

USC Schaeffer

Leonard D. Schaeffer Center
for Health Policy & Economics



Uncovering
Health Policy
Solutions

Annual Report 2016

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.

Rigorous.
Independent.
Impactful.

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Dana Goldman
*Leonard D. Schaeffer Director's Chair
Schaeffer Center for
Health Policy & Economics*

The Schaeffer Center has steadfastly pursued innovative solutions rooted in evidence-based research.

As the nation continues to grapple with its health care trilemma — costs, quality and access — the Schaeffer Center has steadfastly pursued innovative solutions soundly rooted in evidence-based research. But we don't stop when our results are published. The Center has built a variety of communications platforms to widely disseminate our work to key stakeholders in the public and private sectors.

It is for this reason that I am particularly pleased by the success of our partnership with the Brookings Institution. The Schaeffer Initiative for Innovation in Health Policy, under the outstanding leadership of Professor Paul Ginsburg, has quickly established itself as a nationally visible resource for policymakers on both sides of the aisle.

I have similar hopes for a brand-new collaboration with the Keck School of Medicine of USC. The Keck-Schaeffer Initiative for Population Health Policy will conduct research and seek policy solutions to strengthen the nation's safety net. Directed by Associate Professor Seth Seabury, the Initiative launched with an ambitious project to improve mental health care, especially among the nation's most vulnerable populations.

Beyond these initiatives, we also tackled some of the most intractable research and policy issues: infant mortality, the opioid crisis, value of innovation and the returns on early childhood investments. The hallmark of all this work is to inform evolving national discussions with relevant, solid evidence that moves health policy forward.

Without question, the Schaeffer Center's success is due in large measure to some visionary leadership at USC. We are grateful to Dean Jack Knott of the Price School and Dean Vassilios Papadopoulos of the School of Pharmacy, as well as USC President C. L. Max Nikias and Provost Michael Quick, for their enduring dedication to the Center's work.

I am also appreciative of our Advisory Board members for their generosity and insight. Finally, we are grateful to have the support of our benefactor, Leonard D. Schaeffer, whose ongoing dedication to the Center has made it possible for us to grow in size, effectiveness and influence as we continue working to improve policies for better health in communities everywhere.



USC and Brookings Launch the Schaeffer Initiative

To help spur evidence-based research and innovative thinking to address the major changes underway in the health care arena, **Leonard D. Schaeffer** gave \$4 million to establish the Leonard D. Schaeffer Initiative for Innovation in Health Policy as a partnership between the USC Schaeffer Center and the Brookings Institution. As the progenitor of the Schaeffer Center and a trustee of both USC and Brookings, he recognized the power of joining the institutions together to impact policy in this dynamic area.

Under the leadership of USC Professor **Paul Ginsburg**, who also directs the Center for Health Policy at Brookings, the Schaeffer Initiative focuses on today's most pressing issues, including the future of Medicare as costs continue to rise, improving on the Affordable Care Act in the context of replacement, and maximizing the value of innovation in drugs and devices. The Initiative's location in Washington, D.C., ensures that this work will help inform federal health policies.

Ginsburg previously served as president of the Center for Studying Health System Change and was the founding executive director of the Physician Payment Review Commission (now MedPAC). He has also served as a senior economist at RAND and as a deputy assistant director at the Congressional Budget Office. *Modern Healthcare* has ranked him among the "100 Most Influential Persons in Health Care" numerous times.

675+

Media mentions of Schaeffer Initiative experts. They are go-to sources for media, appearing in The New York Times, The Wall Street Journal and Bloomberg, among other outlets.

“Having Paul Ginsburg direct such an important endeavor greatly increases our ability to have real-world impact,” Schaeffer Center Director **Dana Goldman** says. “Working in partnership with Brookings allows us to magnify our development of meaningful policy solutions that draw on the creativity, resourcefulness and intellectual rigor of both our institutions.”

Ginsburg’s experience with MedPAC, for which he is currently a commissioner, has proved invaluable in building the Schaeffer Initiative’s relationships with key Congressional staff.

In the year since the Initiative’s launch, its experts have posed health care solutions and built consensus in meeting them through testimony, papers, blog posts and events that have attracted national attention from policymakers and reporters.

With the Initiative’s associate director, **Loren Adler**, and colleagues, Ginsburg co-authored the influential white paper “Solving Surprise Medical Bills,” which formed the basis for the conference of the same name (see page 9). The paper immediately became a resource for representatives of both political parties, and its recommendations have influenced numerous bills at the state and federal levels. The paper also garnered significant media coverage, including *The New York Times*, *Forbes* and Kaiser Health News. In addition, Ginsburg and white paper co-authors Mark A. Hall and Steven M. Lieberman wrote a piece for *Fortune* encapsulating their conclusions.

In another vital aspect of health care policy, the Initiative helped shape the final form of the federal Medicare Access and CHIP Reauthorization Act of 2015 (MACRA) through publications and direct work on government committees. Among these activities, Ginsburg co-authored an analysis of the legislation that placed it in the context of regulation reform, hospital markets and the effects of high-deductible health plans on consumer behavior.

A broad audience of stakeholders also depends on the Schaeffer Initiative’s bimonthly e-update, *The Essential Scan*, for important, up-to-date findings in health policy research.

“The Leonard D. Schaeffer Initiative for Innovation in Health Policy gives us the basis to build on a promising bicoastal partnership with a world-class university, enhancing both institutions’ ability to play a significant role in improving health policy in the United States,” Brookings President Strobe Talbott says.



“The Schaeffer Initiative gives us the basis to build on a promising bicoastal partnership with a world-class university, enhancing both institutions’ ability to play a significant role in improving health policy in the United States.”

– Strobe Talbott, President, Brookings Institution

“This **new partnership** will accelerate the development of evidence-based policies that are needed to successfully implement change in both the public and private sectors, evaluate results, and understand the implications for the nation’s health and economy.”

– Leonard D. Schaeffer

Priority 1 | Improve the Performance of Health Care Markets



Complex health care markets can be daunting to navigate — especially when consumers face emergencies that leave no time for careful evaluation of options. The USC Schaeffer Center combines thorough analysis of health care markets with an in-depth understanding of the economic issues confronting providers and payers, as well as patients. The Center then brings stakeholders from these areas together to ensure that all voices are heard in informing policy, and that consumers are protected and providers are appropriately compensated without distorting the market.

High-Deductible Plan Pitfalls

*Americans are increasingly enrolling in high-deductible health plans, which feature lower premiums but require more than \$1,250 in out-of-pocket spending before coverage takes effect. While these plans are intended to incentivize consumers to take greater control over managing their medical costs, analysis by Schaeffer Center Director of Research and Price School Vice Dean for Research **Neeraj Sood** and colleagues shows that people who buy such plans do no better at price shopping than those with standard insurance policies.*

Skin in the Game

The researchers surveyed a representative sample of 1,951 individuals about what they consider when choosing coverage. Of the respondents, 1,099 had

high-deductible plans, while 852 carried more traditional coverage.

The participants' answers revealed that those enrolled in high-deductible health plans were no more likely to shop around for the best deals on medical treatments than those with lower out-of-pocket liability. Only about 10 percent in each group said they considered other doctors the last time they sought medical care, and less than 4 percent compared costs.

"The main message of our research is this: Giving skin in the game or giving people financial incentives is not enough to prompt people to become better consumers of health care," Sood says.

The analysis was published in the March 2016 issue of *JAMA Internal Medicine* and has been cited in more than 50 articles in print and online. It adds to Sood's body of work showing that, even though high-deductible plans might put more of consumers' "skin in the game," the results tend not to be rational choices that prioritize high-value care.

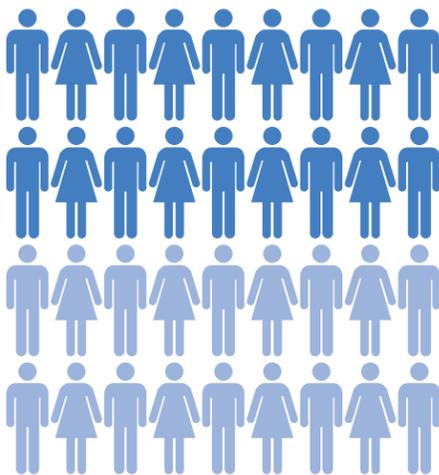
50+

News sources and blogs have cited Sood's research on high-deductible health plans.



“Giving skin in the game or giving people financial incentives is not enough to prompt people to become better consumers of health care.”

– Neeraj Sood



More than 50 percent of consumers say they would use additional sources of health care pricing information if available.

For example, while people on high-deductible plans may save money, that may come at a significant cost to their long-term health. A separate study found that among high-deductible health plan enrollees needing medications for high cholesterol, high blood pressure and diabetes, most of the savings came from reducing the use of these vital medicines rather than seeking better prices.

Need for Innovative Plan Designs

“This analysis of pharmaceutical-use patterns sheds light on a potential disconnect between system-level priorities and individual-level behavior and knowledge about the value of health care treatments,” Sood wrote. “What we need are more innovative plan designs that encourage consumers with chronic illness to use appropriate health care, but at the same time discourage inappropriate use of health care by relatively healthy consumers.”

To encourage people to prioritize high-value health care when making decisions, two common barriers must be removed, he notes.

“For one, it’s a hassle and very difficult to get good information about the prices and the quality of care by doctors, labs or other services,” Sood says. “And two, when it comes to doctors and services, people are concerned about quality of care, but there is not much information available about quality.”

The survey’s responses offered some hope in this regard. Fifty-six percent of those with high-deductible plans — and about half of those with traditional coverage — said they would use additional sources of health care pricing information if they were made available.

“We need to make it more convenient,” Sood says. “We need to give the right decision tools with skin in the game.”

CONFERENCE REPORT

Protecting Patients from Surprise Medical Bills

Every year, millions of Americans receive the unpleasant surprise of massive medical bills from providers outside their insurance networks, often from emergency care or services from out-of-network specialists at otherwise-covered hospitals.



Paul Ginsburg

To build consensus in addressing surprise medical bills, the Schaeffer Initiative for Innovation in Health Policy convened representatives from health systems, insurers and consumer advocacy groups, as well as policymakers. The conference coincided with release of the white paper “Solving Surprise Medical Bills,” co-authored by **Paul Ginsburg**, Schaeffer Initiative director, Schaeffer Center director of public policy and Price School professor.

Schaeffer Center Board Chair **Leonard D. Schaeffer** noted that “as health care plans move to high-deductible and narrow network products” the number of people affected will rise. Even though some states have acted to limit the impact of surprise billing, he said they have failed to “address the problem for the majority of working-age adults who get coverage through self-funded employers.”

Schaeffer Center Director **Dana Goldman** — Distinguished Professor of Public Policy, Pharmacy and Economics at the School of Pharmacy and the Price School — moderated a panel with Consumers Union Director of Special Projects Betsy Imholz, Cedars-Sinai Health System President and CEO Thomas Priselac, Anthem Vice President for National Provider Solutions Colin Drozdowski and President-Elect of the American Society of Anesthesiologists Jeffrey Plagenhoef.

Ginsburg moderated a panel that included Schaeffer Center Director of Research **Neeraj Sood**, Council of Economic Advisers Senior Economist Matt Fiedler, Georgetown Research Professor Jack Hoadley and Yale Assistant Professor Zack Cooper. A consensus among the panelists was that consumer empowerment is essential in any solution. But Ginsburg noted that numerous changes must take place to facilitate that.

The white paper’s proposals include: targeting all billing situations, taking federal action, improving patient notifications about out-of-network providers and charges, holding patients financially harmless in certain situations, encouraging hospitals to increase network participation by specialists, and regulating rates or mandating dispute resolutions in surprise scenarios.

Impact of Community-Based Screenings on Patient Behavior

Rebecca Myerson, assistant professor at the School of Pharmacy and Schaeffer Center, led research showing community-based screening programs for chronic conditions influence individuals’ care-seeking behavior. Published in *Health Services Research*, the study found that, two years after assessment, semi-annual doctor visits for previously undiagnosed conditions increased by 22 percentage points.

“Our question was whether these patients would circle back to the formal health care system and seek care from a doctor if their biomarker assessment showed abnormal results,” Myerson said.

Specifically, doctor visits increased by 45 percentage points for diabetes, 19 percentage points for high cholesterol and 20 percentage points for hypertension. The rate of follow-up was found to be similar across populations facing health disparities, including African-Americans, people in designated Health Professional Shortage Areas, and those of low income or with less than a high school education.

Compared to the change in behavior among those with previously undiagnosed conditions, doctor visits for previously diagnosed conditions showed no uptick. This suggests that patients altered their health-care-seeking habits only when the screening informed them about abnormal biomarkers of which they were previously unaware.



Assistant Professor Rebecca Myerson

Competition and Consolidation

The number and size of mergers in the health care industry — from insurance companies to providers and hospitals — continued to accelerate in 2016. Though the long-term effects on health outcomes, efficiency and costs are still being debated, experts at the Schaeffer Center are conducting research and giving testimony about the best policy options moving forward.



Assistant Professor Erin Trish

National Voice in Market Dynamics

Paul Ginsburg, director of public policy and director of the Schaeffer Initiative, and **Erin Trish**, assistant research professor at the Schaeffer Center and the Price School, met with policymakers, industry professionals and thought leaders about trends in insurance markets, consolidation and the effects of policy changes.

Their research shows that reduced competition has, at least in the short term, led to higher premiums without significant improvements in patient outcomes. However, the markets are complex.

“The potential impact of consolidation on negotiations between health insurers and health care providers, and ultimately the impact on consumers, is likely to vary across both geographic markets and different types of insurance products,” Trish said about insurance company mergers. “This complexity is what necessitates thorough review by the Department of Justice and other insurance regulators.”

Trish’s work on rising costs was cited by the Congressional Budget Office in its report “Private Health Insurance Premiums and Federal Policy.”

Policies That Foster Competition

In testimony before the California Senate Committee on Health regarding how to further competition in consolidated markets, Ginsburg observed that the trend of mergers “will continue for the foreseeable future despite anti-trust enforcement.” He recommended that policymakers proceed with payment reform, enforce anti-trust policy, pursue additional policies that enhance competition and consider rate setting as a “stick in the closet” to use if market approaches fail.

“Government can still play an effective role in addressing higher prices that come from consolidation by pursuing policies that foster increased competition in health care markets,” Ginsburg said during the hearing.

California as a National Case Study

Research led by **Glenn Melnick**, Blue Cross of California Chair in Health Care Finance at the Price School, analyzed hospital prices in California between 2004 and 2013 and found that prices in two of California’s largest health systems were 25 percent higher than those at other hospitals in the state.

“California experienced its wave of consolidation much earlier than the rest of the country, and our findings may provide some insight into what may happen across the U.S. from hospital consolidation.”

– Glenn Melnick

The study, which drew on claims data from Blue Shield of California, found the amount paid by Blue Shield to nearly 60 hospitals owned by the two chains jumped by 113 percent during the timeframe. By comparison, costs increased by only 70 percent at about 175 other California hospitals.

Both trends exceeded overall inflation and took place during low economic growth and declining demand for inpatient services, which should have contained price hikes.

Melnick and his co-authors attributed the price increases to the major chains’ market domination, which enables them to impose “all-or-nothing” contracts on insurers. Such terms force insurers wanting access to the systems’ top institutions to contract with the rest of the chain.

Given the industry-wide acceleration of hospital mergers, the research has national implications.



The amount U.S. families provide annually in uncompensated medical care at home to children who have special health needs

Weighing the Value of Unpaid Family Care

A pioneering study led by **John Romley**, associate professor at the Price School and the School of Pharmacy, quantified the value of care provided by families to children with chronic health needs — as well as the financial burdens the families face. The researchers found that nearly 5.6 million children each receive at least 5.1 hours of medical care at home from family members per week.

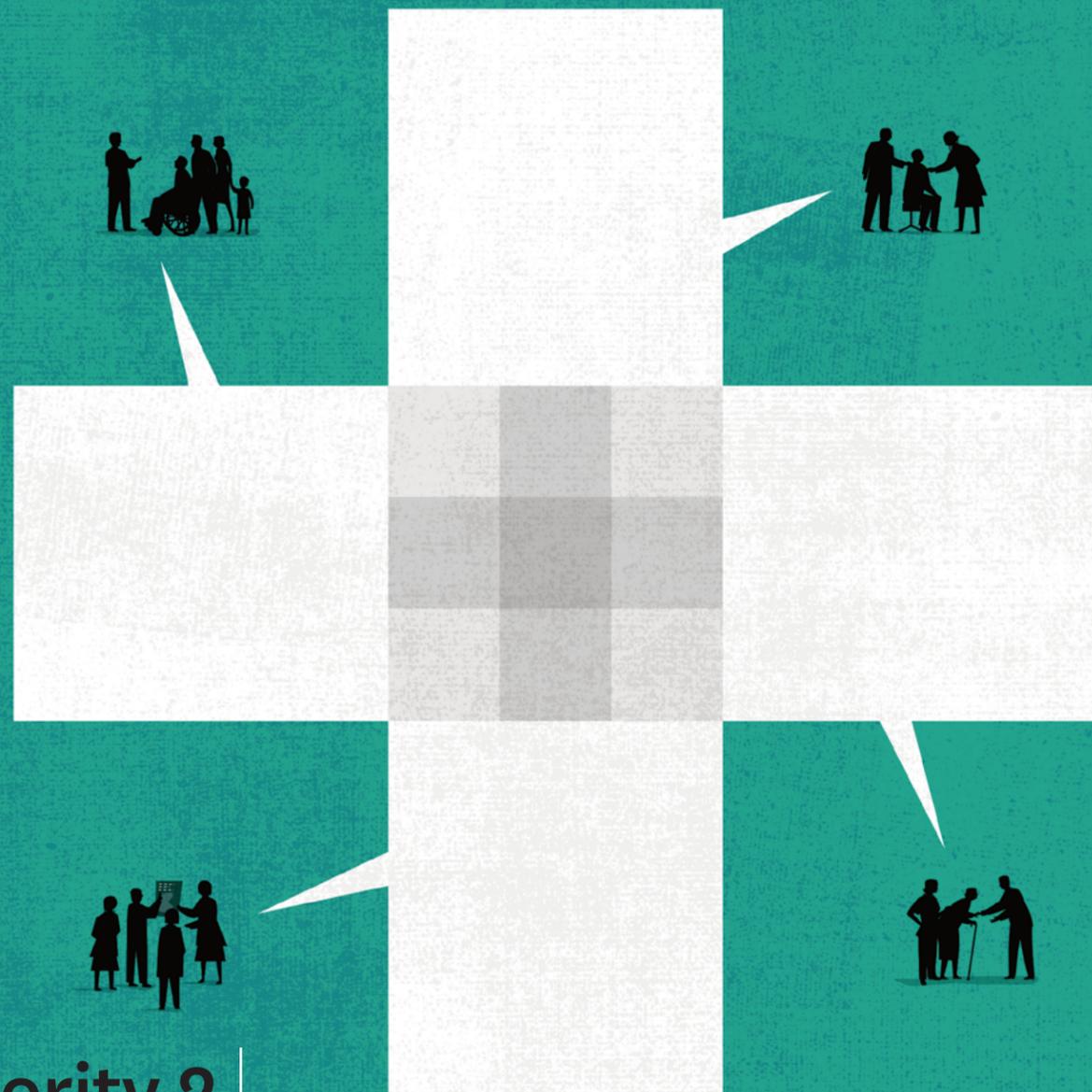
“Children with chronic health conditions require a significant amount of care, and hiring a home health aide can be prohibitively expensive,” Romley wrote. The study found that professional care would cost an estimated \$6,400 annually per child, or \$35.7 billion nationwide. Even at minimum wage, the rates would be \$2,100 and \$11.9 billion, respectively.

Still, families pay steep costs by providing the care themselves, forgoing a total of more than \$17 billion in income annually.

Policy suggestions to ease the burden include incentives to employers for providing flexible work schedules, paid-leave programs, increased respite care and clinician home visits. The Affordable Care Act did extend health care to some of these families, the researchers noted.



Priority 2 | Increase Value in Health Care Delivery



The USC Schaeffer Center's evidence-based approach examines ways to maximize medical quality while improving efficiency for the benefit of individuals and society. Schaeffer Center researchers are finding ways to achieve the highest possible value for patients through cost-effective health care that aids as many people as possible — from birth to the end of life. The Center examines policy solutions for some of today's most pressing health challenges, such as opioid addiction and caring for patients with serious illness.

Overcoming Opioid Addiction



Medicare Part D spending on opioids exceeded \$4 billion in 2015.

The United States faces an unprecedented epidemic of opioid abuse. According to the U.S. Department of Health and Human Services, an estimated 1.9 million Americans aged 12 and older are addicted to prescription painkillers. The death rate from overdoses also continues to rise, reaching more than 20,000 fatalities last year alone. The economic burden on the health care system is immense as well, with Medicare Part D spending on opioids exceeding \$4 billion in 2015.

Schaeffer Center researchers are working with colleagues throughout the university and beyond to identify evidence-based policy solutions to curb opioid addiction and find safer ways to manage pain.

A Growing Crisis

A study co-written by Schaeffer Center Director **Dana Goldman** — Distinguished Professor of Public Policy, Pharmacy and Economics at the School of Pharmacy and the Price School — and published in *JAMA Internal Medicine* was among the first to quantify the rate and extent of opioid prescribing in hospitals. The research found that 43 percent of Medicare patients were still taking opioids three months after their discharge. Most of these patients were 65 and older and had undergone common surgeries.

The study was based on a random sample of Medicare beneficiaries hospitalized in 2011. Researchers examined data from 623,957 hospitalizations, of which 92,882 involved a new opioid prescription within seven days of a patient's discharge. The data set included information from 2,512 hospitals.



The prescription rates varied among the hospitals, but most of them discharged 10 to 20 percent of patients with a new opioid prescription.

"If we are going to do something to combat this trend, we need to dig more deeply into hospital practices," Goldman said. "Traditional regulatory policies that focus on access at pharmacies are likely not enough."

Federal Actions

Last year, the U.S. Department of Health and Human Services announced several new actions to combat the epidemic, including a proposal to remove the pain management questions from the survey used to calculate hospital payment scoring, which is in line with the recommendations that came out of the research conducted by Goldman and colleagues. The department also launched additional research studies into pain treatment and opioid misuse,

"If we are going to do something to combat this trend, we need to dig more deeply into hospital practices. Traditional regulatory policies that focus on access at pharmacies are likely not enough."

– Dana Goldman

while expanding prescriber education efforts.

While health officials have encouraged reductions in opioid prescriptions, this has led to some patients turning to illegal means to maintain their addiction. Therefore, Goldman urged caution in implementing solutions and encouraged analysis of unintended consequences of policies.

Writing in *U.S. News & World Report*, **Jason Doctor**, Schaeffer Center director of health informatics and School of Pharmacy associate professor, and Schaeffer Center Senior Fellow **Joan Broderick** proposed answers that include reviving such interdisciplinary, non-pharmaceutical therapies as

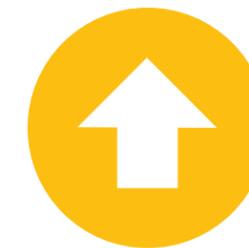
exercise, biofeedback and stress reduction. This requires changes in reimbursement strategies.

"By the late 1990s, insurers stopped paying for multidisciplinary pain care," Doctor and Broderick noted. "Today, integrative care is not easily coordinated or reimbursed."

Evidence-Based Decision Aids

In addition to refocusing on interdisciplinary therapies, Doctor and Broderick propose using evidence-based decision aids, such as electronic health records, to taper off opioids "when they have resulted in inadequate pain reduction or functional impairment." The technology also could be used to "introduce standing orders for physical, occupational and psychological pain management therapies." Further, "[r]outine mental health screening could improve clinician awareness of depression and anxiety that are associated with pain and prompt referrals and care coordination efforts," they wrote in the *Health Affairs* blog.

Tactics such as these could help ease both the chronic pain of patients and the agony of withdrawal as opioid prescriptions decline in favor of less risky, drug-free therapies.



IMPACT
Chen's study was cited in the 2016 Economic Report of the President.

CONFERENCE REPORT

Bridging the Gulf

The Schaeffer Center partnered with Cedars-Sinai and the National Academies of Sciences, Engineering, and Medicine to host *Bridging the Gulf: Challenges of End-of-Life Care in California*. Supported by Anthem Blue Cross and the Gordon and Betty Moore Foundation, the event drew 110 attendees.



"For many patients, the clear desire is for final days to be spent under palliative care at home," said Schaeffer Center Board Chair **Leonard D. Schaeffer**, who also chairs the National Academies' Roundtable on Quality Care for People with Serious Illness. "We need to identify the changes that need to be made and the stakeholders who can make it happen."

Stanford Professor of Medicine and Co-Chair of the Institute of Medicine Committee on Approaching Death: Addressing Key End-of-Life Issues Philip A. Pizzo observed that the public discussion of end-of-life issues has led to significant progress, including Medicare now reimbursing physicians for such consultations. Yet too much care is still driven by fee-for-service, resulting in too many providers and uncoordinated care.

Providers face impediments as well, such as unclear direction from patients, many of whom do not complete advance directives in a timely manner. As a result, only 36 percent of Americans are involved in their final care decisions, according to Schaeffer Center Director **Dana Goldman**.

However, several experts pointed out that the directives can be confusing, may ask the wrong questions and can lead to distrust between the patient, the provider and the patient's family. Janet Corrigan, chief program officer for Patient Care at the Moore Foundation, said that better definitions are needed for directives and policies that meet patient values.

Furthermore, lack of cultural diversity in the workforce and communication barriers are challenges that need to be overcome to increase access to important programs, explained **Susan Enguidanos**, associate professor of Gerontology at the USC Davis School of Gerontology and the Schaeffer Center.

Examining the State of Infant Mortality

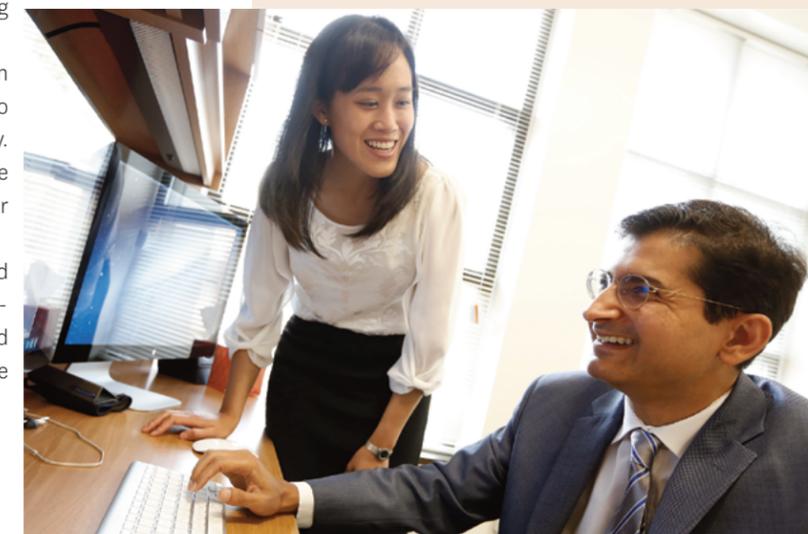
Infants in the United States die in greater numbers than those of other wealthy nations, and the mortality rate varies widely by state, according to research co-authored by Schaeffer Center and USC Price Assistant Professor **Alice Chen**.

Data comparisons within the U.S. found higher mortality in regions with greater poverty. For example, Southern states have more than double the rate of Northeast states. But income inequality only provides a partial answer, Chen said.

The death rate escalates sharply at the one-month mark across all U.S. regions. The discovery challenges the theory that low birthweight, which is linked to poor infant health, is the sole driver of this disparity. Thus, policies to improve health at birth would be an incomplete solution, Chen said.

Policy strategies should focus on babies older than one month who are from lower-income families, and should evaluate the impact of well-baby checkups, caregiver advice and home nurse visits — which are more prevalent in Europe, where the mortality rate is far lower.

Published in the *American Economic Journal: Economic Policy*, the study was cited in the 2016 Economic Report of the President. It received coverage from *The New York Times*' Upshot, *Slate*, *Bloomberg* and *Forbes*.



Assistant Professor Alice Chen and Professor Darius Lakkawalla

43%

of Medicare patients who left the hospital with an opioid prescription were still taking opioids three months post-hospital discharge.

Reducing Inappropriate Antibiotic Prescriptions



Director of Informatics Jason Doctor

More than 22 million antibiotic prescriptions are written annually for acute respiratory infections caused by viruses such as the common cold — against which they have no effect. Not only does this have potentially negative consequences for the patient, but it also can carry immense costs. According to the Centers for Disease Control and Prevention (CDC), adverse reactions to antibiotics account for one out of every five emergency room visits.

On a larger scale, inappropriate antibiotic use has contributed to the rise of “superbugs” that can resist pharmaceutical treatments.

Nudges Gain National and International Attention

Schaeffer Center Director of Health Informatics Jason Doctor and his team published a fifth study in their body of work evaluating how nudges can help solve the pressing public health problem of inappropriate antibiotic prescribing. Doctor is internationally renowned for his expertise on this issue and is frequently called upon by state and federal policymakers to share his team’s findings. Their previous work has been implemented in four states as well as Public Health England and is cited on the CDC website as a best practice.

The research team includes Keck School of Medicine Assistant Professor of Preventive Medicine Daniella Meeker, School of Pharmacy Professor of Pharmaceutical and Health Economics Joel Hay, and Program Manager Tara Knight.

Novel Nudges

The 2016 study, published in JAMA, gathered data on the prescription rates of 248 clinicians at 47 primary care practices in

“We tested whether socially motivated interventions, such as instilling pride in their performance or making physicians accountable for their decisions, would help address the problem. Our findings here suggest they may.”

- Jason Doctor

Los Angeles and Boston over an 18-month period. Doctor and his colleagues then introduced novel nudges to push physicians toward more selective prescribing over a second 18-month period.

“Until now, most efforts to reduce antibiotic prescribing have involved education, reminders or giving financial incentives to physicians,” Doctor said. “We decided to test whether socially motivated interventions, such as instilling pride in their performance or making physicians accountable for their decisions, would help address the problem. Our findings here suggest they may.”

The following nudges achieved the best results:

Accountable Justification:

The most successful intervention was “accountable justification.” As information was added to a patient’s electronic chart, a prompt would appear asking the clinician to justify the antibiotic prescription.

The written justification would then be added to the chart — unless the clinician cancelled the prescription. This reduced antibiotic prescription rates for acute respiratory infections by 18 percentage points, from 23 percent to 5 percent.

Peer Ranking: In another nudge, clinicians received an email informing them of their ranking compared to their peers, from highest to lowest, for inappropriate prescriptions. Clinicians with the lowest rates were told they were top performers and received a “congratulations” in their inbox. Anyone who was not a top performer received an email that included a count of his or her unwarranted prescriptions. The approach reduced antibiotic prescription rates from 20 percent to nearly 4 percent.

These two interventions prevented an average of one unnecessary prescription for every eight patients seen.

In a piece for *The New York Times*, Doctor and his co-authors wrote, “Taken together, our studies suggest that simple and inexpensive tactics, grounded in scientific insights about human behavior, can be extremely effective in addressing public health problems.”



IMPACT

Four state public health departments and Public Health England are implementing Doctor’s interventions.



Associate Professor John Romley

Community Influence on Vaccines

Community behavior is important to a person’s willingness to get vaccinated, according to a study co-authored by School of Pharmacy and Price School Associate Professor John Romley and Schaeffer Center Director of Research and Price School Vice Dean for Research Neeraj Sood. They surveyed people across the U.S. in real time about their willingness to receive a hypothetical Ebola vaccine, as well as the effect of out-of-pocket costs and community vaccination rates during late 2014, when Ebola was sweeping parts of the globe.

On average, 51 percent of respondents indicated a willingness to get immunized. Worry about Ebola was an important motivator, as 60 percent of concerned respondents would use the vaccine compared to about 35 percent who were unconcerned.

“We know that vaccination rates vary considerably across communities but it is still unclear what causes the variation,” Sood said. “If we can better understand what triggers someone to get a vaccine or not, that could have important implications for public policy and public health outreach campaigns.”

“Our findings suggest policies and campaigns that engage the public in the promotion of vaccination — like social media campaigns — may be more cost-effective than previously appreciated,” Romley added.

Priority 3 | Improve Health and Reduce Disparities



The USC Schaeffer Center cultivates policies to enhance health throughout the lifespan — addressing issues from infant mortality to Alzheimer's disease. The Center's evidence-driven research explores the issues confronting people of all ages, the professionals who treat and care for them, and the systems that reimburse that care. Using a range of data tools — including the Future Elderly Model — investigators examine ways to minimize the impact of extended lifespans on public resources while ensuring these added years are as healthy as possible.

Projecting Lifetime Outcome Trends

Housed in the Schaeffer Center, the Roybal Center for Health Policy Simulation's Future Elderly Model (FEM) leads the way in exploring changing demographics to predict the future health status of populations as they age — and the resulting consequences for society. The projections inform research and policy across the public and private sectors, nationally and internationally.

Schaeffer Center Nobel Laureate and USC Presidential Scholar-in-Residence **James Heckman** led research that used the FEM simulation to gauge the benefits of early childhood education on lifetime health outcomes. The study examined data from low-income African-American children who attended two North Carolina preschools in the early 1970s,

as well as control groups who either did not attend preschool or participated in lower-quality programs.

Life-Cycle Benefits

The study, which followed its participants for 35 years, determined that investments in high-quality early childhood education for at-risk children — as well as employment support for their mothers — yields \$6.30 for every dollar spent. The calculation

“High-quality early childhood programs can boost the upward mobility of two generations by freeing working parents to build their careers and increase wages over time, while their child develops a broad range of foundational skills that lead to lifelong success.”

— James Heckman

factors such long-term benefits as reduced taxpayer costs for crime, welfare and health care, as well as the advantages of a better-prepared workforce.



**Return per dollar
invested in early childhood
education for at-risk
children**



“High-quality early childhood programs can boost the upward mobility of two generations by freeing working parents to build their careers and increase wages over time, while their child develops a broad range of foundational skills that lead to lifelong success,” Heckman says.

and Economics at the School of Pharmacy and the Price School. The research revealed that the widening life-expectancy gap will greatly affect the distribution of benefits received, with top earners garnering far more than low-income workers.

Disparities Uncovered

When the Los Angeles County Schaeffer Center projects using the FEM simulation also inform policy decisions at the local, state and federal levels. The Government Accountability Office (GAO) relied on FEM-based analysis for a report about the effects of life expectancy trends on Social Security and Medicare benefit distributions. Schaeffer Center Director **Dana Goldman**, who led the development of the model, served on the National Academy of Sciences committee charged with producing the analysis used by the GAO. Goldman is also Distinguished Professor of Public Policy, Pharmacy

Measured Impact

When the Los Angeles County Department of Public Health needed to analyze the ramifications of a ballot proposition to raise the tobacco tax, its representatives turned to the Roybal Center and FEM. The simulation estimated the tax’s health impacts up to the year 2059 and showed 7,800 fewer cases of heart disease, 3,800 fewer cases of stroke, 9,700 fewer cases of lung disease and 2,300 fewer cases of cancer among adults aged 25-65. It posited that a total of 250,000 years of life would be gained among adults across the county.

Access to Global Modeling

The Roybal Center also works with researchers around the world to expand FEM models and their usage. For example, the Schaeffer Center has entered into an accord with the Organization for Economic Cooperation and Development and Italy’s University of Rome Tor Vergata to develop a global aging simulation platform. In total, researchers are collaborating with the Roybal Center to produce FEM microsimulation models to predict outcomes across 15 countries in North America, Europe and Asia.

“FEM is a powerful tool to predict the consequences of public policy for health outcomes, population aging and fiscal sustainability,” Goldman says. “As societies around the world continue their demographic transitions, this agreement will provide policymakers with forecasts to make better, evidence-based decisions.”

According to the World Health Organization, the elderly population will increase by 250 percent by 2050 in developing nations, compared to 71 percent in developed nations. Access to a global FEM will give researchers invaluable tools for exploring data on life expectancies, health status and medical needs — which in turn will aid policymakers in allocating critical resources.

CONFERENCE REPORT

The Complexity and Cost of Chronic Care

The Schaeffer Initiative for Innovation in Health Policy, a partnership of the USC Schaeffer Center and the Brookings Institution, hosted Senator Ron Wyden (D-Ore.) at an event in Washington, D.C., at which he shared his views on how Medicare can more effectively address the challenges of chronic disease.



Senator Ron Wyden

Schaeffer Center Board Chair **Leonard D. Schaeffer** introduced Wyden with the sobering statistic that more than half of all Americans suffer from a chronic disease.

“There is a striking lack of attention to what dominates American health care,” Wyden said. “And that is chronic care.” He noted that 93 percent of

Medicare spending is for treatments for chronic conditions and that such disbursements will grow exponentially in coming years, with 10,000 people a day becoming eligible.

To meet these needs, he emphasized, Medicare must be accessible and affordable, and care must be coordinated. The system also requires changes to make it easier for seniors to navigate.

Senior Fellow Alice Rivlin of the Brookings Institution agreed. “Managing chronic care is difficult, even for someone with a PhD in economics,” she said.

After his remarks, Wyden was joined by a panel of experts, moderated by Rivlin, that featured Keith Fontenot, visiting scholar at Brookings; Robert E. Moffit, senior fellow at the Institute for Family, Community and Opportunity; and Kavita Patel, a non-resident senior fellow at Brookings.

Moffit suggested that the prevention of chronic disease must also be addressed. “Americans are digging their graves with their knives and forks,” he said.

Wyden offered some hope regarding bipartisan support for Medicare reform, pointing out that both houses of Congress were considering bills that address chronic care. As an example of how Medicare can customize treatments, he also referenced a pilot project of the Affordable Care Act that allows Alzheimer’s patients to stay at home, which has produced improved outcomes while reducing costs. More than 140 policymakers, Capitol Hill staff and reporters attended the program, with many more watching it live on the web.

Reducing Alzheimer’s Risk with Statins

While no cure exists for Alzheimer’s disease, a study co-authored by Schaeffer Center Director of Education and Training and Price School Vice Dean for Academic Affairs **Julie Zissimopoulos**, Schaeffer Center Director of Health Policy and School of Pharmacy Pharmaceutical and Health Economics Chair **Geoffrey Joyce**, and Schaeffer-Amgen Postdoctoral Fellow **Douglas Barthold** adds to the evidence that common anti-cholesterol drugs known as statins can reduce its risk.

The new study involved Medicare data from nearly 400,000 statin users aged 65 and older who had no diagnosis of Alzheimer’s and who used one of the four most commonly prescribed statins between 2006 and 2008. The team then tracked diagnoses of the disease in data from 2009 to 2013.

The incidence of Alzheimer’s disease was reduced by 15 percent among women who regularly took statins and 12 percent among men, compared to patients who took the drugs less often. The researchers found different reductions in risk for specific demographic groups depending on which statin was being used.

“We may not need to wait for a cure to make a difference for patients currently at risk of the disease,” Zissimopoulos said. “Existing drugs, alone or in combination, may affect Alzheimer’s risk.”

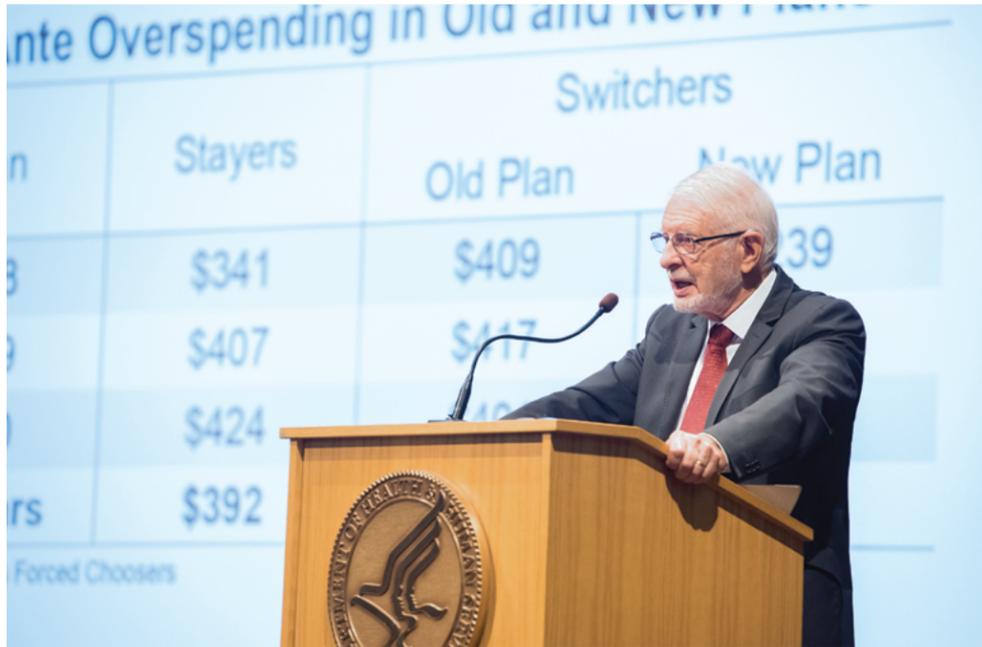
The findings were published in *JAMA Neurology* and reported on CNN and in other media outlets.



Director of Education and Training
Julie Zissimopoulos

15

Number of countries where researchers are working with Schaeffer experts to develop a Future Elderly Model

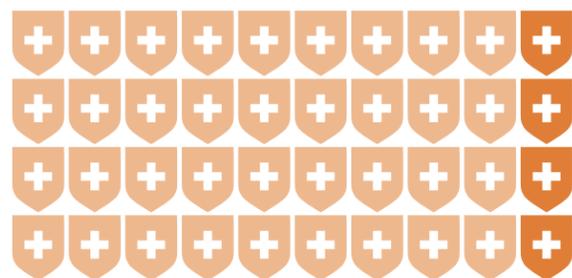


Presidential Professor of Health Economics Daniel McFadden

Improving Medicare Part D

Nobel Laureate and Price School Presidential Professor of Health Economics **Daniel McFadden**, Price School Assistant Professor **Erin Trish**, and School of Pharmacy Associate Professor and Director of Health Policy **Geoffrey Joyce** are among the Schaeffer Center experts addressing the burdens that face Medicare Part D recipients — and how to reduce them by improving public policy and consumer choices.

Only 10 percent of Medicare Part D beneficiaries shopped for and switched coverage.



Encouraging Price Shopping

Using data on Medicare claims and Part D plan selection from 2007 to 2010, McFadden and fellow researchers discovered that, even as people's health insurance policies and conditions changed, only about 10 percent shopped for and switched coverage. Among those who did, most still chose plans that resulted in overspending.

The team explored two factors that must be addressed in designing interventions to improve consumer options: people's lack of attention to such choices and concerns about the expense of switching plans. The findings show that consumers are more likely to pay attention to alternatives if the coverage gap is reached or premiums change.

McFadden spoke about this and related research at a Centers for Medicare & Medicaid Services (CMS) Grand Rounds educational event.

Addressing the Doughnut Hole

Whether consumers switch plans or not, they may still be plagued by the "doughnut hole" — the gap between Medicare Part D's prescription drug coverage limit and the catastrophic threshold. When patients spend \$4,850 out of pocket in a calendar year, they move into catastrophic coverage and pay 5 percent of prescription drug costs for the rest of the year. The federal government and the patient's insurance plan pay the remainder.

Five percent might not sound like much, but the dollars add up rapidly, the research showed. "Currently, there is no limit on out-of-pocket spending for prescription drugs for Medicare beneficiaries, and these patients often face very high spending year after year," said Trish, who, with Joyce and Research Assistant **Jianhui Xu**, conducted a study of these mounting costs that was published in *Health Affairs*.

Previously, patients in the Medicare doughnut hole had to pay the full cost of their prescription medications until they had

spent enough out of pocket to reach catastrophic coverage levels. Then, in 2011, the Affordable Care Act began to close the gap with a combination of drug manufacturer discounts and plan payments.

"Currently, there is no limit on out-of-pocket spending for prescription drugs for Medicare beneficiaries, and these patients often face very high spending year after year."

- Erin Trish

However, as prices rose for specialty drugs — which are defined as costing \$600 or more each month — so did Medicare costs. The researchers found that total average annual drug spending — Medicare plus out-of-pocket expenditures — increased more than 80 percent between 2008 and 2012, from \$18,335 to \$33,301 per patient.

"Any gains made in helping patients caught in the doughnut hole to pay for their medications were nearly entirely offset by the increases in out-of-pocket spending that patients incurred once they reached the catastrophic coverage phase," Trish said.

Limiting Out-of-Pocket Liability

The researchers suggest that policymakers consider ways to limit seniors' out-of-pocket liability for prescription drugs. They cite as examples a congressional bill that would eliminate cost-sharing for beneficiaries in the catastrophic phase and a House Budget Committee resolution to cap annual out-of-pocket spending for beneficiaries in the traditional Medicare program. The team recommends a similar catastrophic coverage cap for Part D patients.



Increase in average annual Medicare plus out-of-pocket drug spending from 2008 to 2012

Enhancing the Health of Vulnerable Populations

Keck School of Medicine and Schaeffer Center Associate Professor **Seth Seabury** is working with colleagues to improve the physical and psychological health of vulnerable populations.

The Keck-Schaeffer Initiative for Population Health Policy (KSI) is a partnership with the Keck School of Medicine of USC that combines multidisciplinary research with clinical insight to develop strategies for strengthening the nation's safety net of care. KSI currently focuses on expanding access to vision care, improving behavioral health services, reducing the burden of disability and fighting America's opioid-abuse epidemic.

Seabury also spearheads the Schaeffer Center's work in the Behavioral Health and Economics Network (BHECON) — a collaboration with the National Council for Behavioral Health that unites the public and private sectors in seeking better policies for mental health care. BHECON's activities include a multi-year effort to present forums in states that have ranked behavioral health as a top priority. The Schaeffer Center provides the data-driven research that informs these forums. In a recent example, Seabury co-authored a study finding that, compared to oral use of antipsychotics, long-acting injectables were associated with fewer hospital readmissions, within 60 days, for Medicaid patients suffering from schizophrenia.



Priority 4 | Foster Better Pharmaceutical Policy and Regulation



From bioscience breakthroughs to treatments geared to our individual genetics, medical advances are leading to longer, healthier lives. Yet these developments often carry high economic costs that can exacerbate health disparities. The USC Schaeffer Center’s impactful research seeks to balance these concerns, encouraging innovation while proposing methods to increase health care access. Politicians and media alike turn to our experts for their ideas on how to improve pharmaceutical policies and regulation so that care is enhanced and costs are brought in line.

Prescriptions for Pricing

The 2016 election saw the issue of pharmaceutical costs resonate throughout the country. From addressing the outcry over the EpiPen price hike to offering alternatives to Medicare pricing for all, Schaeffer Center experts shared evidence-based policy solutions with policymakers, the media and the public. Following are a few highlights from this work.



IMPACT

Schaeffer Center experts were asked to write op-eds and were quoted dozens of times about proposed drug pricing regulation in the lead-up to the election.

Treating Monopolies as Public Utilities

When Mylan dramatically increased the price of its lifesaving EpiPen — creating a national furor — Schaeffer Center experts responded with proposals to ease costs without stifling vital medical innovation.

Director **Dana Goldman** — Distinguished Professor of Public Policy, Pharmacy and Economics at the School of Pharmacy and the Price School — wrote in the online journal *STAT* about the issue: “It is

lax regulatory oversight that doesn’t ensure an adequate supply of drugs critical to population health and opens the door to shocking price increases.” He pointed to vaccines as a public health model that could be replicated to ensure an adequate supply of necessary medications.

Goldman also testified before a California Senate committee on the issue, saying, “The time is ripe to strike a deal with innovative companies” that would align price with value. Instead of the state paying large upfront costs, it should work with companies to deliver the drugs now at much lower prices — and share in the huge savings in medical costs such drugs will accrue over time.

Writing in *U.S. News & World Report*, Schaeffer Center Director of Health Policy and School of Pharmacy Pharmaceutical and Health Economics Chair **Geoffrey F. Joyce** and Schaeffer Center Director of Research and Price School Vice Dean for Research **Neeraj Sood** pointed to monopolization as a big part of the problem. They noted that Mylan, along with such companies as Turing Pharmaceuticals and Valeant, “acquire the rights of generic drugs with limited competition and start boosting prices and profits.”



Joyce and Sood suggested that generic drug manufacturers be treated like public utilities, opening their books to regulators and allowing the Food and Drug Administration, for example, to set limits on how much they can charge. “This would ensure that companies make a reasonable profit without gouging consumers,” they wrote.

Finding Alternatives to Medicare Pricing for All

As part of a point-counterpoint debate, the peer-reviewed *Journal of Policy Analysis and Management* invited Joyce and Sood to address whether allowing Medicare to negotiate all prescription prices was the appropriate answer. They contended that little evidence exists demonstrating that Medicare could negotiate widespread drug prices effectively, and significant research shows how such price controls would stifle research and

development, and therefore health outcomes.

In writing about Medicare negotiation, Goldman shared examples of government policies that can bolster innovation. “The Orphan Drug Act of 1983 offered market-based incentives to develop treatments for rare diseases,” he noted. “More recently, Medicare Part D increased R&D subsidies for diseases that predominantly affect the elderly.” He cited both as ways that the public and private sectors can partner in finding new treatments.

Restraining Prices While Preserving Choice

In California, voters rejected Proposition 61, which would have tied drug pricing to the discounted levels paid by the Department of Veterans Affairs. At the national level, however, the populism behind the presidential outcome has driven the industry to assemble an even greater lobbying effort

than usual to fight proposals aimed at curbing drug prices.

Writing in *STAT*, Goldman and Quintiles Chair in Pharmaceutical Development and Regulatory

“Treating generic manufacturers as public utilities would require them to open their books to regulators, allowing the Food and Drug Administration, for example, to set limits on how much a company could charge for a drug.”

– Geoffrey Joyce and Neeraj Sood

Innovation at the School of Pharmacy and Price School Professor **Darius Lakdawalla** suggested that such efforts may be counterproductive. Instead, they offered alternative recommendations. Expanding subsidies for prescription drug insurance, shortening patent length, encouraging lower generic drug prices, limiting consumers’ out-of-pocket costs and focusing on value-based pricing together attack the problem from the beginning to the end of the drug life cycle.

CONFERENCE REPORT

Increasing Access to Care

The Schaeffer Center teamed with The Hill to convene experts and policymakers to address the seemingly intractable challenge of increasing access to care without hampering innovation. An audience of 150 attended the forum, held at the Newseum in Washington, D.C.



Senator Bill Cassidy

The experts agreed policymakers need to prioritize increasing access to health care, especially for minorities and underserved communities. “There is an enormous challenge in just getting minorities up to the current standard of care,” said **Paul Ginsburg**, Schaeffer Center director of public policy and senior fellow at the Brookings Institution.

Getting low-income patients access to doctors is the critical first step, said Ramanathan Raju, president and CEO at the New York City Health and Hospitals Corp. Despite the big increase in Medicaid enrollment through the Affordable Care Act (ACA), he said a key issue for public health systems is funding care for those who remain uninsured.

Samantha Artiga, director of the Disparities Policy Project at the Kaiser Family Foundation, raised concerns about the South falling further behind in health outcomes because so many states declined to expand Medicaid enrollment under the ACA. Blacks are twice as likely as whites to fall into the resulting coverage gap, she said.

“We need to work as a unit to solve this problem,” said Amy Rudolph, a vice president at Novartis. “It is better for everyone if we can avoid hospitalizations.”

Schaeffer Center Director **Dana Goldman** referred to new heart treatments as an example of how innovation can both lengthen lives and narrow disparities, noting the outsized impact congestive cardiac failure has on minorities.

Contrasting views about the ACA’s impact were presented by J. Nadine Gracia, director of the Office of Minority Health at the Department of Health and Human Services, and Senator Bill Cassidy (R-La.).

Gracia lauded the ACA for driving the uninsured rate below 9 percent — including marked gains among minorities — and for making preventive services available to millions at no cost.

Cassidy argued that it was failing due to being unaffordable. “When poor people run up against a \$6,000 deductible, it may as well be \$6 million,” he said.

Innovative Approaches for Curbing Infectious Diseases

Large-scale treatment strategies for hepatitis C and HIV have stalled due to costs. Schaeffer Center researchers have examined the issue from all sides, focusing on the fundamental issue of cost versus value.

Working with the L.A. County Board of Supervisors and Department of Public Health, **Neeraj Sood** and School of Pharmacy and Schaeffer Center Professor **Joel Hay** used a mathematical model to simulate HIV incidence. They found the most effective approaches to reduce infection were taking preventive HIV medicines daily and frequent testing followed by antiretroviral therapy for those who test positive.

Likewise, the Center works with policymakers on the affordability of hepatitis C cures. Sood serves on the National Academy of Sciences committee seeking to eliminate hepatitis B and C from the U.S. Meanwhile, the American Association for the Study of Liver Diseases and the Infectious Diseases Society of America cited research by Director of Graduate Studies and School of Pharmacy Associate Professor **Jeff McCombs** and physician, Center researcher and Keck School Assistant Professor **Steven Fox** in new recommendations for testing, managing and treating hepatitis C.

“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 at a congressional briefing.



Director of Graduate Studies Jeff McCombs

150+

Policymakers, Hill staffers, media and others joined the Schaeffer Center and The Hill for a policy discussion at the conference “Access to Care.”



The Effects of Advertising on Medication Use



Spent annually on consumer advertising by pharmaceutical companies

Pharmaceutical companies spend \$4 billion annually on ads to influence consumers. USC Schaeffer Center researchers continue examining the impact of such advertising on patient behavior and the medical marketplace.

Ads and Medicare Part D

The Food and Drug Administration relaxed restrictions on pharmaceutical advertising in 1997. Following the implementation of Medicare Part D, drug commercials now rank just behind those for automobiles and fast food in their ubiquity on television alone. With an average of 80 ads airing every hour — many of them aimed at older Americans — debates have risen about their effects on patient welfare.

In their most recent paper, Schaeffer Center researcher **Darius Lakdawalla**, Director of Research **Neeraj Sood** and a colleague, examined the effect of direct-to-consumer advertising of prescription drugs on adherence and utilization.

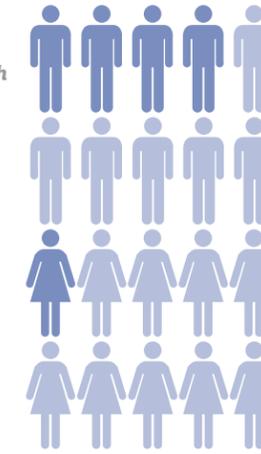
The paper builds upon their previous work demonstrating that Part D implementation coincided with a 14–19 percent increase in total drug advertising expenditures. Using data from local media markets, the new research shows that Part D implementation led to significant increases in drug commercials in geographic areas with a high concentration of Medicare beneficiaries. The researchers assessed advertising changes before and after Part D

implementation in markets with high and low elderly populations. Using information from pharmacy claims, the team analyzed changes in drug utilization among elderly and non-elderly populations to measure the effect of drug advertising separately from the effect of insurance expansion.

They estimate that a 10 percent escalation in advertising views increased the number of prescriptions purchased by 5.4 percent. Some 70 percent of expanded prescription drug uptake attributable to advertising was by new patients, with the remainder representing increased use among existing patients.

While older people were the primary targets of pharmaceutical commercials, the study found that the ads affected the behavior of younger consumers as well. Following Part D, there was a 6 percent increase in the average number of prescriptions purchased by the non-elderly in areas with high elderly share, relative to areas with low elderly share.

More than 40 percent of men and 10 percent of women aged 50 to 79 with high cardiovascular risk are not taking a daily aspirin as prescribed.



Ads and Adherence

The research demonstrated that advertising boosts medication adherence among existing patients but also found that those spurred to treatment because of the ads show lower-than-average rates of continued compliance. While commercials may remind patients to use their current prescriptions, a 10 percent rise in exposure to ads only increased adherence by 1–2.5 percent overall.

In addition, advertising may lead to inappropriate use of prescription drugs and needless spending. The American Medical Association (AMA) has called for a ban on pharmaceutical ads aimed at consumers, arguing they steer people away from effective, low-cost generics and toward more expensive brands.

Still, the team's findings revealed potential benefits in the take-up and adherence of treatments for such chronic conditions as depression, diabetes, hyperlipidemia, hypertension and osteoporosis. Further study, however, is needed to distinguish necessary drug use from the inappropriate prescriptions that may result from pharmaceutical advertising.

Class Consciousness and Conclusions

The team found that even non-advertised drugs gain from the exposure of their more promoted peers. “This suggests substantial positive spillover effects on the use of non-advertised drugs within the same drug classes,” the researchers wrote. So, while not all patients choose the higher-priced options, the advertising is still expanding overall use of entire categories of medications.

The research suggests that the AMA may be overreacting in calling for a ban. Drug ads encourage necessary care for certain patients, even though not every prescription they promote is appropriate. Physicians must be vigilant in determining what is necessary and what is inappropriate for their patients.

The Preventive Benefits of Aspirin

For older Americans at high risk of cardiovascular disease, taking a daily aspirin may be the low-cost tool needed to prevent heart attacks, some cancers and possibly even cancer deaths.

Yet these tiny but mighty tablets remain underused: More than 40 percent of men and 10 percent of women aged 50 to 79 with high cardiovascular risk are not taking a daily aspirin as prescribed.

Leading cancer expert **David Agus** of the Keck School of Medicine of USC and Schaeffer Center and USC School of Pharmacy faculty member **Étienne Gaudette** joined with Schaeffer Center Director **Dana Goldman** to use the Future Elderly

Model — the center's dynamic economic-demographic microsimulation — to assess the benefits of increasing the rate of low-dose aspirin use by Americans aged 50 and older. They estimate the long-term economic value of improving adherence to the daily regimen would be \$692 billion in net health benefits — even taking into account potential risks associated with long-term use — and would result in hundreds of thousands of lives saved over the course of 20 years.



Director of Research Neeraj Sood

Data Report

60+

Number of databases covering tens of millions of lives accessible through the Schaeffer Center Data Core



Director of Simulation and Data for the Roybal Center for Health Policy Simulation Bryan Tysinger

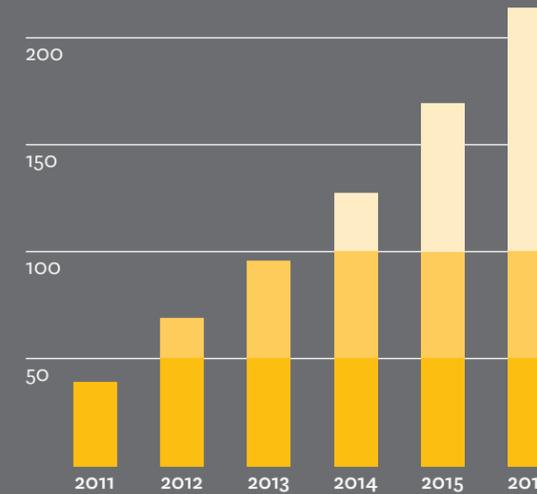
The Schaeffer Center Data Core

The Schaeffer Center Data Core is a state-of-the-art information resource and computing environment that meets the most rigorous research standards. Led by Patricia St. Clair, Data Core director, the Data Core team includes a full-time system administrator, a data resources administrator, seven full-time research programmers and two student interns. Together, they provide expertise, training and support to the Center's research projects.

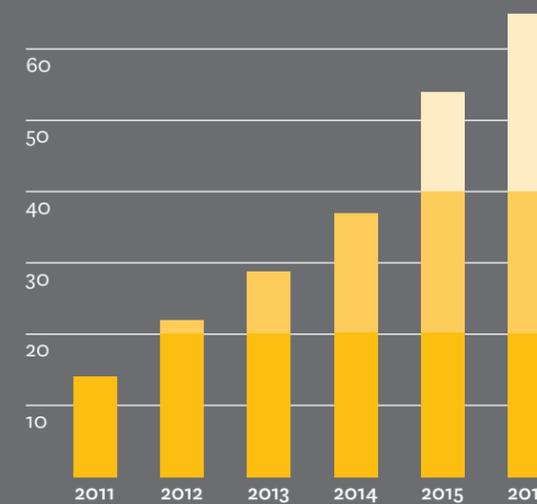
The data library covers a range of sources, including survey data, public and private claims, and electronic health record network data feeds.

The Center maintains 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, HIPAA-compliant systems that include 24/7 monitoring to ensure private health data resources are protected.

Number of Users of the Schaeffer Center Data Core



Number of Databases



Future Elderly Model

Data Core programmers also expand, improve and maintain sophisticated policy analysis tools such as the Future Elderly Model (FEM). FEM is a cohort simulation model that tracks the complex interaction between health, mortality and economic outcomes using seven data sources for the U.S. population aged 51 years and older. In recent years, collaborations have been established to produce FEM microsimulation models in 15 countries in North America, Europe and Asia.

Future Americans Model

The Future Americans Model (FAM) is an economic-demographic microsimulation that extends the Roybal Center's Future Elderly Model to the entire adult population of the United States.

61
Number of papers that have used FEM/FAM

15
Number of countries for which FEM is being replicated

Financial Report



57%

of Center funding comes from government sources.

How Are We Funded?

The Schaeffer Center is supported by funding from a wide variety of public and private institutions and donors, including government entities, foundations, corporations, individuals and the Center's endowment.

Regardless of funding source, Schaeffer Center researchers adhere to the following standards:

1. The work should reflect our mission and values. The relevant values here are rigor, objectivity and independence.
2. The work should be well-reasoned, with a sound evidence basis. It should synthesize all available evidence, not just studies favorable to a particular policy position.
3. The work should avoid strident language that denigrates our academic roots.

The Schaeffer Center engages with the policy community and, as such, supports the dissemination of our findings through academic publications, opinion pieces, briefings, meetings, editorials, presentations and blog posts.

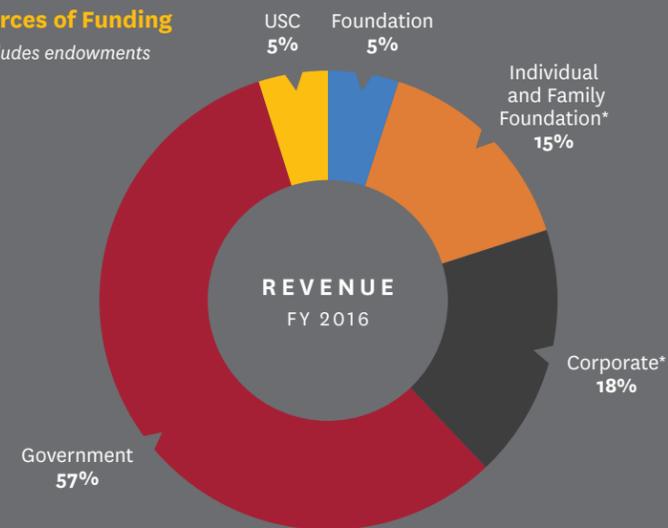
When speaking or writing as a member of the Schaeffer Center, individuals are asked to maintain the standards set out above. Furthermore, when accepting funding that is not a gift, Schaeffer Center researchers preserve the right to publish by contract with the funder. In all instances, the Center:

1. Encourages peer review of all research.
2. Discloses sponsorships in publications and on our website.
3. Maintains a diverse advisory board with broad perspectives.

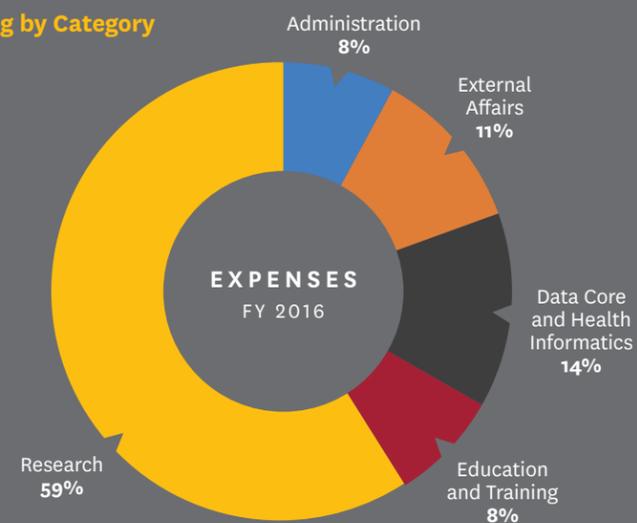
Gifts, by definition, do not include restrictions on research or publication.

Sources of Funding

* includes endowments



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July 1, 2015 – June 30, 2016

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3 Master's Programs

2 Doctor of Philosophy Tracks

7 Training Programs

The Schaeffer Center develops leaders in higher education, research, government and health care through interdisciplinary coursework, mentorship and active engagement in research.

Faculty members direct master's and PhD programs through the USC School of Pharmacy, the USC Price School of Public Policy, and the Department of Economics at USC Dornsife College of Letters, Arts and Sciences. The Schaeffer Center also offers pre- and postdoctoral fellowship programs, internships and research assistantships.



Degree Programs

Master's Programs

Pharmaceutical Economics and Policy

This Master of Science program emphasizes pharmaceutical commerce and policy.

Led by Jeffrey McCombs, Schaeffer Center director of Graduate Programs and associate professor in the USC School of Pharmacy, the program is offered

through the School of Pharmacy in partnership with the Department of Economics. Students are trained to use pharmacoeconomics and assessment techniques in such settings as managed-care pharmacies, third-party payers and government agencies. Students also collaborate with faculty members on publishable research — often as primary authors.

Healthcare Decision Analysis

Healthcare Decision Analysis (HCDA) is a newly emerging branch of applied research focusing on the intersection of health economics, applied international health policy, insurance design, competitive business intelligence and pricing. Housed at the Schaeffer Center and directed by **Grant D. Lawless**, associate professor of Clinical Pharmacy, USC School of Pharmacy, this intensive, interdisciplinary degree program through the USC School of Pharmacy attracts and trains graduates from around the globe who seek to improve their technical and analytical skills regarding product value, access and reimbursement. The Master of Science in HCDA also enables mid-career working professionals and new graduates to pursue a field in which managed-markets payers, pharmaceutical/biotech and devices companies, health care

systems and government agencies cannot find enough qualified leaders to meet demand.



The HCDA master's is also available as part of a dual PharmD degree with the School of Pharmacy. The PharmD/MS HCDA augments pharmacy training with advanced preparation in health care coverage, access, reimbursement and pricing for both domestic and international pharmaceuticals.

Health Administration

The Master of Health Administration program, directed by Price School Vice Dean for Faculty Affairs

Michael B. Nichol, interim chair of the Price School's Department of Health Policy and Management, has trained leaders in health management and policy for more than 35 years. The program features a 1,000-hour administrative residency and is accredited by the Commission on Accreditation of Healthcare Management Education. Its strong ties to the health care community pave the way to numerous employment opportunities.



100+

The Schaeffer Center received more than 100 qualified applications for two postdoctoral fellowships in 2016.

PhD in Health Economics

The PhD program in Health Economics integrates curricula from the Department of Economics, Preventive Medicine in the Keck School of Medicine of USC, and Pharmaceutical and Health Economics in the School of Pharmacy. Students receive training in microeconomics, econometrics, cost-effectiveness analysis, health economics, public finance, epidemiology and health-status measurement. The program offers two distinct tracks: 1) Microeconomics and 2) Pharmaceutical Economics and Policy.

Fellowship Programs

Pre-Doctoral Fellowship in Health Economics

Schaeffer Fellows in Health Economics, Graduate Certificate Program in Health Economics In partnership with the Department of Economics, the Schaeffer Center offers a two-year fellowship for pre-doctoral students in Economics as part of the graduate certificate program in Health Economics.

Fellows conduct research at the Schaeffer Center under the guidance of a faculty mentor, with the fellowship covering the third and fourth years of study.

To receive the graduate certificate, students must complete all requirements for the PhD in Economics, including Health Economics and another advanced field.

Eunhae Shin focuses on older age and self-assessed mental health in Europe and the United States.

Hongming Wang examines the labor market consequences of health care reform and its mechanism and welfare, as well as potential externality to other forms of social safety-net programs.

Schaeffer-Amgen

Health Policy and Economics Pre-Doctoral Fellows

The Schaeffer Center and Amgen established the Schaeffer-Amgen Health Policy and Economics Training Fellowship in spring 2015. Amgen's funding currently provides support for four postdoctoral and three pre-doctoral fellows,



100%

of Schaeffer Center trainees go on to careers in health care.

including a summer pre-doctoral research assistant. Each fellow works with a Schaeffer Center mentor and has opportunities to collaborate with Amgen mentors at the biopharmaceutical leader's campus, as well as remotely.

Laura Henkhaus researches generic and brand-drug utilization and costs under the mentorship of **Geoffrey Joyce**, Schaeffer Center director of health policy and chair of pharmaceutical and health economics, School of Pharmacy.

Kinpritma Sangha works with her mentor, **Neeraj Sood**, Schaeffer Center director of research and vice dean for research, Price School, on researching the differences in evaluation and management of febrile infants and related health care costs and morbidities.

Yolanda Zhu received a Schaeffer-Amgen summer stipend to work with **Julie Zissimopoulos** — Schaeffer Center director of education and training and Price School vice dean for Academic Affairs — on studying the impact of proposed Social Security reforms on vulnerable workers.

Postdoctoral Fellows Schaeffer-Amgen Health Policy and Economics Postdoctoral Fellows

The Schaeffer Center and Amgen established the Schaeffer-Amgen Health Policy and Economics Training Fellowship in spring 2015. The four postdoctoral fellows supported through the project have a Schaeffer Center mentor to help develop their research as well as opportunities to collaborate with Amgen mentors.

Sarah Axeen, PhD, works under the guidance of Schaeffer Center Director **Dana Goldman** in addressing opioid abuse and its impact on state laws. She is part of a joint postdoctoral fellowship between the Schaeffer Center and UCLA Fielding School of Public Health.

Douglas Barthold, PhD, focuses on health insurance design and on the role of health policy in influencing health care utilization, health outcomes and inequality. His research project on statin use and Alzheimer's disease incidence is being conducted under the mentorship of **Julie Zissimopoulos**.

Gwyn Pauley, PhD, addresses the intersection of health and labor economics. Under the mentorship of **Étienne Gaudette**, research assistant professor in the School of Pharmacy, she is examining the lifetime impacts of early and midlife access to health insurance.

Welmoed van Deen, MD, PhD, holds a joint fellowship with the Keck School and is an assistant professor of research at the USC Gehr Family Center for Implementation Science. At the Schaeffer Center, she is researching value-based health care implementation and outcome and utilization measurement under the mentorship of **Geoffrey Joyce**.

Schaeffer-National Pharmaceutical Council Fellowship

The National Pharmaceutical Council (NPC) is dedicated to the advancement of good evidence and science in fostering medical innovation in the United States. While funded by the pharmaceutical industry, NPC does not engage in lobbying or advocacy activities. The fellow is based at the NPC office in Washington, D.C., and also has visiting office space at the Schaeffer Center in Los Angeles. The combined expertise of NPC and USC enables fellows to enjoy a unique experience combining research with policy experience in the nation's capital.

The 2016-2017 NPC-Schaeffer Fellow is **Ilene Hollin**, PhD. Hollin researches ways of improving patient-centered health care. Under the mentorship of **John Romley**, associate professor at the Price School and the School of Pharmacy, she has earned awards from the Division of Health Science Informatics, the Decision Psychology and Shared Decision Making Center, and the Johns Hopkins Center to Eliminate Cardiovascular Disparities.

USC Resource Center for Minority Aging Health Economics Research Scholars

The USC Resource Center for Minority Aging Research (USC-RCMAR) provides support to increase the number, diversity and academic success of researchers focusing on the health and economic wellbeing of minority elderly populations. USC-RCMAR offers multidisciplinary mentoring and training to talented junior investigators — including in the areas of computer science, medicine, gerontology and social work — in examining the health and economic challenges faced by minority elderly. USC-RCMAR is housed within the Schaeffer Center and led by Schaeffer Center Director **Dana Goldman** and **Julie Zissimopoulos**.

USC-RCMAR has funded 15 junior investigators since its inception in 2012. Five of the junior investigators were postdoctoral scholars from various USC academic units.



The 2016-2017 RCMAR Scholars are **Ann Nguyen** and **Joseph Saenz**.

Ann Nguyen, PhD, Postdoctoral Fellow, USC Dworak-Peck School of Social Work; Project Title: Social relationships and depressive symptom types among older African-Americans

Joseph Saenz, PhD, Postdoctoral Fellow, USC Davis School of Gerontology; Project Title: Trends in cognitive impairment without dementia and dementia among Mexicans and Hispanics in the United States

Visiting Scholars Program

The Schaeffer Center encourages partnerships around the world and fosters collaborations with leading world institutions, such as the National University of Singapore, Dusseldorf Institute for Competition Economics and the University of Munich, to provide opportunities for young researchers to collaborate with

Schaeffer Center faculty. The visiting scholars program is led by **Julie Zissimopoulos**.

For example, *Cynthia Chen*, PhD, focuses on microeconomics and modeling of health care expenditures with the goal of measuring how societies adapt to aging populations. She works closely with **Dana Goldman**, **Julie Zissimopoulos** and the MacArthur Foundation. Her fellowship has helped her secure a faculty position in Health Economics from the National University of Singapore.

Clinical Fellows Program

The designation of Clinical Fellow was established to foster collaboration between Schaeffer Center faculty and exceptional junior scholars or prominent researchers and thought leaders in the fields of health policy, economics and medicine. The program provides training and support on grants, papers and ongoing research projects. The fellowship is co-directed by **Seth Seabury** — associate professor of Ophthalmology, Keck School of Medicine — and **Julie Zissimopoulos**.

Summer Internship Program

The 2016 Schaeffer Center Summer Internship program enabled 11 students to work with faculty mentors on real-world research projects. Participants gained hands-on experience in health

policy research and data analysis as well as an introduction to the broader field of health economics. Mentors worked one on one with students to foster data and research skill development while providing guidance as the project progresses. In addition, the interns also met weekly with program director **Julie Zissimopoulos** to discuss their progress and address any concerns. They also were invited to presentations that showcased the Schaeffer Center's research initiatives and programs.

Research Assistantships

Students from relevant disciplines such as economics, public policy, health policy, statistics, medicine and psychology are encouraged to apply for research assistantships. Schaeffer Center research assistants work directly with faculty on a particular project. This project is outside of their dissertation research and aids in the growth of a research project. In 2016, the Center hosted five research assistants.

“As the leading cause of death and disability, chronic disease has a profound impact on our nation. Over half of all Americans suffer from a chronic disease, and the number is growing very rapidly. Eighty-six percent of all health care spending goes to treat chronic conditions.”

— Leonard D. Schaeffer
Chronic Care: Getting Complexity and Costs Under Control

**Chronic Care:
Getting Complexity and
Cost Under Control**
*The Brookings Institution
Washington, D.C.
June 15, 2016*

Policy makers, Capitol Hill staff and media attended the event, which launched the Schaeffer Initiative for Innovation in Health Policy. Keynote speaker Senator Ron Wyden (D-Ore.) focused on the challenges that the elderly face when trying to navigate their Medicare coverage, especially when coupled with chronic disease management. He noted that 93 percent of all Medicare spending is for chronic care and that those disbursements will grow exponentially in the coming years, with 10,000 people a day becoming eligible for the program. While moderating a panel discussion on chronic care in the Medicare population, Brookings Senior Fellow Alice M. Rivlin, PhD, stressed the importance of making Medicare more accessible and affordable for seniors with chronic disease.

Other participants included:

Keith Fontenot, Nonresident Fellow, Economic Studies, The Hutchins Center on Fiscal and Monetary Policy; Managing Director, Government Relations and Public Policy, Hooper,

Lundy and Bookman PC

Ted Gayer, PhD, Joseph A. Pechman Senior Fellow and Vice President and Director, Economic Studies, Brookings Institution

Robert E. Moffit, PhD, Senior Fellow, Center for Health Policy Studies and the Institute for Family, Community and Opportunity, The Heritage Foundation
Kavita Patel, MD, Nonresident Fellow, Economic Studies, Brookings Institution
Leonard D. Schaeffer, Judge Robert Maclay Widney Chair and Professor, USC Price School; Chair, Roundtable on Quality Care for People with Serious Illness, the National Academies of Sciences, Engineering and Medicine

**2016 Medicare
Trustees Report: One
Year Closer to IPAB Cuts**
*The Brookings Institution
Washington, D.C.
June 23, 2016*

The Schaeffer Initiative, in partnership with the American Enterprise Institute, hosted a discussion of the 2016 Medicare Trustees Report. Paul Spitalnic, chief actuary for the Centers for Medicare & Medicaid Services, summarized key findings and detailed new projections that largely rely on provider-productivity requirements built into the Affordable Care Act. His remarks were followed by a panel discussion of the potential consequences of the report and policy actions that could improve Medicare’s fiscal condition.

Other participants included:

Joseph Antos, PhD, Wilson H. Taylor Scholar in Health Care and Retirement Policy, American Enterprise Institute
James Capretta, Resident Fellow and Milton Friedman Chair, American Enterprise Institute
Keith Fontenot, Nonresident Fellow, Economic Studies, The Hutchins Center on Fiscal and Monetary Policy; Managing Director, Government



Ramanathan Raju
Relations and Public Policy, Hooper, Lundy and Bookman PC
Robert Moffit, PhD, Senior Fellow, Center for Health Policy Studies and the Institute for Family, Community and Opportunity, The Heritage Foundation
Alice M. Rivlin, PhD, Senior Fellow, Economic Studies, Brookings Institution



Kavita Patel, Robert Moffit, Sen. Ron Wyden, Keith Fontenot and Alice Rivlin at the Chronic Care conference in June

**Access to Care:
A Discussion on Health
Disparities and Innovation**
*The Newseum
Washington, D.C.
September 20, 2016*

The Schaeffer Center partnered with *The Hill* for a policy forum on reforms needed to minimize socioeconomic and regional disparities in health care delivery and common ground between the twin objectives of enhancing access and encouraging innovative treatments. The event featured an interview with J. Nadine Gracia, MD — deputy assistant secretary for minority health and director of the Office of Minority Health at the U.S. Department of Health and Human Services — and two panels: 1) Leveling the Health Care Playing Field and 2) The Value of Cardiovascular Disease: What Is It Worth to Turn Off Heart Disease? The event ended

with a discussion between Senator Bill Cassidy (R-LA) and Bob Cusack, managing editor of *The Hill*.



Other participants included:

Samantha Artiga, Director, Disparities Policy Project; Associate Director, Kaiser Commission on Medicaid and the Uninsured, Kaiser Family Foundation
Rick Chapman, PhD, Director of Health Economics, Institute for Clinical and Economic Review
Mark Hlatky, MD, Professor of Health Research and Policy and Professor of Medicine, Stanford School of Medicine
Ramanathan Raju, MD, MBA, President and CEO, New York City Health and Hospitals
Amy Rudolph, PhD, Vice President and Head of Early Development and Health Economics and Outcomes Research, Novartis

25+

Number of Schaeffer Center conferences, seminars and policy forums offered in 2016



Kaiser Health News Senior Correspondent Anna Gorman (right) leads a panel discussion at Bridging the Gulf: Challenges of End-of-Life Care in California.

Protecting Patients from Surprise Medical Bills

The Brookings Institution
Washington, D.C.
October 13, 2016

A conference hosted by the Schaeffer Initiative brought together policymakers and representatives from health systems, insurers and consumer advocacy groups to discuss ways to comprehensively reduce surprise-billing scenarios and resolve disputes for out-of-network care. In conjunction with the event, a white paper was released that focuses on policy avenues for solving surprise medical bills, authored by **Paul Ginsburg**, PhD, Schaeffer Center director of public policy and professor at the Price School, and colleagues. **Leonard D. Schaeffer**, the Judge Robert Maclay Widney Chair and Professor, USC Price School, and Brookings Institution trustee, opened the conference. The event also included two panel

discussions: one on the stakeholder perspective and the other on the perspective of policymakers and thought leaders.



Other participants included:

Zack Cooper, PhD, Assistant Professor of Public Health, Assistant Professor of Economics and Assistant Professor in the Institution for Social and Policy Studies, Yale School of Public Health
Colin Drozdowski, Vice President, National Provider Solutions, Anthem
Matt Fiedler, PhD, Chief Economist, White House Council of Economic Advisers
Dana Goldman, PhD, Director and Leonard D. Schaeffer Chair, USC Schaeffer Center for Health Policy & Economics; Distinguished Professor of Public Policy, Pharmacy and Economics, USC Price School and the USC School of Pharmacy
Mark Hall, JD, Director, Health Law and Policy Program, Fred D. and Elizabeth L. Turnage Professor of Law, Wake Forest University

Jack Hoadley, PhD, Research Professor, Health Policy Institute, Georgetown University
Elizabeth Imholz, Director, Special Projects, Consumers Union
Jeffrey Plagenhoef, MD, President-Elect, American Society of Anesthesiologists
Thomas M. Priselac, President and CEO, Cedars-Sinai Health System

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

SLS Beverly Hills
Los Angeles, CA
November 7, 2016

The Schaeffer Center, in partnership with Cedars-Sinai and the National Academies of Sciences, Engineering and Medicine, hosted a daylong conference on improving end-of-life care in California. Participants heard from national and state leaders in end-of-life care, including **Leonard D. Schaeffer**, chair of the National Academies' Roundtable on Quality Care for People with Serious Illness; Elizabeth Bailey, patient advocate and author of *The Patient's Checklist*; and Philip A. Pizzo, MD, the David and Susan Heckerman Professor and professor of Microbiology and Immunology, Stanford School of Medicine, and co-chair of the National Academies' Committee on Approaching Death. A panel discussion, moderated by Kaiser Health News

Senior Correspondent Anna Gorman concluded the event, which was supported by Anthem and the Gordon and Betty Moore Foundation.



Other participants included:

Janet Corrigan, PhD, MBA, Chief Program Officer for Patient Care, Gordon and Betty Moore Foundation
Claudia Crist, RN, Chief Deputy Director of Policy and Programs, California Department of Public Health
Susan Enguidanos, PhD, MPH, Associate Professor of Gerontology, USC Davis School of Gerontology, USC Suzanne Dworak-Peck School of Social Work and USC Schaeffer Center
Dana Goldman, PhD, Director and Leonard D. Schaeffer Chair, USC Schaeffer Center for Health Policy & Economics; Distinguished Professor of Public Policy, Pharmacy and Economics, USC Price School and USC School of Pharmacy
Karl Lorenz, MD, Professor of Medicine, Stanford School of Medicine; Chief of Palliative Medicine, VA Palo Alto Health Care System

Wall Street Comes to Washington Roundtable

The Brookings Institution
Washington, D.C.
November 15, 2016

Paul Ginsburg, PhD, director of public policy at the Schaeffer Center, director of the Schaeffer Initiative and professor at the Price School, moderated the 21st Annual Wall Street Comes to Washington Roundtable one week after the 2016 presidential election. Panelists discussed broad trends shaping health care and considered the changing political climate. Topics included an assessment of ongoing health reform implementation; open enrollment in health insurance marketplaces; the growing Medicaid managed-care market; regulation of insurance markets; insurance market consolidation; provider payment reform and integrating care delivery; underlying health care spending and insurance premium trends; hospital pricing and consolidation; hospital-physician relations; and the outlook for Medicare.

Other participants included:

Matthew Borsch, MPH, MBA, Senior Research Analyst, Healthcare Services, Goldman Sachs
Ana Gupte, PhD, Senior Analyst and Managing Director, Healthcare Services, Leerink Partners LLC
Sheryl Skolnick, PhD, Director of Research and Senior Healthcare Analyst, Mizuho Securities USA

Quintiles Seminar Series

January–December 2016

The biweekly Quintiles Seminar Series features prominent academics, researchers, policymakers and industry leaders discussing timely themes in health policy and economics. The seminars provide topical, relevant presentations that prioritize intimate discussions with the audience. The past year's seminars included the following featured speakers:

James Heckman, PhD, Presidential Scholar-in-Residence, University of Southern California; Henry Schultz Distinguished Service Professor of Economics, University of Chicago: "The Lifecycle Benefits of an Influential Early Childhood Program"
Robert Kaplan, PhD, Chief Science Officer, U.S. Agency for Healthcare Research and Quality: "Do We Need a New Paradigm for Biomedical Research?"



Peter Lee, JD, Executive Director, Covered California: "Putting Consumers' Purchasing Power to Work: Creating Competitive Markets with Affordable Coverage"
Karl Lorenz, MD, Professor of Medicine, Stanford School of Medicine; Chief of Palliative Medicine, VA Palo Alto Health Care System: "Confusing Signals? Measurement, Quality and Palliative Care"
David Newman, PhD, JD, Executive Director, Health Care Cost Institute: "Health Care Cost Institute and a Digression on the Success of the Center for Medicare and Medicaid Services' Durable Medical Equipment Competitive Bidding Program"
Reed Walker, PhD, Assistant Professor, Haas School of Business, University of California, Berkeley: "Early Childhood Environments and Later Life Outcomes in the United States"

120+

Over 120 publications
published in 2016

60

Number of posts in the
Schaeffer Center's Evidence
Base blog during 2016

**Improve the Performance
of Health Care Markets**

Chen, A. and **D. Goldman.** 2016. Health care spending: Historical trends and new directions. *Annual Review of Economics* 8: 291-319.

Chen, A. and **D. N. Lakdawalla.** 2016. *Saving lives or saving money? Understanding the dual nature of physician preferences.* National Bureau of Economic Research, No. w21930 (Jan).

Chen, A., D. Lakdawalla and **S. Seabury.** 2016. Physician treatment patterns: Evidence from accountable care organizations. APPAM 2016 Fall Conference: The Role of Research in Making Government More Effective.

Huesch, M. D., A. Galstyan, M. K. Ong and **J. N. Doctor.** 2016. Using social media, online social networks and internet search as platforms for public health interventions: A pilot study. *Health Services Research* 51 (S2): 1273-90.

Ginsburg, P. B. 2016. Consumer-oriented approaches to cost containment. *JAMA Internal Medicine* 176 (9): 1359-60.

Hall, M. A., **P. B. Ginsburg,** S. M. Lieberman, L. Adler, C. Brandt and M. Darling. 2016. Solving surprise medical bills. Brookings Institution (Oct).

Powell, D. and **D. Goldman.** 2016. Disentangling moral hazard and adverse selection in private health insurance. National Bureau of Economic Research, No. w21858 (Jan).

Heiss, F., **McFadden, D.,** Winter, J., Wuppermann, A., & Zhou, B. (2016). Inattention and Switching Costs as Sources of Inertia in Medicare Part D (No. w22765). National Bureau of Economic Research.

Myerson, R.M., L.D. Colantonio, M.M. Safford, E.S. Huang. 2016. Does Identification of Previously Undiagnosed Conditions Change Care Seeking Behavior? *Health Services Research.*

Romley, J.A., A.K. Shah, P.J. Chung, et al. 2016. Family-Provided Health Care for Children with Special Health Care Needs. *Pediatrics.*

Helland, E. and **S. A. Seabury.** 2016. Are settlements in patent litigation collusive? *Evidence from Paragraph IV challenges.* National Bureau of Economic Research, No. w22194 (Apr).

Ly, D. P., **S. A. Seabury** and A. B. Jena. 2016. Differences in incomes of physicians in the United States by race and sex: Observational study. *BMJ* 353: i2923.

Terp, S., **S. A. Seabury,** S. Arora, A. Eads, C. N. Lam and M. Menchine. 2016. Enforcement of the Emergency Medical Treatment and Labor Act, 2005 to 2014. *Annals of Emergency Medicine* (Aug).

Sood, N. 2016. Does enrollment in high deductible health plans encourage price shopping for physician office visits? Ashecon: 6th Biennial Conference of the American Society of Health Economists.

Haviland, A. M., M. D. Eisenberg, A. Mehrotra, P. J. Huckfeldt and **N. Sood.** 2016. Do "consumer-directed" health plans bend the cost curve over time? *Journal of Health Economics* 46: 33-51.

Mehrotra, A., Huckfeldt, P. J., Haviland, A. M., **Gascue, L.** and **Sood, N.** (2016). Patients Who Choose Primary Care Physicians Based On Low Office Visit Price Can Realize Broader Savings. *Health Affairs,* 35(12), 2319-2326.

Sinaiko, A. D., A. Mehrotra and **N. Sood.** 2016. Cost-sharing obligations, high-deductible health plan growth and shopping for health care: Enrollees with skin in the game. *JAMA Internal Medicine* 176 (3): 395-97.

Zhang, X. and **N. Sood.** 2016. The impact of high-deductible health plans on the financial burden of commercially insured population in the United States. *Value in Health* 19 (3): A27.

Shields, A. L., S. Shiffman and **A. Stone.** 2016. Patient compliance in an ePRO environment: Methods for consistent compliance management, measurement and reporting. *EPro: Electronic Solutions for Patient-Reported Data* 127.

**Increase the Value
in Health Care Delivery**

Agus, D. B. 2016. The Lucky Years: How to Thrive in the Brave New World of Health. New York: Simon & Schuster.

Chiu, C. L., K. Patsch, F. Cutrale, A. Soundararajan, **D. B. Agus,** S. E. Fraser and D. Ruderman. 2016. Intracellular kinetics of the androgen receptor shown by multimodal image correlation spectroscopy (mICS). *Scientific Reports* 6.

Davies, P. C. and **D. B. Agus.** 2016. Stochasticity and determinism in cancer creation and progression. *Convergent Science Physical Oncology* 1 (2).

Flinders, C., L. Lam, L. Rubbi, R. Ferrari, S. Fitz-Gibbon, P. Y. Chen ... **D. B. Agus** ... and M. Pelligrini. 2016. Epigenetic changes mediated by polycomb repressive complex 2 and E2a are associated with drug resistance in a mouse model of lymphoma. *Genome medicine* 8 (1): 54.

Garvey, C. M., E. Spiller, D. Lindsay, C. T. Chiang, N. C. Choi, **D. B. Agus** ... and S. M. Mumenthaler. 2016. A high-content image-based method for quantitatively studying context-dependent cell population dynamics. *Scientific Reports* 6.

Jones, J. J., B. E. Wilcox, R. W. Benz, N. Babbar, G. Boragine, T. Burrell ... **D. B. Agus** and J. E. Blume. 2016. A plasma-based protein marker panel for colorectal cancer detection identified by multiplex targeted mass spectrometry. *Clinical colorectal cancer* 15 (2): 186-94.

Juarez, E. F., R. Lau, S. H. Friedman, A. Ghaffarizadeh, E. Jonckheere, **D. B. Agus** ... and P. Macklin. 2016. Quantifying differences in cell line population dynamics using CellPD. *BMC Systems Biology* 10 (1): 92.

Patsch, K., C. L. Chiu, M. Engeln, **D. B. Agus,** P. Mallick, S. M. Mumenthaler and D. Ruderman. 2016. Single cell dynamic phenotyping. *Scientific Reports* 6.

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Chen, A., E. Oster and H. Williams. 2016. Why is infant mortality higher in the United States than in Europe? *American Economic Journal: Economic Policy* 8 (2): 89-124.

Persell, S. D., **J. N. Doctor,** M. W. Friedberg, **D. Meeker,** E. Friesema, A. Cooper ... and J. A. Linder. 2016. Behavioral interventions to reduce inappropriate antibiotic prescribing: A randomized pilot trial. *BMC Infectious Diseases* 16 (1): 373.

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Gong, C. L., **J. W. Hay, D. Meeker** and **J. N. Doctor.** 2016. Prescriber preferences for behavioural economics interventions to improve treatment of acute respiratory infections: A discrete choice experiment. *BMJ Open* 6 (9): e012739.

Heckman, J. J., J. E. Humphries and G. Veramendi. 2016. Returns to education: The causal effects of education on earnings, health and smoking. National Bureau of Economic Research, No. w22291 (May).

Lakdawalla, D. N. and J. Reif. 2016. Health, body weight and obesity. In *The Oxford Handbook of Economics and Human Biology,* ed. J. Komlos and I. R. Kelly, 152-78. New York: Oxford University Press.

Marler, S., B. J. Ferguson, E. B. Lee, B. Peters, K. C. Williams, E. McDonnell ... **P. Levitt** and K. G. Margolis. 2016. Brief report: Whole blood serotonin levels and gastrointestinal symptoms in autism spectrum disorder. *Journal of Autism and Developmental Disorders* 46 (3): 1124-30.

Meeker, D., J. A. Linder, C. R. Fox, M. W. Friedberg, S. D. Persell, N. J. Goldstein ... and **J. N. Doctor.** 2016. Effect of behavioral interventions on inappropriate antibiotic prescribing among primary care practices: A randomized clinical trial. *JAMA* 315 (6): 562-70.

Myerson, R. 2016. Chasing the missing patients: The impact of screening subsidies on the demand for health treatment. Ashecon: 6th Biennial Conference of the American Society of Health Economists.

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Wei, D., C. Osman, D. Dukhovny, **J. Romley,** M. Hall, S. Chin ... and A. Lakshmanan. 2016. Cost consciousness among physicians in the neonatal intensive care unit. *Journal of Perinatology* 36: 1014-20.

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Dworsky, M., **S. A. Seabury,** F. W. Neuhauser, U. Kharel and R. Euller. 2016. Benefits and earnings losses for permanently disabled workers in California: Trends through the Great Recession and effects of recent reforms. RAND Corporation.

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Improve Health and Reduce Disparities

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“Recent acceleration in drug spending has focused attention on the need to control the high cost of prescription drugs. Many politicians are suggesting some form of Medicare price negotiation as part of the solution, but this is the wrong prescription.”

– Geoffrey Joyce

Director of Health Policy
Geoffrey Joyce

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WellPoint Inc. (Anthem)

Leonard D. Schaeffer, Judge Robert Maclay Widney Chair and Professor at USC, is founding chair and CEO of WellPoint Inc. (now Anthem), and was chair and CEO of WellPoint's predecessor company, Blue Cross of California. He is currently a senior advisor to TPG Capital. He served as administrator of the Health Care Financing Administration (now the Centers for Medicare & Medicaid Services). He serves on the boards of the Brookings Institution, Harvard Medical School, RAND Corporation, USC and Walgreens Boots Alliance Inc. He is a member of the National Academy of Medicine and chairs its Roundtable on Quality Care for People with Serious Illness.



Drew Altman, PhD
President and CEO,
Kaiser Family Foundation

Drew Altman is president and CEO of the Kaiser Family Foundation, a non-profit organization based in Menlo Park, California. He is a former commissioner of the New Jersey Department of Human Services, director of the Health and Human Services program at the Pew Charitable Trusts, vice president of the Robert Wood Johnson Foundation and served in the Carter administration. A leading expert on national health policy, Altman founded the modern-day Kaiser Family Foundation in the 1990s.



Gregg H. Alton, JD
Executive Vice President,
Gilead Sciences

Gregg H. Alton joined Gilead Sciences in 1999 and, from 2000 to 2009, was general counsel. Currently he is responsible for commercial and access operations in Asia, Latin America and Africa, government affairs and policy, public affairs and medical affairs. He serves on the boards of the AIDS Institute and the Boys and Girls Clubs of Oakland, and is a member of the U.S. government's Industry Trade Advisory Committee on Intellectual Property Rights and the Dean's Advisory Council at Stanford Law School, and the advisory boards of UCSF Global Health Group, Pharmozyme Inc. and the UC Berkeley College of Letters & Science.



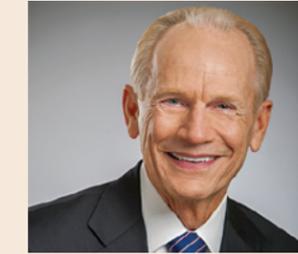
David Beier, JD
Managing Director,
Bay City Capital

Before becoming a managing director of Bay City Capital, David Beier spent two decades on the senior management teams for Amgen and Genentech. He was chief domestic policy advisor to Vice President Al Gore, served on the Institute of Medicine panel on the Future of Health and Human Services, and as an advisor to the President's Council of Advisors on Science and Technology. He is a member of the National Academy of Sciences study committee on gene editing. He previously was a partner at Hogan and Hartson and counsel to the U.S. House of Representatives Committee on the Judiciary.



Robert A. Bradway
Chair and CEO,
Amgen

Robert A. Bradway is chair and CEO of Amgen. Prior to this, he was a managing director at Morgan Stanley in London with responsibility for the firm's banking department and corporate finance activities in Europe, and was a health care industry investment banker for Morgan Stanley in New York. He is a member of the board of directors of Norfolk Southern Corporation and The Boeing Company. Bradway serves on the board of trustees of the University of Southern California and is chair of the CEO Roundtable on Cancer, a non-profit founded to bring solutions to cancer treatment and prevention.



C. Duane Dauner
President and CEO,
California Hospital Association

C. Duane Dauner is president and CEO of the California Hospital Association, representing the interests of nearly 400 California hospitals and health systems. He has been active in national hospital and health care issues, and has served on many boards and committees of the American Hospital Association and American College of Healthcare Executives (ACHE). In 2002, he received ACHE's highest honor, the Gold Medal Award, and has been recognized by the Partners in Care Foundation, National Health Foundation, UCLA and Health Care Executives of Southern California.



Lloyd H. Dean
President and CEO,
Dignity Health

Lloyd H. Dean is president and CEO of Dignity Health and president of Dignity Health Foundation. A nationally recognized health care leader, he is responsible for the organization's overall management, governance, strategy and direction. Prior to joining Dignity Health, he was executive vice president and chief operating officer of Advocate Health Care in Oak Brook, Ill. In 2016, he was ranked 16th in *Modern Healthcare's* "100 Most Influential People in Healthcare" and is consistently named one of its "Top 25 Minority Leaders in Healthcare." *Fortune* profiled him in 2013.



John D. Diekman, PhD
Founder and Managing Partner,
5AM Ventures

John D. Diekman is a founding partner of 5AM Ventures, a life sciences investment firm. Previously chair and CEO of Affymetrix Inc., he currently serves as board chair of IDEAYA and on the boards of Igenica and Wildcat Technology. He is a charter trustee of Princeton University and former trustee of the California Institute of Technology and The Scripps Research Institute, where he served as chair. He is an honorary officer in the Order of Australia.



Joaquin Duato
Worldwide Chair, Pharmaceuticals,
Johnson & Johnson

Joaquin Duato is a globally experienced, values-driven health care business leader who serves on the executive committee of Johnson & Johnson as worldwide chair, pharmaceuticals. A 27-year veteran at Johnson & Johnson, he has held a number of leadership positions across the company in Europe and the U.S. He is chairman of the Pharmaceutical Research and Manufacturers of America. In addition, he currently serves on the board of trustees for Save the Children and the boards of the U.S.-Spain Council and the CEO Roundtable on Cancer.



Joel Freedman
President,
Paladin Healthcare Capital LLC

Joel Freedman is president of Paladin Healthcare Capital LLC, which makes private equity, structured debt and real estate investments in the health care sector. He also serves as president and co-founder of Avanti Hospitals LLC, which owns and operates four community hospitals in Los Angeles. He previously co-founded CompWest Insurance Company. He is a founding and active member of the Healthcare Policy Advisory Council for Harvard Medical School and serves as National Council co-chair for the American Enterprise Institute.



Dennis B. Gillings, CBE, PhD
Co-Founder,
Quintiles Transnational

Dennis B. Gillings is co-founder and former executive chair of Quintiles Transnational, now QuintilesIMS, and is the lead director on its board. He previously was a professor of biostatistics at the University of North Carolina at Chapel Hill. He was awarded the Commander of the Most Excellent Order of the British Empire for services to the pharmaceutical industry, received the Scrip Lifetime Achievement Award and chaired the World Dementia Council. Currently, he works in private equity through NovaQuest and GHO Capital and is president of the Dennis and Mireille Gillings Foundation.



Gavin S. Herbert
Co-Founder,
Allergan Inc.

Gavin S. Herbert is co-founder of Allergan Inc. and was its CEO from 1961 to 1991. He is currently chair of Roger's Gardens in Newport Beach, California, and chair and founder of Regenesys in San Clemente, California, a company that manufactures and markets products for remediation of contaminated underground water. He served on the boards of directors of Allergan, Doheny Eye Institute, Smith-Kline-Beckman, Beckman Corp. and the Beckman Foundation, and is currently a board member for the Allergan Foundation and the Nixon Foundation. He is a USC life trustee.



Robert Ingram
General Partner,
Hatteras Venture Partners

A general partner at Hatteras Venture Partners, Robert Ingram previously served as CEO and chair of GlaxoWellcome, where he co-led the merger that formed GlaxoSmithKline. He formed and chaired the CEO Roundtable on Cancer under President George H. W. Bush, and was appointed by President George W. Bush to the National Institutes of Health, National Cancer Advisory Board. He received the North Carolina Award, the state's highest civilian honor. He currently serves as lead director of Valeant Pharmaceuticals International and Cree Inc., is chair of Viamet and is a member of the board of directors of Regeneron Pharmaceuticals Inc.



Thomas R. Insel, MD
Director of Clinical Neuroscience, Verily Life Sciences

Thomas R. Insel has served as director of clinical neuroscience at Verily (formerly Google) Life Sciences since 2015. He previously directed the National Institute of Mental Health, where he focused on the genetics and neurobiology of mental disorders. He was a professor of psychiatry at Emory University, founding director of its Center for Behavioral Neuroscience and director of the Yerkes Regional Primate Center. A member of the National Academy of Medicine, he has received numerous national and international awards and served in several leadership roles at the National Institutes of Health.



Pamela Kehaly
President, West Region and Specialty Businesses, Anthem

Pam Kehaly is president, West Region and Specialty Business, at Anthem, with direct responsibility for business exceeding \$15 billion in revenue and a combined total of 28 million members. She is a member of the board of trustees of the Southern California and Nevada chapter of the National Multiple Sclerosis Foundation; the board of directors of Healthcorps; and the Los Angeles division of the Susan G. Komen Foundation.



Bob Kocher, MD
Partner, Venrock

Bob Kocher, a senior fellow at the USC Schaeffer Center, is a partner at Venrock, focusing on early-stage health care information technology and services investments. He is a consulting professor at Stanford University and a guest scholar at the Brookings Institution. He previously served in the Obama administration as special assistant to the president for health care and economic policy on the National Economic Council, and was a partner at McKinsey & Company.



Leigh Anne Leas
Vice President and U.S. Country Head, Health Policy, Novartis

Leigh Anne Leas represents all U.S. business divisions for Novartis, where she is responsible for developing policy priorities and positions on key federal and state health policy issues and government health care programs. She is also a member of the Novartis Country Executive Committee. Her prior pharmaceutical industry experience includes positions at Bristol-Myers Squibb and Johnson & Johnson. She previously worked in the health insurance and pharmaceutical benefits management industries. She is a member of the board of directors of Dress for Success, Morris County, a past trustee of the Holt-Elwell Memorial Foundation and a volunteer through the Jersey Cares program.



Robert Margolis, MD
CEO Emeritus, DaVita HealthCare Partners Inc.

Robert Margolis is the former co-chair of the board of DaVita HealthCare Partners. He is a member of the Health Care Policy Advisory Council for Harvard Medical School and the Executive Management School Advisory Committee of the UCLA Fielding School of Public Health, and serves on the boards of the National Committee for Quality Assurance, the California Association of Physician Groups, California Hospital Medical Center, the Council of Accountable Physician Practices and Martin Luther King Jr. Community Hospital. He previously was vice president and chief medical officer at Barnes-Jewish Hospital, Washington University School of Medicine in St. Louis.



Steve Miller, MD
Senior Vice President and Chief Medical Officer Express Scripts

A nationally recognized advocate for fair drug pricing, Steve Miller's expertise represents years as a medical researcher, clinician and administrator, and spans numerous health care subjects. Since 2006, he has served as chief medical officer at Express Scripts, where he focuses on clinical matters including e-prescribing initiatives, specialty solutions and development of products that make prescription drugs safer and more affordable. He leads the Pharmacy & Therapeutics Committee. He previously was vice president and chief medical officer at Barnes-Jewish Hospital, Washington University School of Medicine in St. Louis.



Michael A. Mussallem
Chair and CEO, Edwards Lifesciences

Michael A. Mussallem has been chair and CEO at Edwards Lifesciences since 2000, when the company spun off from Baxter International. He previously held a variety of positions at Baxter, with increasing responsibility in engineering, product development and general management. He serves on the boards and executive committees of the Advanced Medical Technology Association (AdvaMed) and the Healthcare Leadership Council, is a trustee of the UC Irvine Foundation, and former chair of the boards of directors for AdvaMed and the California Healthcare Institute.



Norman C. Payson, MD
President, NCP Inc.

Norman C. Payson is president of NCP Inc. and former chair and CEO of Apria Healthcare Group. He chairs the board of directors of City of Hope, which operates a tertiary cancer hospital and research center, and is a director and co-investor in three private, equity-sponsored health care companies. He was co-founder and CEO of Healthsource, a 3 million-member health plan; the "turnaround CEO" of the \$6 billion Oxford Health Plans; chair of Concentra, the nation's largest occupational health care company; and CEO of Apria Healthcare, the nation's largest home health care provider.



Tom Pike
Vice Chair, QuintilesIMS

Tom Pike retired in December 2016 as vice chair and president of research and development for QuintilesIMS, where he was responsible for driving the company's growth in biopharmaceutical services. He concentrated his career in the health care and technology industries and remains a leading expert in the provision of business services within these fields. He spent 22 years at Accenture, including 15 years in leadership roles. Throughout his career, he has aided major companies on issues of strategy, operations and technology. After leaving Accenture, he worked on a variety of health care and business services opportunities with private equity firms.



Thomas M. Priselac
President and CEO, Cedars-Sinai Health System

Thomas M. Priselac has served as president and CEO of Cedars-Sinai Health System since 1994 and has been associated with the organization since 1979. He is a past chair of the American Hospital Association Board of Trustees, the Association of American Medical Colleges and the California Hospital Association, and is a founding board member of the California Health Care Foundation. He holds the Warschaw Law Chair in Health Care Leadership at Cedars-Sinai and serves as an adjunct professor at the UCLA School of Public Health.



Robert D. Reischauer, PhD
Distinguished Institute Fellow, Urban Institute

Robert D. Reischauer is a distinguished institute fellow at the Urban Institute, a nonpartisan Washington policy think tank where he served as president for 12 years. He previously was director of the Congressional Budget Office, a senior fellow in the Economic Studies Program of the Brookings Institution, and member and vice chair of the Medicare Payment Advisory Commission. He was one of two public trustees of the Social Security and Medicare Trust Funds. He culminated his 18 years on Harvard University's governing boards as the senior fellow of the Harvard Corp.



Michael L. Ryan, PharmD
Senior Vice President, Value, Access and Payment, Bristol-Myers Squibb

Michael L. Ryan is senior vice president of U.S. market access and government affairs for Bristol-Myers Squibb. He is responsible for pricing, contracting, payer strategy, value and access marketing, and policy across the company's \$8 billion U.S. portfolio, as well as field reimbursement strategy and execution for all U.S. payers. He spent 16 years at Amgen as vice president and general manager for U.S. reimbursement, value and access. He previously chaired the Department of Pharmacy and Therapeutics at the University of Pittsburgh School of Pharmacy and directed Clinical Information System Implementation at the University of Pittsburgh Medical Center.



Judith A. Salerno, MD, MS
President and CEO, Susan G. Komen

Before becoming president and CEO of Susan G. Komen, Judith A. Salerno was the Leonard D. Schaeffer Executive Officer of the Institute of Medicine of the National Academies, where she oversaw all programmatic activities and studies. She also was deputy director of the National Institute on Aging, directed the continuum of geriatrics and extended care programs for the U.S. Department of Veterans Affairs, and was associate chief of staff at the VA Medical Center in Washington, D.C. She stepped down from her position at Komen at the end of 2016.



Sue Siegel
CEO, GE Ventures

As CEO of GE Ventures and healthymagination, Sue Siegel leads innovation initiatives to drive growth for the company. Previously, she oversaw investments in personalized medicine, digital health and life sciences at Mohr Davidow Ventures, and drove strategy and technology development as well as new market growth at Bio-Rad, DuPont, Amersham and Affymetrix. As president of Affymetrix, she led the company's transformation from start-up to a global market cap genomics leader. She serves on the National Venture Capital Association Board, Stanford Hospital Board's IT Committee, Harvard Partners' Innovation Advisory Board, the Cleveland Clinic's Innovation Council and the University of California's Innovation Council.



Faye Wattleton
Managing Director, Alvarez & Marsal

Faye Wattleton is a managing director at Alvarez & Marsal in New York. She served as co-founder and president of the Center for the Advancement of Women, an independent, nonpartisan think tank, conducting women-focused national research for public education and policy advocacy. She previously was president and CEO of Planned Parenthood Federation of America. Her honors include the Fries Prize for Improving Public Health, Independent Sector's John Gardner Award, the Jefferson Award for the Greatest Public Service by a Private Citizen and induction into the National Women's Hall of Fame.



Timothy M. Wright, MD
Chief R&D Officer, Regulus Therapeutics

Timothy M. Wright is chief R&D officer at Regulus Therapeutics, an oligonucleotide therapeutic company targeting micro-RNAs. During 16 years at Pfizer, Novartis and the California Institute for Biomedical Research, he served in leadership positions from early-discovery research to late-stage development. Prior to moving to industry, he held academic positions at Johns Hopkins and the University of Pittsburgh. He serves on the board of directors for Schrödinger and ENYO Pharma and as a scientific advisor to several organizations, including the Bill and Melinda Gates Foundation.

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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 four pharmacies.

The school is home to the International Center for Regulatory Science at USC, and is a partner in the USC Center for Drug Discovery and Development in addition to the USC Schaeffer Center. 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

Sol 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 fourth nationwide among 266 schools of public affairs, the Price School is dedicated to teaching and research that advances society through better democratic governance, more effective social policy and sustainable urban development.

The school's faculty and 13 research centers tackle fundamental issues involving health policy and economics, collaborative governance, environment and sustainability, housing policy, nonprofits and philanthropy, mass emergencies and terrorism, economic development, inequality and equity, transportation, immigration and globalization, among others. The school's graduates shape our world as leaders in government, nonprofit agencies and the private sector.

Through a time-honored commitment to public service, a legacy of strong connections to professional leaders and a world-renowned research portfolio, the



mission of the Price School is to improve the quality of life for people and their communities, here and abroad. The school achieves this mission through path-breaking education and research that promote innovative solutions to the most critical issues facing society, many of which occur across urban and rural populations — in America and around the world. USC Price also fosters collaborations to better understand problems through varied perspectives.

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

Today's ever-changing health policy landscape requires complex solutions, creative research methods and expertise in a variety of fields. Center faculty 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 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, the Viterbi School of Engineering, the Davis School of Gerontology, and the Dornsife College of Letters, Arts, and Sciences — and a number of affiliated researchers from other leading universities.

In 2016, the Schaeffer Center partnered with the Center for Health Policy at 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 health care challenges facing the U.S. today — from the future of Medicare to reshaping the Affordable Care Act.

The Center offers the human and technical capacity necessary to conduct breakthrough interdisciplinary research, exceptional policy analysis and leading-edge training. More than 30 distinguished scholars investigate a wide array of topics. The Center's 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 the innovators of the future. At the same time, the Center supports the next generation of health care leaders in creating strong management, team-building and communication skills.

The 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. The Center's mission is to measurably increase value in health through evidence-based policy solutions, research and educational excellence, and private- and public-sector engagement. With an extraordinary breadth and depth of expertise, the Center aims to make a vital impact on the positive transformation of health care.

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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