped countless Americans and reduced poverty. Schaeffer Center researchers work with legislators on a bipartisan basis to bolster these vital systems, making them more efficient and effective.

### Longer but Less Healthy Lives

A study led by Dana Goldman using the Schaeffer Center's Future Elderly Model predicts that the average Medicare beneficiary in 2030 will be in worse physical shape than in 2010. This is a troubling notion given that the number of Americans aged 65 and older also will nearly have doubled to 67 million. A large portion of these future recipients will be disabled and suffering from chronic health conditions including hypertension and diabetes, and more likely to be female than male.

### Medicare Part D

Schaeffer Center researchers have analyzed numerous aspects of the Medicare pharmacy benefit program (Part D), including its impact on adherence, formulary and benefit design, the coverage gap, patient out-of-pocket costs, future innovation and the overall impact on the health of Medicare beneficiaries.

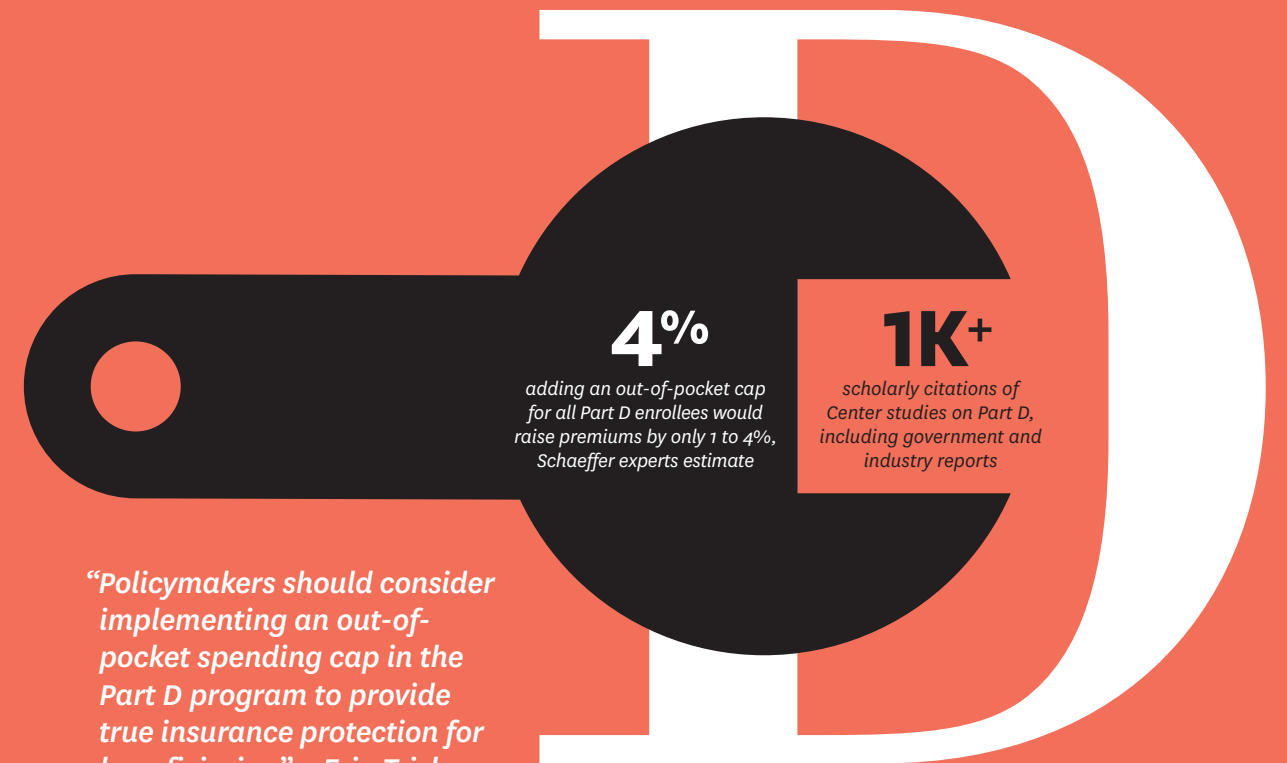
For example, Nobel laureate Daniel McFadden and colleagues have analyzed the impact of consumers not switching to the most appropriate benefit plan on out-of-pocket costs, prescription adherence and health outcomes. They found only 10 percent of enrollees switch plans each year, and many stay in plans that are not optimal based on their care needs. McFadden has presented his work to the Centers for Medicare & Medicaid Services (CMS).

Goldman, Geoffrey Joyce, Darius Lakdwalla and Neeraj Sood have analyzed the impact of Part D formulary and benefit design on patient outcomes and future drug innovation. Their work showing how the coverage gap disrupts prescription drug use was cited in expert testimony and addressed in the Affordable Care Act legislation. Joyce and Erin Trish have analyzed the impact of the rise in specialty drugs on drug spending, finding more Medicare beneficiaries use specialty drugs, resulting in significantly higher spending for both the patient and the government.

This research has been instrumental in policy discussions over the past 10 years; it has been cited in government reports, and Center experts have been called upon by federal and state policymakers, analysts and CMS leadership. In total, Schaeffer experts have authored more than 20 papers on Medicare Part D that have been cited over 1,000 times, including in Congressional Budget Office and Government Accountability Office reports.

### Payment Reform

As the Center for Medicare & Medicaid Innovation tests the benefits of new payment and delivery models, Paul Ginsburg and his colleagues have analyzed the impact of these reforms. For example, Ginsburg has examined the impact of uneven adoption of alternative payment models and offered proposals for better approaches moving forward. These pieces are part of the USC-Brookings Schaeffer Initiative for Health Policy, which provides guidance to policymakers on Medicare reform efforts. The Schaeffer Initiative is led by Ginsburg, who is also a member of the Medicare Payment Advisory Commission.



*“Policymakers should consider implementing an out-of-pocket spending cap in the Part D program to provide true insurance protection for beneficiaries.” – Erin Trish, Jianhui Xu and Geoffrey Joyce in Health Affairs, 2018*

### SCHAEFFER CENTER IMPACT

**Schaeffer research on payment reform, prescription adherence, plan formulary, benefit design and the Part D coverage gap has been used in policy analyses conducted by federal agencies, including the Congressional Budget Office and Government Accountability Office.**

## 2

### Investing in America's Future Health

USC Schaeffer's microsimulation models effectively demonstrate how demographic, behavioral and policy changes might influence health outcomes — providing invaluable tools for decision-making that can shape the nation's future health.

Life expectancy has increased in large part because of innovative technologies and significant advancements in treatment for cardiovascular disease and its risk factors. However, recent evidence suggests that these advances may not extend healthy life, especially at older ages. The risk of acquiring Alzheimer's disease and other dementias rises as we age. These trends also have financial implications — spending on individuals with dementia is higher than the costs of cancer and heart disease combined, and projected to increase considerably.

The Schaeffer Center's unique Future Elderly Model (FEM), and its expansion, the Future Adult Model (FAM), are used to predict the consequences of income disparities and changes in life expectancy, as well as quantifying the value of new medical technologies and assessing the societal benefits of disease prevention. These projections help inform crucial decisions made by the Congressional Budget Office, Department of Labor, Social Security Administration and President's Council of Economic Advisers.

#### Delaying Onset of Alzheimer's

The number of people with Alzheimer's disease (AD) — the nation's sixth leading killer — is growing dramatically. Some 5.7 million Americans were living with AD in 2018. Research by Julie Zissimopoulos, Patricia St. Clair and Eileen Crimmins shows that costs associated with Alzheimer's care will nearly quintuple by 2050. Their extensive investigations noted that the financial burden of AD in the U.S. will increase from \$307 billion annually to \$1.5 trillion by 2050. Medicare and Medicaid, which today foot three-fourths of this bill, are far from ready.

However, using the FEM and FAM, these Schaeffer Center experts also found that delaying AD's onset even a little can yield major benefits — both in quality of life and overall costs. Medical advances that delay onset by five years would add about 2.7 years of life. By 2050, a five-year delay in onset would result in a 41 percent lower prevalence of the disease while lowering the overall costs to society by approximately 40 percent.

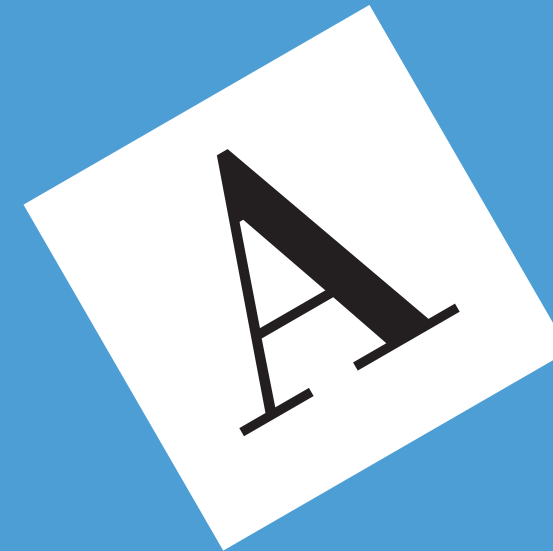
In related research, Zissimopoulos, Doug Barthold and colleagues were the first to compare the association between multiple types of blood pressure medications and the risk of acquiring AD across different populations. Given the prevalence of high blood pressure in older U.S. adults, targeted hypertension treatments that also reduce AD risk could both improve cardiovascular health and contribute to reducing the growing burden of AD.

Other Schaeffer Center-led research evaluated the impact of statins — commonly prescribed anti-cholesterol drugs — on reducing risk. The findings revealed Alzheimer's incidence dropped by 15 percent among women who regularly took statins and 12 percent among men, compared to patients who took the drugs less often. The findings were published in *JAMA Neurology* and reported on CNN and in other media outlets.

"We may not need to wait for a cure to make a difference for patients currently at risk," Zissimopoulos says. "Existing drugs, alone or in combination, may affect Alzheimer's risk."

#### Disparities in Life Expectancy

Dana Goldman and Bryan Tysinger used the FEM to model gains in life expectancy by birth cohort and income, finding American men



**\$219B**

*projected savings by 2050  
from delaying Alzheimer's onset  
by just one year*

**60+**

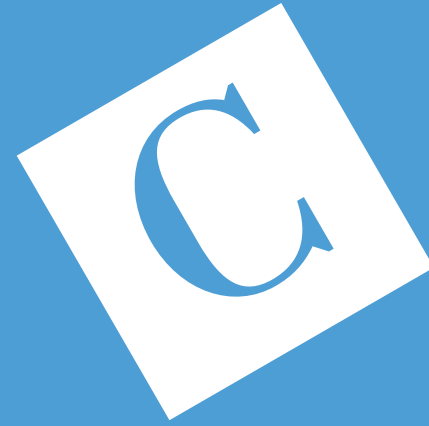
*peer-reviewed publications, including  
two special issues of Health Affairs  
and a National Academies report, were  
devoted to FEM findings*



*"Even small delays in the onset of Alzheimer's disease and dementia could have significant impacts for the patient, their family and caregivers, and the healthcare system more broadly. Our findings suggest there may be preventive measures we can take now, which is exciting." – Julie Zissimopoulos, 2018*

#### SCHAEFFER CENTER IMPACT

**Schaeffer's microsimulation model (the FEM) is recognized as the gold standard in economic forecasting. Its projections have been relied upon by the Social Security Administration, Congressional Budget Office and President's Council of Economic Advisers.**



Research led by Nobel laureate James Heckman (pictured above) and Dana Goldman was mentioned in more than 140 media stories, including The New York Times and The Washington Post.

**\$7.30**

ROI for every \$1 invested in early childhood education for at-risk children

“In America today we have a lot of single-parent families. What we’ve done is shown the benefits across two generations of the study of these enriched early child care programs. If you count all of the benefits that accrue from this program in terms of reduced healthcare costs, reduced crime, greater earnings, more education, higher IQ — we can compute a rate of return of about 13 percent per annum. This is a huge, huge investment return.”

– James Heckman, in an NPR interview in 2016

in the top income quintile born in 1960 gain seven to eight years in life expectancy at age 50 compared to men born in 1930 — while men in the lowest income quintile gain little or nothing. These findings, which were the centerpiece of a National Academy of Sciences report, have significant implications for the progressivity of public programs, including Social Security. The Government Accountability Office relied on this work for a report analyzing the implications of life expectancy trends for retirement planning.

The researchers also simulated the effects of proposed Social Security reforms such as raising the retirement age and modifying the benefit formula to see how they would affect the widening gap in life expectancy. Policymakers have relied on the Center’s insightful findings as they debate modifications to these public programs.

#### Early Education and Future Health

Nobel laureate James Heckman used the FAM to estimate the benefits of high-quality early childhood education on lifetime health outcomes. He compared data from low-income African-American children who attended two North Carolina preschools in the early 1970s to control groups who did not attend preschool.

The findings, featured in *The Washington Post*, *The New York Times* and National Public Radio, among more than 140 other media mentions, determined that investing in high-quality early childhood education for at-risk children — as well as employment support for their mothers — yields \$7.30 for every dollar spent. The calculation factors in such long-term benefits as reduced taxpayer costs for crime, welfare and healthcare, as well as the advantages of a better-prepared workforce.

Julie Zissimopoulos has presented her research on the burden of Alzheimer’s to national audiences, including a congressional briefing organized by Research!America.





# 3

## Achieving Healthier Communities Globally

From epidemics to changing demographics and chronic disease, healthcare challenges keep growing — as do ways to confront them. Schaeffer collaborations span the world to improve policies for healthier communities everywhere.

### Universal Care in India

Research conducted by Neeraj Sood and colleagues proved foundational to India's National Health Protection Scheme (NHPS), which is expanding healthcare to the nation's underserved. Sood examined the Vajpayee Arogyashree Scheme (VAS), established in the Indian state of Karnataka in 2010 to increase access to tertiary care for poor households.

Sood found that VAS substantially reduced the region's mortality rate and eased families' financial burdens. Meanwhile, taxpayers' costs could be kept reasonable through bundled payments, prior authorization and focusing on the conditions carrying the highest burden. He also noted the importance of patient outreach and making enrollment easy.

NHPS took up this advice, offering free health insurance to nearly 500 million people — 40 percent of India's population. Dubbed the "world's biggest experiment in universal healthcare" by U.K.'s *The Independent*, the program will ensure that people below the poverty line are no longer charged for advanced treatments that would have previously pushed them even deeper into debt.

### Consensus on Care

Sood also served as expert health economist for a consensus report from the National Academies of Sciences, Engineering and Medicine (NAS) calling attention to the poor quality of healthcare in low- and middle-income nations. He and his colleagues on the Committee on Improving the Quality of Health Care Globally found that between 5.7 million and 8.4 million people die each year from

inadequate care in these countries — accounting for 10 to 15 percent of total fatalities overall.

The work quickly became one of the National Academies' most downloaded reports. Its recommendations include: increasing accountability, leveraging universal coverage to improve care, redesigning healthcare systems to improve their capacity and adaptability, combating corruption, and increasing investment in research and development.

### Aging Populations

Around the world, people are living longer, which — although positive overall — strains the resources of families and society. It also is a major factor in the rising rates of Alzheimer's and chronic diseases. To help governments grapple with these trends as they consider spending on healthcare, pensions and other programs, the Schaeffer Center has developed a global network of collaborators, including researchers with the Organisation for Economic Cooperation and Development, who are building country-level FEM-based models in 17 nations to assess how current income inequalities affect people throughout their life spans.

"FEM is a powerful tool to predict the consequences of public policy for health outcomes, population aging and fiscal sustainability," Schaeffer Center Director Dana Goldman says. "As societies continue their demographic transitions, these country-specific models will provide policymakers around the world with forecasts to make better, evidence-based decisions."

*"This World Bank study clearly shows how this program benefits the health of the poor in Karnataka."*  
– U. T. Khader, Minister for Health and Family Welfare of Karnataka, India, on the 2014 Schaeffer Center study led by Neeraj Sood.



### SCHAEFFER CENTER IMPACT

**Using the Schaeffer Center Future Elderly Model tool, 17 countries around the globe are forecasting long-term trends, allowing for better resource allocation and greater impact on population health.**

## Informing the ACA Debate

As contention swirled around replacing the Affordable Care Act in 2017, Schaeffer work bridged the political divide with timely, data-driven analysis aimed at maximizing healthcare’s value and reach.

**160K**

page views on Schaeffer Initiative perspectives on the ACA in the New England Journal of Medicine

*Engaging policymakers on bold plans to rethink the entire system*

**35**

analyses by Schaeffer Center experts on the ACA in 2017 alone

*Providing real-time analysis of fast-moving legislation*

**ACA**

**90K**

downloads of the Schaeffer Initiative analyses on the ACA repeal-and-replace proposals

**\$236B**

cost to government due to tax-protected status of employer-based health insurance that could be used to rewrite the system

*“The analysis may be the best estimates the public and Republican senators will see before they vote on the Graham-Cassidy plan.” – Vox, September 2017, about the timely Schaeffer Initiative analysis*

### SCHAEFFER CENTER IMPACT

**The rigorous and timely analyses led by the Schaeffer Initiative moved the policy debate and positioned Schaeffer experts as the go-to source for elected officials.**

#### Repeal and Replace

Winning the White House gave the GOP an avenue to pursue scaling back or repealing the Affordable Care Act (ACA). As the Senate and the House worked on replacement bills, experts from the USC-Brookings Schaeffer Initiative for Health Policy informed the debate with pivotal analysis. As congress pushed forward a repeal bill in 2017 before the Congressional Budget Office could score the expected ramifications, Schaeffer Initiative experts estimated the size of health insurance coverage losses that would result if the bills were passed into law. They also showed how proposed changes to the ACA’s Essential Health Benefits requirements would effectively eliminate protection against catastrophic costs for people with coverage through large employer plans.

In many instances, Schaeffer research was the only published analysis ahead of a major congressional vote. Schaeffer experts, including Paul Ginsburg, Loren Adler and Matthew Fiedler, were the go-to resource for explaining the current state of components of the ACA for media, the public and legislators.

All told, Schaeffer experts, with the leadership of the USC-Brookings Schaeffer Initiative, produced more than 35 articles and reports on the ACA in the year following the 2016 presidential elections.

#### Coverage Alternatives

Schaeffer experts also produced alternative healthcare reform plans. Dana Goldman proposed a bold plan for providing catastrophic insurance to every American not covered by Medicare and Medicaid.

“Being bold means asking for big changes,” Goldman wrote. “The current system of employer-based insurance would lose its tax-protected status, which currently costs the federal government \$236 billion. Those savings would be used to underwrite the new system.”

#### Media Reach

In addition to meeting with policymakers, Schaeffer experts published influential articles in *The New York Times*, *Fortune*, the *New England Journal of Medicine*, the *Journal of the American Medical Association* and other outlets covering healthcare reform. Additional media citing Schaeffer work include HBO’s *Last Week Tonight with John Oliver*, the BBC and American Public Media’s *Marketplace*, the country’s most popular business show.

# 5

## Redefining Value in Cancer Care

By determining what is truly important to patients and by developing innovative payment models addressing value, price and access, the Schaeffer Center is redefining value in cancer care.

### Quantifying Gains

How do you effectively quantify the gains to society and patients of new cancer therapies over time? A pivotal 2012 study headed by Dana Goldman was one of the first to show that the life expectancy of cancer patients was rising more rapidly in the U.S. than in Europe. Building on this finding, he and colleagues compared mortality rates in countries spending less on healthcare with those spending more. They found a difference of nine percentage points in cancer deaths between the nations with the lowest and highest spending increases.

In other pioneering research, Seth Seabury, Goldman, Darius Lakdawalla and others showed how improved cancer treatments and early detection led to significant survival gains of 16.7 percent among patients diagnosed between 1997 and 2007.

These two studies were part of a special cancer issue of *Health Affairs*. Over 1 million stakeholders interacted with the special issue, and the associated video was downloaded more than 35,000 times. The briefing drew a record number of congressional attendees, and more than 100 news outlets featured the studies, including *The Wall Street Journal*, *The New York Times*, Politico, Reuters, Fox Business and NPR. The following year, the *Economic Report of the President* cited the research.

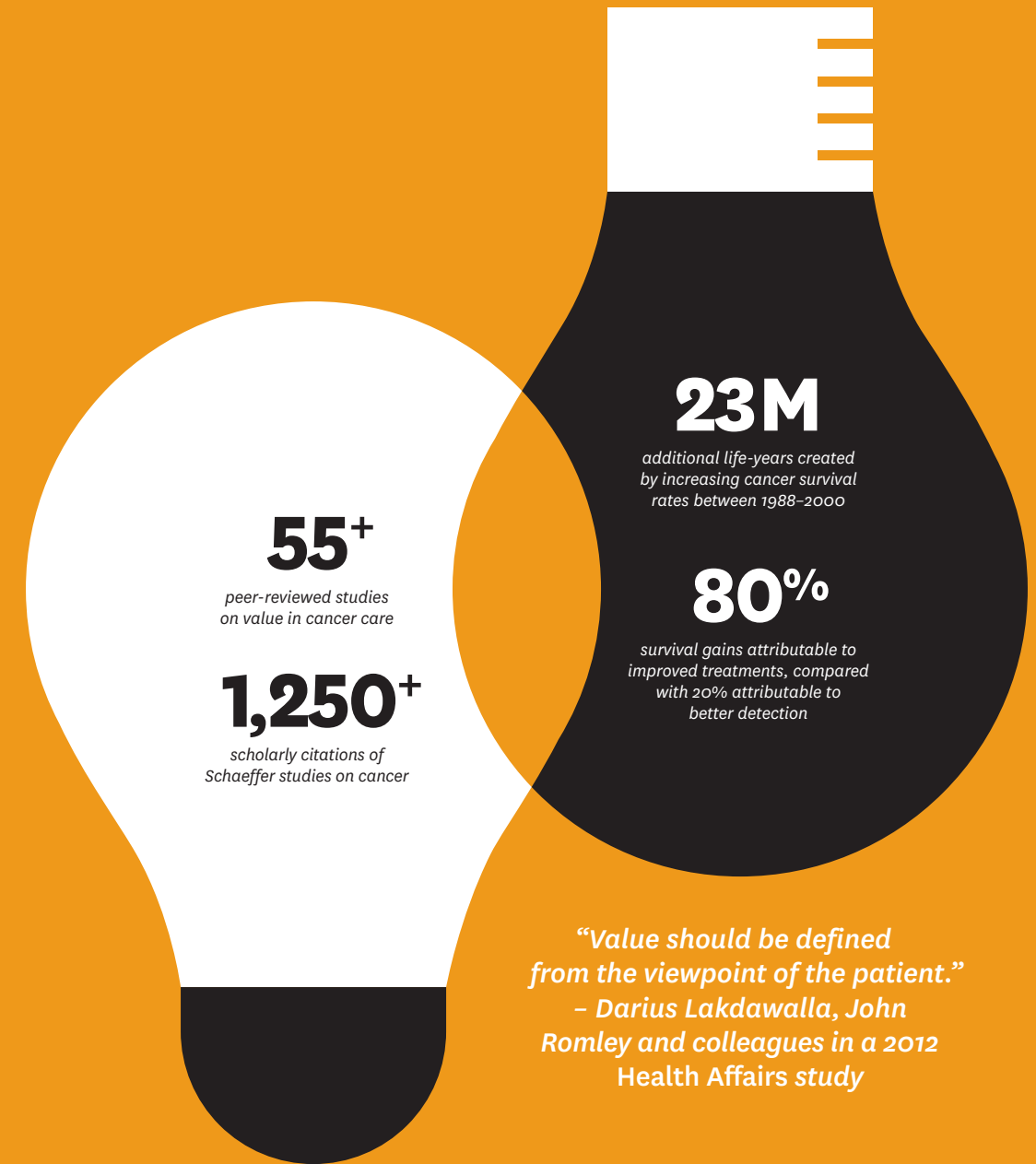
### Cost and Value

Since cancer is not one disease but many, it requires innumerable treatments that often carry great costs. By quantifying gains, stakeholders can better measure value and cost.

To account for the value that patients place on outcomes, a research team including Lakdawalla and John Romley developed a framework of “hopeful gambles” — riskier treatments offering a potentially longer period of survivability — in contrast to “safe bets,” in which the results were more assured but also more limited. Some 77 percent of surveyed patients preferred to take the risk, suggesting hope should be incorporated into calculating the value of, and access to, therapies. The investigators’ framework can also identify treatments in which costs outweigh value.

More breakthrough therapies are on the horizon. When the first gene therapy for cancer was released in 2017, Goldman and David Agus argued for innovative, value-based pricing models that capture the true gains to society from such drugs and ensure access.

As more therapies for cancer are introduced, Schaeffer research continues foundational work in evaluating their impact on society.



### SCHAEFFER CENTER IMPACT

Schaeffer Center research on value in cancer care has been cited in government policy documents, including the *Economic Report of the President*. National media outlets have referenced the studies hundreds of times, including in *The Wall Street Journal* and *The New York Times*.

# 6

## Curbing Inappropriate Prescribing

Antibiotics prescribed inappropriately waste resources, can cause health complications and have helped give rise to antibiotic-resistant “superbugs,” while the opioid crisis claims more than 115 lives every day.

Schaeffer Center researchers Jason Doctor and Daniella Meeker have employed theories of behavioral economics — or nudges — to influence provider prescribing behavior without reducing their autonomy. Their research has proved so effective in reducing unnecessary prescriptions that the Centers for Disease Control and Prevention has lauded one strategy — posted pledges — as a “best practice.”

A growing number of public health departments in the U.S. as well as the United Kingdom have reached out to Doctor to better understand nudges and how to implement the interventions he has developed. In recent years, Doctor has leveraged these insights in new research targeted at opioid prescribing. “Our studies suggest that simple and inexpensive tactics, grounded in scientific insights about human behavior, can be extremely effective in addressing public health problems,” Doctor says.

### Opioid Reduction

Published in *Science*, a study conducted by Doctor highlighted an important gap in the care system: Many clinicians never learn of the deaths of patients from opioid overdose, as they simply disappear from their practice. The nudge was simple — the researchers randomly selected half the study participants to receive a notification from the county medical examiner when a patient to whom they had prescribed opioids suffered a fatal overdose.

In the three months after they received the letter, the clinicians’ opioid prescribing decreased by nearly 10 percent compared to the group not receiving a letter. In addition, they were 7 percent less likely to start a new patient on opioids and less likely to prescribe higher doses.

Following the publication of the study in *Science*, multiple local and state agencies reached out to Doctor for guidance on implementation, including the L.A. County Board of Supervisors, which voted unanimously in favor of a feasibility study on how to implement such an intervention in Los Angeles. The results are particularly exciting given that more traditional state regulations involving mandated limits on opioids have not had much impact.

The authors point to the simplicity of the new approach, which provides an important missing piece of clinical information to physicians. This intervention is easily scalable nationwide as existing state and national resources already track overdose deaths associated with prescription and illicit drugs.

### Novel Nudges

Before opioids, Doctor led studies aimed at identifying solutions for unnecessary antibiotics prescriptions. He and colleagues, including Meeker and Tara Knight, analyzed the effects of easily adopted “nudges” to reduce over-prescribing, including:

- **Posted pledges** — having physicians hang posters in their examination rooms that explain safe antibiotic use and that include a signed promise to adhere to proper prescription guidelines
- **Accountable justification** — programming a prompt to appear when physicians update a patient’s electronic chart that asks them to justify any antibiotic prescriptions for acute respiratory infections
- **Peer comparison** — periodically emailing participating physicians with their inappropriate antibiotic prescription rates compared to those of top-performing doctors



**2M**

people affected by antibiotic-resistant “superbugs” in the U.S. each year

**81%**

reduction in antibiotic overprescription using peer comparison

**5**

health departments in four states and the U.K. are using nudges to reduce inappropriate antibiotic prescribing

**515+**

media mentions of *Science* study on opioid prescribing

“Our studies suggest that simple and inexpensive tactics, grounded in scientific insights about human behavior, can be extremely effective in addressing public health problems.”  
– Jason Doctor and colleagues in *The New York Times*, 2016

### SCHAEFFER CENTER IMPACT

Following publication of the Schaeffer study on posted pledges, the Centers for Disease Control and Prevention identified the nudge as a “best practice.” Other federal agencies, multiple states and the U.K. are using these techniques to improve prescribing.

Following the publication of the study in *Science*, multiple local and state agencies reached out to Doctor for guidance on implementation, including the L.A. County Board of Supervisors, which voted unanimously in favor of a feasibility study on how to implement such an intervention in Los Angeles. The results are particularly exciting given that more traditional state regulations involving mandated limits on opioids have not had much impact. This intervention is easily scalable nationwide.



Nobel-winning economist Sir Angus Deaton participated in a Schaeffer Initiative event to discuss policy solutions to the opioid crisis.

**30K**

number of deaths from opioid overdoses in 2017

**10%**

reduction in opioid prescribing following receipt of Schaeffer Center-recommended physician nudge

Findings show that these measures are making a difference — and can accomplish even greater results as more states and regions implement the strategies.

“These interventions are low-cost and allow the prescribing clinician to retain their decision-making authority while nudging them toward better practices,” Doctor says.

Another study showed that simply regrouping how prescription options are displayed in treatment menus makes a difference. Physicians were roughly 12 percent less likely to order antibiotics unnecessarily if the options were grouped together rather than listed individually. Furthermore, Doctor and his colleagues have analyzed such factors as time of day to evaluate other influences on a prescriber’s habits.

#### Proven Results

The effectiveness of these nudges was further demonstrated when Schaeffer Center research partners, including RAND Corp. and Northwestern University, examined what happened after the nudges were stopped. In a follow-up study published in the *Journal of the American Medical Association*, the team found that, 12 months after ending the peer-comparison intervention, clinicians increased their antibiotic prescription rate from 4.8 to 6.3 percent. The rate also increased from 6.1 to 10.2 percent among clinicians who were no longer asked to justify their prescriptions.

These results underscore the need to adopt these interventions over the long term to ensure continued success.

Jason Doctor, who employs insights from behavioral economics, is a resource for policymakers as they grapple with how to change provider behavior.



# 7

## Examining Hospital and Health System Productivity and Value

Schaeffer experts analyze trends facing hospitals and health systems — and the patients they serve — from managing policy changes to the growing cost of care and new technologies.

### Surprise Medical Bills

Even with health coverage, countless Americans still receive massive medical bills from providers outside their insurance networks. USC-Brookings Schaeffer Initiative Director Paul Ginsburg co-wrote the influential white paper “Solving Surprise Medical Bills” and numerous follow-up pieces analyzing the conditions in which surprise bills occur and proposing solutions.

Ginsburg and colleagues including Loren Adler, Matthew Fiedler and Erin Trish are resources for federal and state policymakers, including staff at the Department of Health and Human Services, the House Ways and Means Committee, the House Energy and Commerce Committee, and the Senate Finance Committee. Acting on these ideas, a bipartisan group of senators proposed the Protecting Patients from Surprise Medical Bills Act. It includes provisions setting payment standards and limiting patients’ costs to what would be owed to in-network providers.

### Hospital Productivity and Patient Outcomes

When the Affordable Care Act linked Medicare reimbursement rates to overall economic productivity, concerns were raised regarding whether hospitals could balance their budgets without compromising quality or services. However, research by the Schaeffer Center’s John Romley, Dana Goldman and Neeraj Sood suggested hospitals — and the nation’s healthcare system more broadly — were performing better than previously thought.

Examining data from Medicare beneficiaries who suffered heart conditions or pneumonia between 2002 and 2011, the team found that annual rates of productivity growth had improved in dealing with each condition. This contrasted with previous studies showing

declines — but which did not factor in trends in care quality and illness severity that were accounted for in the Schaeffer study.

### Administrative Decisions and Care Patterns

Administrative decisions by hospitals and healthcare systems can often have unintended (and overlooked) consequences for patients. Romley co-authored the first long-term investigation of a reform that established a maximum number of hours a resident could work in a week and its effects on high-risk patients. Reviewing nationwide data from people hospitalized for life-threatening conditions, he and colleagues found that mortality rates declined in both teaching and nonteaching hospitals. However, the rates lowered more quickly at teaching hospitals. When limiting analysis to elderly and other high-risk patients, the percentages improved even more dramatically.

In another creative study, Goldman and colleagues from Harvard and Columbia analyzed mortality and treatment differences among cardiovascular patients admitted when national cardiology meetings are held, compared to nonmeeting dates. They found that, in teaching hospitals, adjusted 30-day mortality was lower among high-risk heart patients admitted during such meetings and the rate of high-intensity procedures among these high-risk patients was also substantially lower. The implication of these findings may be an example of “less is more,” meaning for high-risk patients with cardiovascular disease, the harms of this more invasive care may outweigh the benefits. The research became the most-viewed study of the year on the *JAMA Internal Medicine* website, as well as being highlighted in more than 50 media reports.



# 5

pieces of federal legislation  
addressing surprise medical bills  
authored since watershed 2016  
Schaeffer Initiative report

*“It’s unacceptable that people in the country are faced with surprise medical bills for care they thought was covered or in-network. This is a fight between the insurance plan and the provider, with the patient stuck in the middle.”*  
– Senator Maggie Hassan (D-NH) in *Vox*. Solutions proposed by Sen. Hassan and others were informed by Schaeffer research.

### SCHAEFFER CENTER IMPACT

**Schaeffer Initiative experts are a pivotal, trusted resource for federal and state policymakers tackling healthcare challenges including surprise medical bills.**

## Improving Performance of Healthcare Markets

Both provider and payer markets have substantially changed over the past decade. Schaeffer Center experts have examined the impact of consolidation and healthcare reform on cost and functioning of the system.

The U.S. spends nearly twice as much on healthcare per person as other high-income countries, yet Americans do not have better outcomes. This higher spending is not because we use more healthcare services but because we pay higher prices. Meanwhile, increasing consolidation and insurance complexity are getting in the way of good commerce and putting patients at a disadvantage.

Rising medical costs threaten the economic security of many Americans and, despite all the resources being spent, the nation's healthcare system remains unable to function as well as it could. Schaeffer Center analysts explore ways to remove obstacles to efficiency while reducing costs and promoting optimal care. The Congressional Budget Office has cited this work, and Schaeffer experts have shared their insights through testimony before Congress and the California State Senate.

### Making Markets Work

Lack of competition is a major factor in the dysfunction of healthcare markets, and increased consolidation may worsen this trend. Research by Paul Ginsburg and colleagues suggests reforms such as increased federal and state scrutiny, removing barriers to price competition, preventing anticompetitive practices and easing the path to financial viability for independent physician practices. State and federal policymakers, including the U.S. Department of Justice, have called upon Ginsburg for expert testimony on competition and consolidation in provider and payer markets. His analysis was cited in a 2018 rule proposed by the Department of Health and Human Services.

Erin Trish shared her expertise on the matter with staffers from U.S. House Energy and Commerce Committee's Subcommittee on Oversight and Investigations. She has also briefed the Department

of Justice, Federal Trade Commission, and Health and Human Services' Office of the Assistant Secretary for Planning and Evaluation on insurer consolidation. She presented evidence suggesting that consolidation has resulted in higher prices for patients without increasing quality. She also testified before the California Assembly Select Committee on Health Care Delivery Systems and Universal Coverage regarding the pitfalls of a single-payer system.

Had there been a public option, a government-run insurance plan offered alongside private plans, "it would have protected consumers by pushing the effects of consolidation onto providers," said Paul Ginsburg in the *Los Angeles Times*.

### High-Deductible Drawbacks

High-deductible health plans (HDHPs), which offer lower premiums in exchange for higher out-of-pocket payments, have grown in popularity. Theoretically, they encourage patients to shop for better deals. But studies led by Neeraj Sood reveal that pushing patients to have "skin in the game" can actually discourage them from seeking preventive care and buying drugs to properly manage their conditions, which may increase both the physical and financial risks to patients.

Sood showed that these higher payments would leave more than half of low-income enrollees and more than one-third of those with chronic conditions with excessive financial burdens. Nor do HDHPs actually encourage comparative shopping: Only 4 percent of HDHP enrollees said they compared prices or providers — a percentage just slightly higher than the number of people with conventional coverage who claimed they shopped around.

Sood has been called upon by the California State Senate Health Committee to testify at informational hearings in Sacramento on the impact to consumers of high-deductible health plans.

*"When insurers merge, there's almost always an increase in premiums. ... At the same time, though, consolidation among insurers could mean a stronger position in negotiating lower rates with hospitals."* – Erin Trish in the *Los Angeles Times*



**40+**

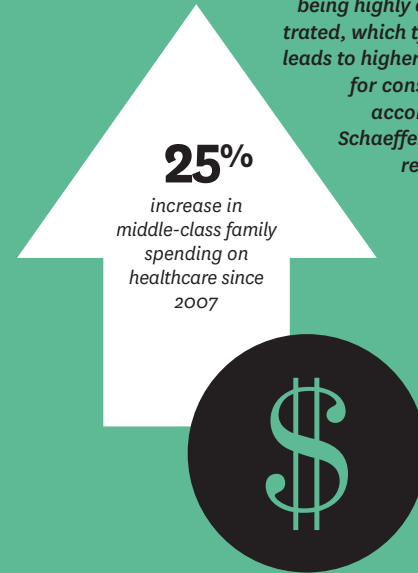
*leading private and public-sector experts participated in a private roundtable convened by the Schaeffer Initiative to address issues of competition and consolidation*

### SCHAEFFER CENTER IMPACT

**The Federal Trade Commission, the U.S. Department of Justice and other agencies have called upon Schaeffer Center experts to provide insight in understanding trends in consolidation and competition in healthcare markets.**



Erin Trish testified in Sacramento at a hearing on healthcare delivery systems and universal coverage. She has provided insight about insurance markets for state and federal officials.



Increasing hospital consolidation has led to nearly half of all markets being highly concentrated, which typically leads to higher pricing for consumers, according to Schaeffer Center research.

“Driven by lack of competition, ever higher prices are being paid to hospitals, doctors and insurers without leading to better outcomes. It’s time to implement a competition policy for healthcare before Americans crumple under a system that is devouring family and government budgets. Middle-class families’ spending on healthcare has increased 25 percent since 2007, crowding out spending on clothes, food and housing. We are paying the price for steady consolidation in the hospital and insurance arenas.”

– Paul Ginsburg and colleagues in a 2017 Forbes op-ed



Paul Ginsburg testified before a U.S. Senate panel focused on health insurer mergers. Ginsburg is a nationally recognized expert in competition and consolidation.

#### Supply and Demand

Alice Chen has analyzed the impact on labor markets of various healthcare reform efforts, including examining whether providers changed their practices after the Children’s Health Insurance Program (CHIP) was reauthorized and how fallout from the 2008 recession has affected the labor market for young physicians seeking their first job. She found the impact to be far less than other fields that require high levels of education and training.

Chen’s study revealed that the reauthorization of CHIP in 2009 was associated with newly trained pediatricians being 8 percent more likely to subspecialize and 17 percent more likely to enter a private practice. The research also found evidence suggesting that reauthorization made new pediatricians more likely than adult general practitioners to find jobs in private practices and rural areas.

#### Public Options

As the California Assembly weighs whether or not the state should turn to a single-payer healthcare system, its members have called upon Trish to testify about the differences between public and private payment levels. For example, private insurers reimburse hospitals at rates 75 percent higher than Medicare or Medicaid. Trish pointed to the difficulties in choosing optimal payment levels in a uniform system, which could stifle innovation in contracting and care. However, the shift would offer opportunities to reduce prices, simplify administrative costs and align provider incentives overall.



## Combating Infectious Diseases

Schaeffer Center research has been pivotal to finding practical, evidence-based strategies that expand access to breakthrough infectious disease treatments while keeping costs in line.

# HepC

### HIV/AIDS Prevention

Development of innovative therapies for AIDS significantly altered the disease's trajectory: Patients can now manage it like a chronic condition instead of a death sentence. These drugs initially were expensive, but Dana Goldman and colleagues found that early initiation — even with high costs — paid both individual and societal dividends. Access to early treatment led to life expectancy gains valued at \$80 billion and prevented another 188,000 people from contracting the virus between 1996 and 2002.

Yet even with improvements in care, HIV still infects nearly 40,000 people annually in the U.S. alone. Research by Neeraj Sood and Joel W. Hay outlined the most cost-effective method for reducing this toll in Los Angeles County, where 1 in 4 men who have sex with men are infected. The county is relying on this work to bolster its strategies of HIV/AIDS reduction.

### Hepatitis C Solutions

When a cure for hepatitis C came on the market, the tension between cost, value and access took center stage in the national conversation. The high price tag put widespread use beyond the reach of most patients and payers, leaving the vast majority of the nearly 4 million afflicted Americans without access. Five years after a cure was available, the disease still kills more people nationwide than any other virus.

“Many policymakers have focused on what they see as a high price for three months of therapy, but the value of curing hepatitis lasts a lifetime,” Darius Lakdawalla said in a congressional briefing in 2016. Lakdawalla and Goldman's research demonstrates that the value of expanding access, even slightly, far outpaces the cost of the drugs. In the years following, the Schaeffer Center leveraged partnerships with Brookings as well as The Hill to engage thought leaders in discussions of who benefits from and who bears the costs of such breakthrough treatments.

The Schaeffer Center provided policymakers with solutions that increase access while encouraging future innovation. As part of the National Academies of Science, Engineering and Medicine, Sood devised a novel payment strategy for Medicaid to leverage competition among drug companies. The company offering the best deal would receive an exclusive contract for a set period. When a federal solution lost traction, he refocused on states. Louisiana already plans to implement this innovative model for providing treatments to its vulnerable populations and other states have expressed interest.

Working with the Department of Veterans Affairs, Jeff McCombs and Steven Fox developed more data-driven strategies for testing, managing and treating the disease.

# \$80B

value of life expectancy gains due to access to early treatment of HIV/AIDS

*“We didn't initially treat HIV aggressively enough in part because the science wasn't there to justify it. With hepatitis C, we have the science. We just need to find a way to finance it.”*  
– Dana Goldman, 2015

less than

# 3%

of the Medicaid and prison population with hep C currently have access to the cure

# HIV

### SCHAEFFER CENTER IMPACT

**Schaeffer experts have provided congressional testimony and been called upon by policymakers for advice on how to improve access to lifesaving drugs.**

## Fostering Better Pharmaceutical Regulation

State and federal agencies turn to the Schaeffer Center’s research and innovative pricing models, which balance the competing priorities of affordability and access while appropriately incentivizing future medical innovation and fostering better policy.

### Innovative Pricing Schemes

Historically, prices for prescriptions as well as healthcare procedures more often have been figured per dose rather than by effectiveness or outcome, which can distort incentives for payers, providers and patients. Schaeffer Center faculty, including Dana Goldman, Karen Van Nuys and Darius Lakdawalla, suggest a range of innovative pricing schemes, including value-based, outcomes-based and reference pricing to more accurately align incentives. Schaeffer experts have acted as resources for manufacturers, payers and policymakers as they consider implementing these complex but effective strategies.

### Global Expense

Patients around the world benefit from profit-driven drug innovation, for which U.S. consumers pay a disproportionately high share. A study by Goldman and Lakdawalla found that up to 78 percent of worldwide pharmaceutical profits are made from the U.S. market.

Using an economic-demographic microsimulation, Goldman and Lakdawalla estimate that a 20 percent increase in European pharmaceutical prices would generate \$7.5 trillion in welfare gains for that continent and \$10 trillion in gains for the U.S. over the next 50 years. Such savings also could increase philanthropic subsidies to improve healthcare in developing nations. Since published, the paper has been cited numerous times by policymakers, including two reports by the President’s Council of Economic Advisers.

### Copay Clawbacks

Patients overspend when prescription copays exceed a drug’s actual price, with pharmacy benefits managers “clawing back” the difference. Research by Van Nuys, Geoffrey Joyce, Rocio Ribero and Goldman gained national attention by revealing how common clawbacks actually are.

Analyzing payments for 9.5 million prescriptions, the team found that customers would be better off paying in cash instead of using their insurance 23 percent of the time and would save an average of \$7.69 per prescription. “Industry lobbyists have called the practice of clawbacks rare and an ‘outlier,’” Van Nuys says. “But I wouldn’t call nearly one in four an outlier practice.”

Joyce, Neeraj Sood and colleagues found that uninsured patients pay even higher amounts and can save significant money by buying their drugs at independent pharmacies and by using discount coupons. Their research demonstrated that the cash price for a common antibiotic can vary on average \$52 within a single zip code.

Some 100 news outlets reported on the findings, including PBS, Kaiser Health News and NPR. Van Nuys also discussed the findings with federal policymakers, who frequently cited the report in their discussion of the bills.

One policy solution proposed by Van Nuys and colleagues would be to ban gag clauses, which are placed in contracts by pharmacy benefit managers and prohibit pharmacists from telling customers when they could save money by paying out of pocket instead of using insurance. In response to the Schaeffer Center report, Senators

*“If ... the United States could persuade its trading partners to tilt their policies modestly in favor of higher prices, to stimulate innovation, they could help their future patients without unduly harming existing ones.”*  
 – The Washington Post Editorial Board, citing Schaeffer research, May 12, 2018



**25%**

*of privately insured consumers had copayments that exceeded the cost of their prescription*

**100**

*media stories, including PBS and NPR, mentioning the Schaeffer study on copay clawbacks*

### SCHAEFFER CENTER IMPACT

**Following the Schaeffer Center study quantifying clawbacks, policymakers in both the House and Senate started looking for a solution. In fall 2018, President Trump signed a bill banning gag clauses, a policy solution identified in the report.**

A Schaeffer Center analysis of the pharmaceutical distribution system has proven pivotal in policy discussions of drug pricing since it was published in 2017. The researchers estimate intermediaries capture \$41 of every \$100 spent on retail prescription drugs. Lead author Neeraj Sood has briefed state and federal policymakers, including the Federal Trade Commission, about the analysis. It has been cited in reports by the National Academies of Sciences, Engineering and Medicine and the White House Council of Economic Advisers.



Darius Lakdawalla moderated a panel on access, affordability and disparities at The Hill.



**13**  
citations of  
Schaeffer research on  
pharmaceutical policy  
in three 2018  
White House reports

Susan Collins (R-ME), Claire McCaskill (D-MO) and Debbie Stabenow (D-MI) introduced bipartisan legislation to ban such clauses. These bills, the Patient Right to Know Drug Prices Act and the Know the Lowest Price Act, were quickly signed into law by President Trump. In addition, a number of states, including California, have introduced and passed legislation to protect consumers.

#### Follow the Money

Any prescription drug price interventions should be predicated on a clear understanding of the economic forces driving increases and the parties responsible for them. Sood led research that analyzed the pharmaceutical distribution system, along with the cost and profit margins of each system player. He and co-authors Goldman and Van Nuys found that intermediaries — insurers, wholesalers, pharmacies and pharmacy benefit managers — capture \$41 of every \$100 spent on retail prescription drugs.

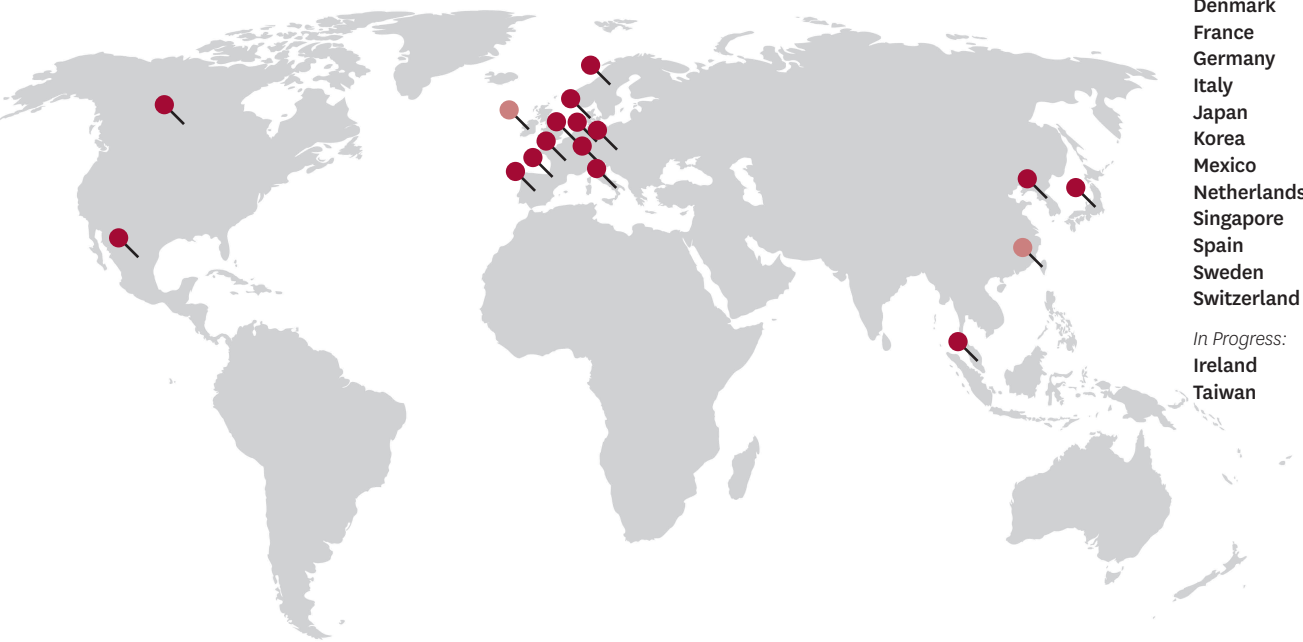
While this complex and opaque system allows competition to regulate prices, it also can lead to market distortions disproportionately benefiting certain parties. “While the current analysis cannot say definitively whether any sectors make excessive profits, greater scrutiny of pricing policies of each sector and more competition throughout the distribution system is warranted,” the authors conclude.

Sood personally briefed the Federal Trade Commission about the team’s analysis, and the research has been cited in multiple government reports since its release.

*“One paper that I wanted to highlight is the Schaeffer Center piece on the pharmaceutical distribution chain. I can tell you we learned a lot from it.”*  
– CMS Administrator Seema Verma at a USC-Brookings Schaeffer Initiative conference on drug pricing reforms.



# Data Report



## Countries Using Schaeffer Center Models

Complete:

- Austria
- Belgium
- Canada
- Denmark
- France
- Germany
- Italy
- Japan
- Korea
- Mexico
- Netherlands
- Singapore
- Spain
- Sweden
- Switzerland

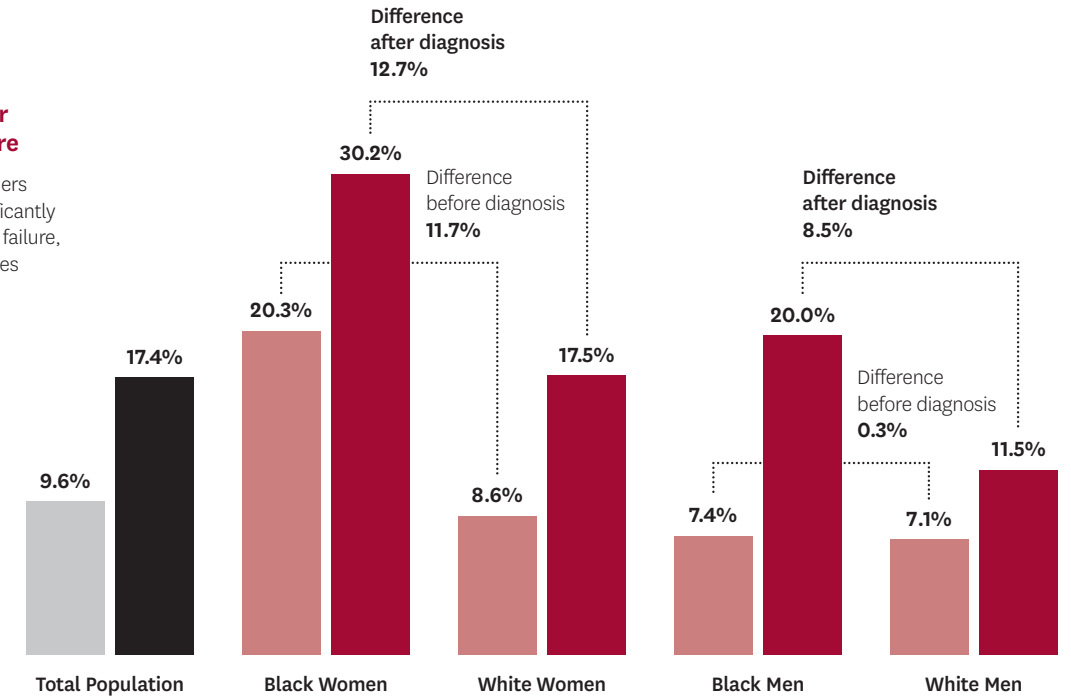
In Progress:

- Ireland
- Taiwan

## Disability Before and After a Diagnosis of Heart Failure

Using the FEM, Schaeffer researchers found that rates of disability significantly increase after a diagnosis of heart failure, widening already existing disparities between races and sexes.

- Before heart failure diagnosis
- After heart failure diagnosis



## BY THE NUMBERS

# 160 million

lives represented in Schaeffer Center data

**A team of 12 data scientists provides expert support for each of the Center's research projects.**

# 17

country-level, Future Elderly Model-based microsimulation models

## Data Core and Microsimulation Teams

The Data Core and Microsimulation teams within the Schaeffer Center are experts in the methods and programming necessary to rigorously analyze big data. The teams include programmers, microsimulation modelers, analysts and a data resource administrator who bring unique backgrounds from a variety of fields, including statistics and microeconomic theory. These researchers also provide support to faculty, students and fellows on specific projects.

## Data Collection

The data library maintained at the Schaeffer Center includes survey data, public and private claims, contextual data and electronic health network data feeds.

## Microsimulation Models

For more than a decade, the Schaeffer Center has developed an economic demographic microsimulation model to effectively model future trends in health and longevity and answer salient questions in health policy.

The centerpiece effort is the Future Elderly Model (FEM), which projects a rich set of health and economic outcomes for the U.S. population aged 50 and older. The Future Adult Model (FAM) extends the FEM to the adult population aged 25 and older in the United States. Since 2004, the National Institute on Aging has supported this work as one of 13 prestigious Edward R. Roybal Centers for Translation Research. Findings using the FEM and FAM models have been published more than 60 times and cited — or commissioned — by government agencies, the White House, the National Academy of Sciences and private organizations interested in aging policy.

## Data Security

The Schaeffer Center Data Core is a state-of-the-art information resource and computing environment that meets exacting standards of excellence in data security. The Data Core manages a mix of security measures, from an air-gapped workstation to state-of-the-art, Health Insurance Portability and Accountability Act (HIPAA)-compliant systems that include 24/7 monitoring to ensure private health data resources are protected.

## Partnerships and Collaborations

The Schaeffer Center's Data Core and Microsimulation teams partner with local, state, federal and international collaborators to develop data projects and models. Key collaborations include the Organisation for Economic Co-operation and Development; the National Academies of Sciences, Engineering and Medicine; the Los Angeles County Department of Public Health; and the Los Angeles Homeless Services Authority.

## Microsimulation Global Collaborator Network

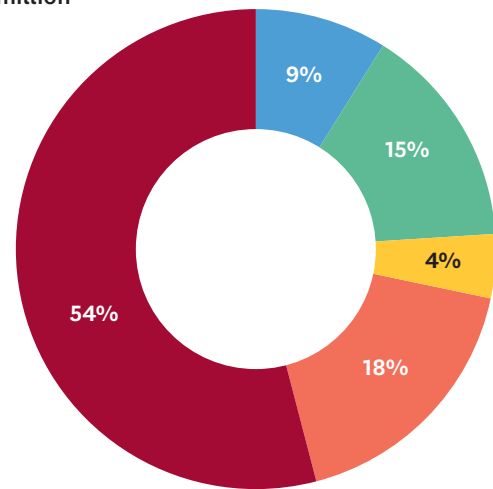
A multidisciplinary group of research institutions, nonprofit organizations and government agencies have collaborated with the Schaeffer Center Microsimulation team to build models based on the FEM and FAM framework. Today, this network is building out country-level FEM-based models in 17 countries. The Center has also worked to build models for Los Angeles County and California.

# Financial Report

For fiscal year 2018 (July 1, 2017–June 30, 2018), total expenditures on the operating budget were \$10.5 million. The operating budget includes compensation for faculty, scholars and staff, programmatic expenses and general operating costs. Faculty salaries that are covered by the schools are not included in these totals. Expenses by function are outlined in the graph below left.

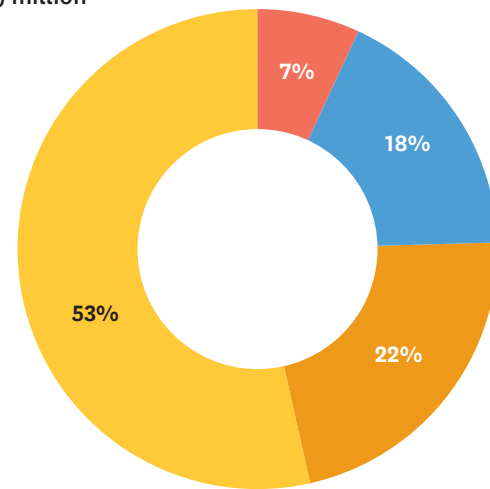
In fiscal year 2018, the Center funded the \$10.5 million in operating expenses with \$11.5 million current revenue. University support does not include faculty salaries covered by the schools. Since its inception, the Schaeffer Center has raised nearly \$109 million, the majority of which has come from federal grants.

**Operating Expenses**  
for Fiscal Year 2018  
**\$10.5 million**



- **Research, \$5.6M**  
*Salaries, research expenses, initiatives and special projects*
- **Data Core & Health Informatics, \$1.9M**  
*Salaries, data and data infrastructure*
- **External Affairs, \$1.6M**  
*Salaries, development, communications, travel and event expenses*
- **Administration, \$0.9M**  
*Salaries and general operating expenses*
- **Research Training Programs, \$0.5M**  
*Salaries and training expenses*

**Revenue**  
since inception  
**\$108.9 million\***



- **Government, \$58.1M**  
*NIH, CMS and other government sources*
- **Corporations, \$24M**  
*Industry*
- **Individuals and Foundations, \$19.2M**  
*Foundations, family foundations and individuals*
- **USC and Others, \$7.6M**  
*University support and miscellaneous income*

\*through 12/31/18

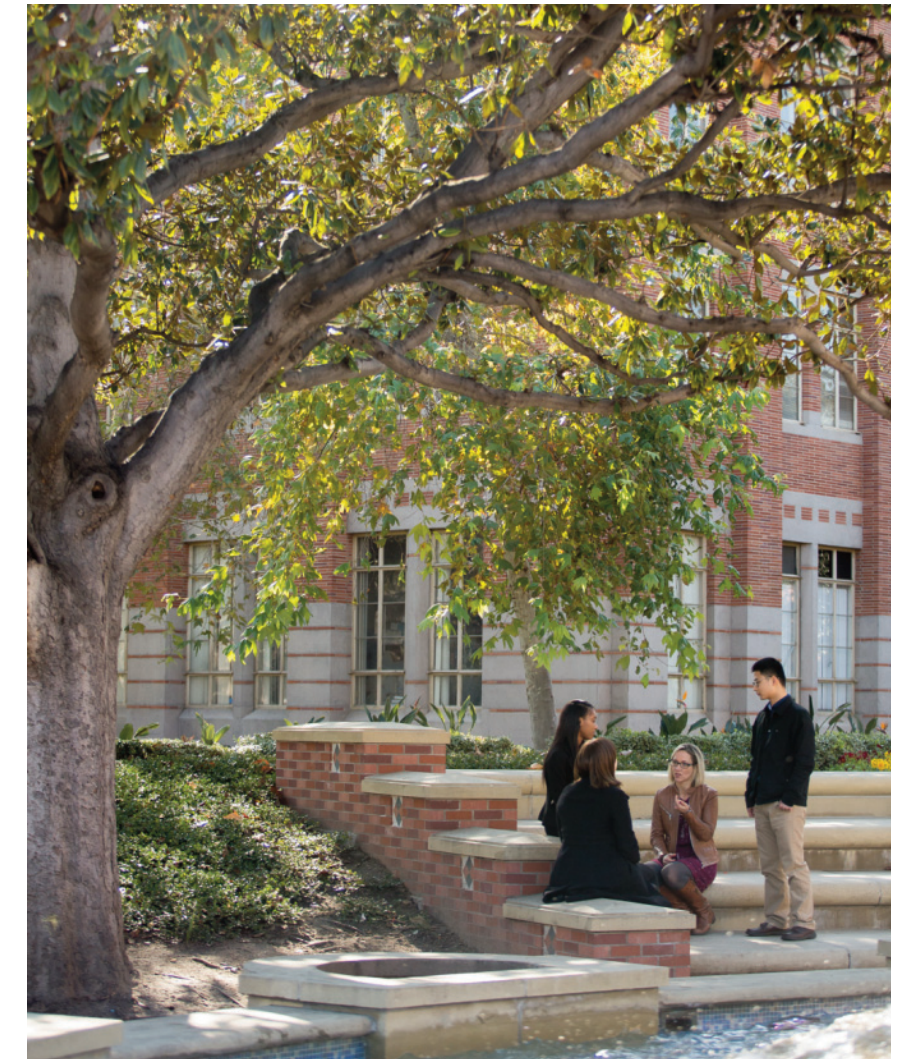
### Conflict of Interest Policy

The USC Leonard D. Schaeffer Center for Health Policy & Economics conducts innovative, independent research that makes significant contributions to policy and health improvement. Center experts pursue a range of priority research areas focused on addressing problems within the health sphere. Donors may request that their funds be used to address a general research priority area, including:

- Improve the performance of healthcare markets
- Increase value in healthcare delivery
- Improve health outcomes and reduce disparities
- Foster better pharmaceutical policy and regulation

Schaeffer Center funding comes from a range of sources, including government entities, foundations, corporations, individuals and endowment. At all times, the independence and integrity of the research is paramount and the Center retains the right to publish all findings from its research activities. Funding sources are always disclosed. The Center does not conduct proprietary research.

As is the case at many elite academic institutions, USC Schaeffer Center faculty are sought after for their expertise by corporations, government entities and others. These external activities (e.g., consulting) are governed by the USC Faculty Handbook and the university's Conflict of Interest in Professional and Business Practices and Conflict of Interest in Research policies. All outside activities must be disclosed via the university's online disclosure system, diSClose, and faculty must adhere to all measures put in place to manage any appearance of conflict.



### FEDERAL FUNDING

**The Schaeffer Center has been supported in large part by funding from federal agencies, including the National Institutes of Health and the Centers for Medicare & Medicaid Services.**

**\$58.1 million**

in government funding since the Center's inception

**44 projects**

spanning topics including Alzheimer's disease, Medicare Part D and health disparities

# Supporters

The Center is supported by a wide range of public and private funders providing grants, gifts and sponsorships. The Schaeffer Center gratefully acknowledges the following supporters who have given over the past 10 years.



Your support contributes to the work of the Center — from groundbreaking, multidisciplinary research to national conferences to fellowships for young scholars — that pursues innovative solutions to improve healthcare delivery, policies and outcomes.

For more information about how to make a gift, please contact:

**Ann S. M. Harada**  
**Schaeffer Center Managing Director**  
**(213) 821-1764**

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Blue Cross Blue Shield of Arizona	Fink & Associates	Curtis Lane	Patient-Centered Outcomes Research Institute	University of Michigan
Blue Cross Blue Shield of Massachusetts	First 5 LA	Carol and Leland Launer	Melinda and Norm Payson	University of Pittsburgh
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	Institute for Health Technology Studies			

## Research Training Programs

Developing leaders in collaboration with two leading institutions:

**USC Price School of Public Policy**  
**USC School of Pharmacy**



### BY THE NUMBERS

**One hundred percent of Schaeffer Center trainees move into academic or private-sector careers.**

**\$9.5 million**

amount of federal funding awarded to USC-RCMAR Fellows under Schaeffer mentorship

**84%**

of Schaeffer Center Postdoctoral and USC-RCMAR Fellows are from underrepresented groups

A preeminent educational destination for current and emerging leaders in health policy and economics, the Schaeffer Center develops innovators for positions in higher education, research, government and healthcare by:

- Creating a nurturing, interdisciplinary and resource-rich learning environment for students, scholars and professionals
- Sharpening fellows' and students' analytical skills and helping them advance their scholarly agendas through extensive research training and access to sophisticated data analysis tools
- Offering one-on-one mentorship and significant collaboration with distinguished investigators in the field
- Recruiting diverse, high-quality fellows, junior faculty, research assistants and interns
- Assisting trainees in securing influential positions in prestigious academic, public and private settings and earning recognition from major players in the field
- Ensuring numerous professional development opportunities, including support for grant writing, publication in peer-reviewed journals and travel to present at or attend major conferences
- Providing dedicated, full-time administrative and data support at the Schaeffer Center, and access to a host of university-wide educational and career-development resources

2015–16 USC-RCMAR Fellow Uchechi Mitchell is now an assistant professor in the University of Illinois (Chicago) School of Public Health, where she continues her work on the impacts of health inequalities among older adults.



### Postdoctoral Fellowships

Postdoctoral researchers at the Schaeffer Center focus completely on research, with no teaching requirement. This select group of scholars evenly splits time during the first year on completing their dissertation and collaborating on a new Schaeffer Center research project. Postdocs are considered full members of the Schaeffer Center community, receive one-on-one mentoring and also have access to all faculty associated with the center.

### 2018–2019 Postdoctoral Fellows

Meng Li, PhD  
Rajan Sonik, PhD, JD, MPH  
Johanna Thunell, PhD

### USC Resource Center for Minority Aging Health Economics Research Fellowships (USC-RCMAR)

Funded through a grant from the National Institute on Aging, the Minority Aging and Health Economics Research Center was established at the USC Schaeffer Center in 2012. Since its launch, USC-RCMAR has funded 18 junior researchers. The program aims to increase the number, diversity and academic success of junior faculty who are focusing their research on the health and economic well-being of minority elderly populations, with a particular focus on

Alzheimer's disease and dementia. The program provides mentorship to RCMAR scholars in multidisciplinary training, launching new lines of research, and tracking and evaluating the success of pilot investigations. USC-RCMAR is housed within the Schaeffer Center and led by Schaeffer Center Director Dana Goldman and Julie Zissimopoulos.

### 2018–2019 USC-RCMAR Fellows

Alice Chen, PhD  
*Assistant Professor, USC Price School of Public Policy*  
Sze-chuan Suen, PhD  
*Assistant Professor, USC Viterbi School of Engineering*  
Reginald Tucker-Seeley, MA, ScM, ScD  
*Edward L. Schneider Assistant Professor of Gerontology, USC Leonard Davis School of Gerontology*

### Pre-doctoral Fellowships

Pre-doctoral economics students in the graduate certificate program in health economics conduct research at the Schaeffer Center under the guidance of a faculty member, gaining knowledge and expertise relevant to their upcoming doctoral program.



*Campus seminars and conferences provide opportunities for students, faculty and the community to hear presentations by leading researchers, elected officials and journalists. In 2015, The New York Times columnist David Leonhardt spoke at a Center event.*

#### **Clinical Fellowships**

The Quintiles Clinical Fellows program fosters collaboration between Schaeffer Center faculty and exceptional junior scholars or prominent researchers and thought leaders in health policy, economics and medicine. The program provides training and support on grants, papers and ongoing research projects. The fellowship is co-directed by Sarah Axeen, assistant professor at the Keck School of Medicine of USC, and Julie Zissimopoulos.

#### **Internships**

Each summer, the Schaeffer Center enables outstanding college undergraduate and high school students to gain hands-on experience and mentorship in health policy research and data analysis as well as an introduction to the broader field of health economics. The summer internship program is led by Julie Zissimopoulos.

#### **Research Assistantships**

Students from relevant disciplines such as economics, public policy, health policy, statistics, medicine and psychology work directly with Schaeffer Center faculty on specific research projects, garnering invaluable experience and skills to further their research prowess.

#### **Visiting Scholars**

Young researchers from leading institutions around the world come to the Schaeffer Center each year as visiting scholars to collaborate with faculty and gain access to the center's unique data core and resources. The visiting scholars program is led by Julie Zissimopoulos.

#### **Degrees**

Faculty associated with the Schaeffer Center teach in the following degree programs:

#### **MS in Pharmaceutical Economics and Policy**

This Master of Science program emphasizes pharmaceutical commerce and policy and is taught by faculty affiliated with the USC School of Pharmacy and the Department of Economics in the USC Dornsife College of Letters, Arts and Sciences.

#### **MS in Healthcare Decision Analysis**

This newly emerging branch of applied research focuses on the intersection of health economics, applied international health policy, insurance design, competitive business intelligence and pricing. Housed at the Schaeffer Center, the degree is offered through the School of Pharmacy.

#### **MS in Biopharmaceutical Marketing**

The Master of Science in Biopharmaceutical Marketing is an interdisciplinary graduate program in precision marketing aimed exclusively at careers in the biopharmaceutical and payer industries.

#### **Master of Health Administration**

Offered through the USC Price School of Public Policy, the Master of Health Administration program has trained leaders in health management policy for nearly four decades.

#### **Executive Master of Health Administration (Online)**

Developed for both mid-career clinical and management professionals, the Executive Master of Health Administration program from the Price School delivers a transformative graduate-level educational experience designed to prepare the nation's leading healthcare professionals.

#### **PhD in Public Policy and Management**

Offered through the Price School, the degree produces researchers and scholars who shape the direction of public affairs research.

#### **PhD in Health Economics**

This doctoral program integrates curricula from the Department of Economics in the Dornsife College, the Department of Preventive Medicine in the Keck School of Medicine, and the Department of Pharmaceutical and Health Economics in the School of Pharmacy. It offers two distinct tracks:

- Microeconomics
- Pharmaceutical Economics and Policy

*Schaeffer Center offers one-on-one mentorship as well as extensive professional development opportunities for current and emerging leaders in health policy and economics. Students and early-career researchers benefit from the Center's vibrant Data Core and Micro-simulation teams, which include 12 data scientists.*



#### **EDUCATIONAL LEADERSHIP**

A preeminent educational destination for current and emerging leaders in health policy and economics, the Schaeffer Center develops innovators for positions in higher education, research, government and healthcare by creating a nurturing, interdisciplinary and resource-rich learning environment for students, scholars and professionals.



## Conferences and Seminars



### 2010 Health Reform and the Economy: Are They Good for Each Other?

Policymakers, analysts and industry executives from across the country and beyond discussed the recently passed healthcare reform legislation and measured its impact on the overall economy at the first conference hosted by the Schaeffer Center. Speakers included **Douglas Elmendorf**, director of the Congressional Budget Office, and **Sir Michael Rawlins**, chair of the National Institute for Health and Care Excellence in Great Britain.

*“Significant savings probably require fundamental changes in the organization and delivery of healthcare,” Douglas Elmendorf said.*



### 2012 Global Healthcare Regulation and Innovation Conference

More than 200 people attended the two-day global healthcare conference in Beijing, jointly hosted by the Schaeffer Center and Guanghua School of Management at Peking University.

Attendees included academics, members of the pharmaceutical and insurance industries, and government officials from the U.S. and China.



### 2014 Fifth Biennial Conference of the American Society of Health Economists (ASHEcon)

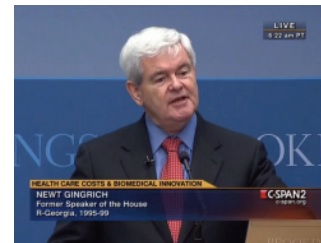
More than 800 participants attended the four-day conference hosted at USC. All told, more than 190 presentations were given. A roundtable plenary session brought together the four scholars holding Schaeffer endowed chairs of health policy throughout the nation: **Dana Goldman**, USC Schaeffer Center director, who served as moderator; **Michael Chernew** of Harvard; **Alice Rivlin** of the Brookings Institution; and **James Robinson** of UC Berkeley.

*“The beauty of the time period we live in is there’s a vast number of different models, and so there’s an enormous amount of work to be done to understand which models are working,” Michael Chernew said. “I don’t think there’s going to simply be one answer. There’s going to be such diversity in where we move ahead, that there’s going to be enormous amount of opportunity for academics to look at it in a rigorous way.”*



## Highlights from the Center’s First 10 Years

In the 10 years since its launch, the Schaeffer Center has produced more than 180 events to move forward the conversation on important healthcare topics. From biopharmaceutical innovation to insurance market reforms — and from Los Angeles to Washington, D.C., and from Paris to Beijing — the Schaeffer Center has informed and provided space for important debates. Following are just a few highlights from the first decade of impact.



### 2011 Promoting Biomedical Innovation and Economic Value: New Models for Reimbursement and Evidence Development

Hosted by the Brookings Institution in Washington, D.C., and covered live on C-SPAN, former House Speaker **Newt Gingrich** and former Office of Management and Budget Director **Peter Orszag** offered keynote remarks.

*“What you are struggling with in this room [containing healthcare costs and biomedical innovation] is the crucial long-term fiscal problem facing the United States,” Peter Orszag said. “We cannot afford open-ended, continued cost increases driven largely or primarily by technology. But, on the other hand, we don’t want to lose the advances in health outcomes that are associated with a variety of technological improvements.”*

**2013**  
The Schaeffer Center co-hosted two conferences in 2013 focused on the impact of the Affordable Care Act, including **Covered California: The Challenges and Opportunities of the California Health Benefit Exchange** in Sacramento.

The panel included **Peter Lee**, executive director of Covered California; **Dana Goldman**, Schaeffer Center director; and **Bob Kocher**, former special assistant to President Obama on Healthcare Policy and Economics. The conversation was moderated by **Jay Hansen**, California Medical Association.



### 2014 The Health and Economic Value of Comprehensive Diabetes Management

**Dana Goldman** presented at the congressional briefing in Washington, D.C., hosted by the **Congressional Diabetes Caucus**. California Attorney General **Xavier Becerra** (then a state representative and vice chair of the Diabetes Caucus) praised USC as a “real champion” in diabetes research.

### 2014 The Cost and Value of Biomedical Innovation: Implications for Health Policy

Panelists — including **Kavita Patel**, director of policy for the Office of Intergovernmental Affairs and Public Engagement in the Obama administration, and WellPoint Chief Medical Officer **Sam Nussbaum** — discussed who benefits from and who bears the costs of “breakthrough” treatments in hepatitis C.



### 2015 Fixing America's Mental Healthcare System

Seth Seabury presented his work on barriers to mental healthcare at the conference co-hosted with The Hill. Senator **Chris Murphy** (D-CT) and Representative **Tim Murphy** (R-PA) spoke at the event.

The Schaeffer Center has partnered with The Hill to produce three events.

### 2016 Bridging the Gulf: Challenges of End-of-Life Care in California

The National Academies of Sciences, Engineering and Medicine and Cedars-Sinai partnered with the Schaeffer Center to host a one-day conference for healthcare professionals, payers, patient advocates and policymakers.

*"For many patients, the clear desire is for final days to be spent under palliative care at home. We need to identify the changes that need to be made and the stakeholders who can make it happen," Leonard D. Schaeffer said.*



### 2016 Chronic Care: Getting Its Complexity and Cost Under Control

The event launched the USC-Brookings Schaeffer Initiative for Health Policy. More than 140 policymakers, Capitol Hill staff and media attended the event, while 330 watched the live webcast.

*"There is a striking lack of attention to what dominates American healthcare," Senator Ron Wyden (D-OR) said. "And that is chronic care."*



### 2017 Fostering Competition in the Pharmaceutical Distribution Chain

In the face of growing popular concern over prescription drug prices, opportunities may exist for significant savings in the drug distribution chain, according to findings from two papers presented at this USC-Brookings Schaeffer Initiative event in Washington, D.C.

*"Is any player making more money than they ought to be? Is any player making excessive returns, and what should we do about it?" Neeraj Sood asked.*

### 2018 A Conversation with Seema Verma

Centers for Medicare & Medicaid Services' Administrator **Seema Verma** highlighted Schaeffer Center research and discussed the importance of bodies like the Schaeffer Initiative in her remarks on Medicare Part D.



88  
seminars

### 2015 Strengthening Medicare for 2030

The half-day forum, co-sponsored by the Schaeffer Center and the Brookings Institution, brought together a distinguished list of economists and former administrators of the Centers for Medicare & Medicaid Services and its predecessor, the Health Care Financing Administration. In conjunction with the conference, the Schaeffer Center and Brookings co-published five working papers on strengthening Medicare.

*"We'll be living longer but spending more time with disability," Dana Goldman said.*



### 2017 Value of a Cure: Ensuring Access and Encouraging Innovation

Speakers included two members of the House of Representatives, **Diana DeGette** (D-CO) and **Fred Upton** (R-MI). "Drug pricing needs a robust debate," Representative DeGette said.

### 2016 Protecting Patients from Surprise Medical Bills

A new paper outlining the extent of surprise medical bills and policy interventions to mitigate them was presented at the Schaeffer Initiative event held at the Brookings Institution. More than 150 attended and another 500 tuned in to the live webcast.

Since then, Schaeffer Initiative experts have published numerous op-eds and blog posts on the issue, and federal and state policymakers have turned to these authorities to discuss policy solutions.



*"We need better economic policies for ordinary Americans. We need to be able to share and not just let it all go to the top," Sir Angus Deaton said.*



### 2017 Policy Approaches to the Opioid Crisis

The event featured remarks from **Sir Angus Deaton**, Congresswoman **Ann McLane Kuster** (D-NH) and Harvard Professor **Bertha K. Madras**.

*"The complexity of this crisis is well beyond the capacity of any one state or any one community," said Kuster in her opening remarks at the conference, noting that the crisis doesn't pick political parties. "We need a nationally coordinated response."*

### 2018 Medicare Drug Pricing Proposals

U.S. Secretary of Health and Human Services **Alex Azar** delivered remarks on proposed reforms to Medicare Part B drug pricing policies and then participated in a fireside chat with **Paul Ginsburg**, director of the Schaeffer Initiative.



### 2018 Impact of Inequality on the Future Elderly: Policy Tools and Actions

Working with Schaeffer Center experts, economists and researchers from Europe, Asia and North America have collaborated to develop country-level economic-demographic models based on the Schaeffer Center's Future Elderly Model. Early results of the research were presented at an event held at the Organisation for Economic Co-operation and Development headquarters in Paris.

182  
total events

## Publications by Schaeffer Center Faculty 2017–2018

### PROLIFIC PUBLISHERS

## Schaeffer Center faculty have authored more than 1,020 papers in the past 10 years.

### LEADING JOURNALS

# 620+

Over half the papers were published in top-tier journals.

# 19.8K+

These studies have amassed close to 20,000 citations in academic journals.

# 100+

This research has been referenced more than 100 times in influential government reports and documents.

### Improve the Performance of Healthcare Markets

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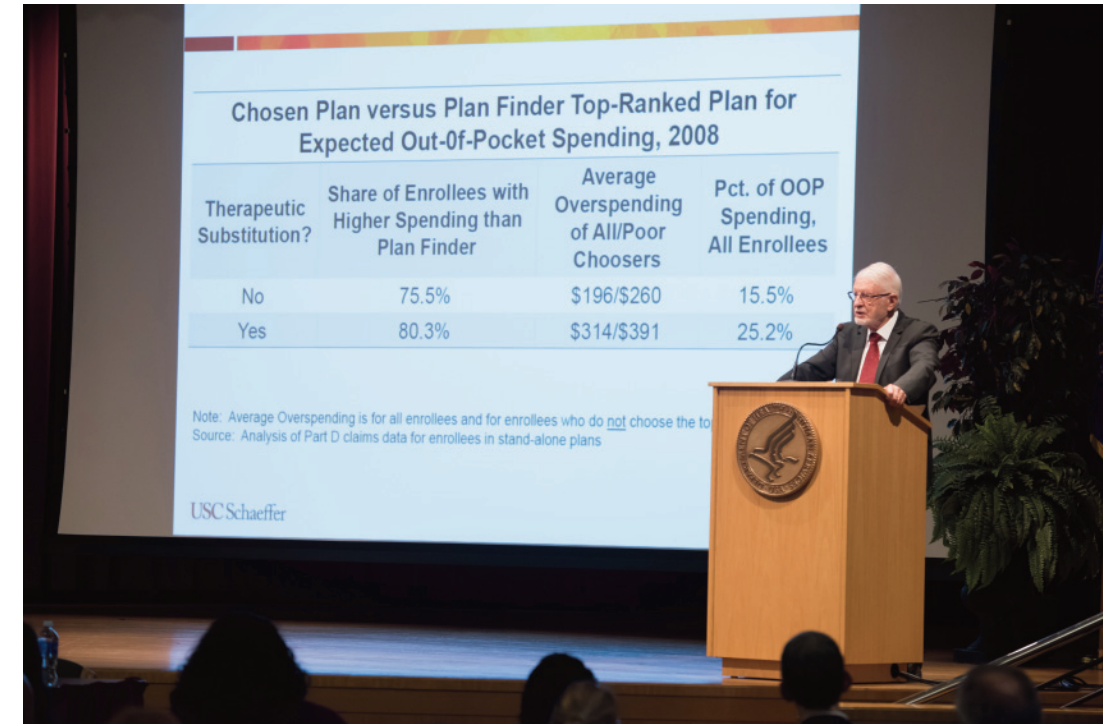
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which focuses on drug pricing,  
innovation, benefit design  
and value frameworks. She  
and Neeraj Sood wrote  
an influential white paper  
on how money flows through  
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**Neeraj Sood presented the Schaeffer paper  
on the pharmaceutical distribution system  
at a Schaeffer Initiative conference, and  
also briefed the FTC on the study.**

### RELIED-UPON EXPERTS

# 13.4K

Frequently relied upon by the media,  
Schaeffer experts were quoted  
in the news more than 13,400 times  
in the past decade.

# 200

Schaeffer experts have authored  
200 opinion pieces, blog posts and  
perspectives in leading outlets  
including the *The New York Times*,  
*The Washington Post* and *STAT*.



Geoffrey Joyce presented the findings from a Schaeffer Center study on Medicare Part D at a Schaeffer Initiative for Health Policy conference on patient cost sharing.

#### A DECADE OF DRAMATIC GROWTH

The Schaeffer Center has quickly developed a critical mass of leading experts in the field, from a team of four in 2009 to over 110 faculty, staff and affiliated fellows working to advance healthcare in 2019. Today the team includes:

**49** faculty from 9 USC schools

**3** Nobel laureates

**26** affiliated fellows and scholars

**39** staff

**Darius Lakdawalla, PhD**  
Director of Research

**Grant Lawless, RPh, MD**  
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**Geoffrey Joyce, Erin Trish and doctoral student Jianhui Xu discuss their paper on the need for an out-of-pocket cap for Medicare Part D beneficiaries with colleague Grant Lawless. The paper was published in Health Affairs.**



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## About the Schools



### USC School of Pharmacy

One of the top 10 pharmacy schools nationwide and the highest-ranked private school, the USC School of Pharmacy continues its century-old reputation for innovative programming, practice and collaboration.

The school created the nation's first Doctor of Pharmacy program, the first clinical pharmacy program, the first clinical clerkships, the first doctorates in pharmaceutical economics and regulatory science, and the first PharmD/MBA dual-degree program, among other innovations in education, research and practice. The USC School of Pharmacy is the only private pharmacy school on a major health sciences campus, which facilitates partnerships with other health professionals as well as new breakthroughs in care. It also is the only school of pharmacy that owns and operates five pharmacies.

The school is home to the International Center for Regulatory Science at USC and a partner in the USC Center for Drug Discovery and Development. The school pioneered a national model of clinical pharmacy care through work in safety-net clinics throughout Southern California. A focus on clinical pharmacy, community outreach, regulatory science, drug discovery and development, and health economics and policy positions the USC School of Pharmacy as a leader in the safe, efficient and optimal use of medication therapy that can save lives and improve the human condition.

In October 2016, noted scientist Vassilios Papadopoulos became the school's new dean after leading major research initiatives at McGill University Health Centre and Georgetown University.



### USC Price School of Public Policy

Since 1929, the USC Sol Price School of Public Policy has defined excellence and innovation in public affairs education. Ranked second nationwide among 282 schools of public affairs, the Price School's mission is to improve the quality of life for people and their communities, here and abroad. For nine decades, the Price School has forged solutions and advanced knowledge, meeting each generation of challenges with purpose, principle and a pioneering spirit.

The school's three pillars — social and healthcare policy, governance and urban development — cut across 16 interdisciplinary research centers and six primary fields of study: health policy and management, public policy, public management, nonprofit leadership, urban planning and real estate development. With interconnected yet distinct disciplines housed under one roof, the Price School brings multiple lenses to bear on critical issues.

Solving societal issues of such complexity requires not only great minds but also great action. USC Price fosters collaboration and partnerships to better understand problems through varied perspectives. The school uses the influence of California and greater Los Angeles as a resource for setting new paradigms. These challenges also call on a new generation of creative thinkers to explore beyond the status quo. The school's graduates go on to shape our world as leaders in government, nonprofit agencies and the private sector.

Jack H. Knott has served as dean of the Price School since 2005. He previously was director of the Institute of Government and Public Affairs at the University of Illinois at Urbana-Champaign and Chicago.

*The Schaeffer Center is grateful for the advice and support of its distinguished Advisory Board, whose members provide invaluable insights that enhance the Center's important work.*



## About the Schaeffer Center



*Dana Goldman,  
USC Price School Dean  
Jack Knott, USC School  
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Vassilios Papadopoulos  
and Leonard D.  
Schaeffer*

***The Leonard D. Schaeffer Center for Health Policy & Economics was established in 2009 at the University of Southern California through a generous gift from Leonard and Pamela Schaeffer. The Center reflects Mr. Schaeffer's lifelong commitment to solving healthcare issues and transforming the healthcare system.***

Today's ever-changing health policy landscape requires creative solutions, robust research methods and expertise in a variety of fields. Schaeffer Center faculty members excel not only at analyzing the current climate but also in predicting where health trends will lead. A collaboration between the USC Price School of Public Policy and the USC School of Pharmacy, the Schaeffer Center brings together health policy experts, a seasoned pharmacoeconomics team, other faculty from across USC — including the Keck School of Medicine, the Dworak-Peck School of Social Work and the Viterbi School of Engineering — and a number of affiliated researchers from other leading universities to solve the pressing challenges in healthcare.

In 2016, the Schaeffer Center partnered with the Center for Health Policy at the Brookings Institution to establish the Leonard D. Schaeffer Initiative for Innovation in Health Policy. This unique partnership enhances the capacity of both organizations to develop evidence-based solutions to inform policymaking on some of the most pressing healthcare challenges facing the U.S. today — from the future of Medicare to reshaping the Affordable Care Act.

The Schaeffer Center offers the human and technical capacity necessary to conduct breakthrough interdisciplinary research,

exceptional policy analysis and leading-edge training, with more than 30 distinguished scholars investigating a wide array of topics. This work is augmented by a visiting scholars program and partnerships with other universities that allow outside researchers to benefit from the Center's unparalleled infrastructure and data collections. The Schaeffer Center actively engages in developing excellent research skills in new investigators who can become innovators of the future. At the same time, the Center supports the next generation of healthcare leaders in creating strong management, team-building and communication skills.

The Schaeffer Center's vision is to be the premier research and educational institution recognized for innovative, independent research that makes significant contributions to policy and health improvement. Its mission is to measurably increase value in health through data-driven policy solutions, research excellence, transformative education, and private and public-sector engagement. With an extraordinary breadth and depth of expertise, the Schaeffer Center has a vital impact on the positive transformation of healthcare.

### OUR VISION

***The vision of the Leonard D. Schaeffer Center for Health Policy & Economics is to be a premier research and education institution recognized for innovative, independent research that makes significant contributions to policy and health improvements.***

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