Prescriptions for Wicked Problems

How the School is harnessing its strengths to address some of today’s most complex societal challenges — from diabetes and cancer to addiction and aging
ABOUT THE USC SCHOOL OF PHARMACY

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

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

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

Results magazine, published semi-annually, highlights some of the School’s latest advances and achievements, as well as the faculty, students, alumni and donors who make this work possible.
IN THIS ISSUE

Prescriptions for Wicked Problems

How the School is harnessing its strengths to address some of today’s most complex societal challenges—from diabetes and cancer to addiction and aging.
It’s been an exciting, frontier-expanding spring for the USC School of Pharmacy.

The School made international headlines for our pioneering collaboration with NASA’s Jet Propulsion Laboratory in the brave new realm of space medicine. We were the first-ever pharmacy school to partner with the agency in launching fungi to the International Space Station, with the aim of discovering new drugs that could help people here on Earth and in future travels among the stars.

Meanwhile, U.S. News & World Report again named us a top 10 pharmacy school and the nation’s top private pharmacy school. We also moved up a notch to rank ninth overall. Our PharmD students achieved a 99.43 percent passing rate on the North American Pharmacist Licensure Examination. The School continues to develop trailblazing curricular advances that are shaping the future of the field.

And our federally funded work in Los Angeles safety-net clinics is a national model for pharmacists’ involvement in direct patient care.

These endeavors are all part of the upward trajectory that reflects the dedicated work of our faculty and students as leaders and innovators in the profession.

Yet the world we serve continues to face intractable challenges. Los Angeles has declared a state of emergency over the city’s growing homeless population. More people are contracting chronic diseases than ever before. Opioid addiction has become a national epidemic. Our aging population is encountering cancer and Alzheimer’s and other forms of dementia, which take a devastating toll on families and on the economy.

In facing such problems, the USC School of Pharmacy has several distinct advantages that no other institution can match. For example, we are the only school in the nation that spans the entire spectrum of pharmaceutical development to clinical care, including regulatory science and pharmaceutical health economics and health policy. Then there is our location on a world-class health sciences campus in the heart of a major city on the edge of the Pacific Rim, which positions us for global influence and creates a real-time learning laboratory for our students.

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The School is playing a role in USC’s vision to address the “wicked” problems of our time — social or cultural challenges that are resistant to resolution because of their complexity and interrelation with other difficult issues. With our breadth of research and interdisciplinary programmatic areas, we are tackling some of today’s most multifaceted problems — and making powerful contributions to helping solve them.

I’m proud of the work of our School, and I know you will be, too, as you turn these pages.

Fight On!

Glen L. Stimmel, PharmD
Interim Dean
John Stauffer Dean’s Chair in Pharmaceutical Sciences
Prescriptions for Wicked Problems
Improving the human condition is at the heart of the USC School of Pharmacy’s mission — from discovering new scientific knowledge and improving patient outcomes to preparing new leaders for the profession and advocating to increase value in healthcare. Now the School is harnessing its strengths to address some of today’s most complex societal challenges.

Commencement 2016
Graduates at the School’s 109th Commencement were challenged to alleviate healthcare disparities and help reduce the 15-year life-expectancy gap between the top 1 percent and bottom 1 percent of income earners in the United States.
In its 2017 Best Graduate Schools rankings, U.S. News & World Report lists the USC School of Pharmacy ninth among the nation’s more than 125 schools of pharmacy, up one spot from the previous rankings. The School remains the nation’s top-ranked private pharmacy school and the top-ranked pharmacy school in Southern California.

Hepatitis Treatment Guidelines Revised

Research conducted by Jeffrey S. McCombs — associate professor of Pharmaceutical Economics and Policy, Gerontology and Public Administration, and director of Graduate Studies — and colleagues will soon have a significant effect on treatment approaches for the hepatitis C virus, which affects the livers of nearly 3.5 million people in the United States alone.

The new recommendations suggest that highly effective oral treatments should be given to all medically eligible patients as soon as possible to maximize virologic response and spare the liver from potentially extensive damage. Despite the drugs’ steep costs, the long-range benefits of reducing such consequences as end-stage liver disease and hepatocellular carcinoma promise to be enormous.

Previous guidelines — and coverage policies by many insurance payers — suggested that only the most gravely ill should be given the therapy, while delaying treatment for others with the virus. McCombs’ research found that clearing the virus in patients was much more difficult if treatment with targeted antivirals was postponed.

The updated guidelines were released in April in a report from the American Association for the Study of Liver Diseases and the Infectious Diseases Society of America.
Focus on Medication Safety

As the nation’s healthcare system evolves and its population ages, a collaborative focus on innovations in care is key to improving patient outcomes and containing costs. USC’s third annual Conference on Optimizing Medication Safety and Healthcare Quality: Best Practices and Collaborations for Public Health, Geriatrics and Mental Health brought together pharmacists, physicians, policy experts and healthcare leaders from across the country to discuss this timely issue.

Presented by the USC Leonard D. Schaeffer Center for Health Policy & Economics and the USC School of Pharmacy in collaboration with Health Services Advisory Group, the conference aimed to build partnerships and share best practices for improving health outcomes while reducing total healthcare costs. Nearly 150 attended the event, held at USC Feb. 11–12.

Overwhelmingly, the presentations focused on opportunities for increasing value in healthcare through interdisciplinary teams, with an emphasis on the role pharmacists play in managing medication use. Speakers from Hawaii, Montana, North Carolina and other states shared their experiences in safety-net clinics, hospitals and community pharmacies. Attendees also looked at current approaches to helping patients manage their health, including face-to-face appointments and telephone consultations.

“When you have patients at the table, the urgency of the work accelerates. We need to do more of what’s working.”

Dennis Wagner, director of Quality improvement and innovation for the U.S. Department of Health and Human Services’ Centers for Medicare and Medicaid Services

“We’re not going to fix chronic disease as government; we’re going to have to do it in partnership. We can do better, but we have to do it together.”

Jessica Nuñez de Ybarra, medical officer, California Department of Public Health, and author of a plan to make California the nation’s healthiest state

“Pharmacists — who have the skills, training and expertise to ensure that patients receive the best treatments possible — are highly underutilized by health systems.”

Steven Chen, chair of the USC School of Pharmacy’s Titus Family Department of Clinical Pharmacy, and the William A. and Josephine A. Heeres Chair in Community Pharmacy. His pioneering work in Los Angeles safety-net clinics has become a model replicated at clinics across the country.

“I was just a statistic. Then Dr. Chen listened to me, answered my questions and gave me hope. My pharmacist saved my life.”

Michael Metcalfe, a diabetic patient who served as keynote speaker at the conference
In a widely reported experiment, USC School of Pharmacy researchers teamed with NASA’s Jet Propulsion Laboratory (JPL) for the first launch of fungi into space, aimed at generating new medicines. The project also opened a new partnership frontier: between NASA and a pharmacy school.

“This is the first project where we see an intersection between pharmaceutical science and space exploration,” says Clay C. C. Wang, who is leading the endeavor, termed Micro-10. “USC is the first pharmacy school in space.”

Micro-10 could lead to therapies and cures for both the spacefaring and the earthbound. The results depend on how the fungi, Aspergillus nidulans, react to the environment of their destination, the International Space Station, in terms of gene expression, physical responses and metabolism.

“The high-radiation, microgravity environment in space could prompt Aspergillus nidulans to produce molecules it doesn’t create in Earth’s less stressful conditions,” says Wang, professor of Pharmacology and Pharmaceutical Sciences.

Wang’s team chose Aspergillus nidulans for the project because its properties are well-known. “We’ve done extensive genetic analysis of this fungus and found that it could potentially produce 40 different types of drugs,” he says. “The organism is known to produce osteoporosis drugs, which is very important from an astronaut’s perspective because we know that, in space travel, astronauts experience bone loss.” The research also could lead to breakthroughs against cancer and Alzheimer’s disease.

“NASA needs to develop self-sustaining measures to keep humans healthy in space because calling 911 is not an option,” adds Kasthuri Venkateswaran, a senior research scientist at JPL and the project’s co-principal investigator.

The fungi were launched from Cape Canaveral on April 8. They returned to Earth in May and were sent to Wang’s lab at USC. He and a research team, which includes doctoral students Jillian Rohmsdahl and Adriana Blachowicz, are now examining changes in the fungi.
“If the researchers are lucky, the fungal space travelers could provide new hints at making better medicine.” — Smithsonian

“When the samples return to Earth, Wang’s lab will compare them to their earthbound relatives to see if they made any new metabolites.” — Newsweek

“Wang’s team is planning to grow the fuzzy green fungus [in] space and on the ground, then compare the two groups in terms of their genes, proteins, and metabolites. ...This data could potentially help astronauts grow their own medicines in space.” — Popular Science

“USC is the first pharmacy school in space.”

“Fungi will be sent for the first time to the International Space Station for the development of medicine, said researchers at the University of Southern California (USC).” — Xinhua News Agency (China)
Whether you’re going on a business trip to China or a safari in Tanzania, the USC International Travel Health Clinic helps you prepare for any itinerary. The clinical pharmacists who staff the clinic hold certificates in travel health from the International Society of Travel Medicine. They not only recommend and provide routine vaccinations and travel-related medications, but also offer advice on avoiding illnesses and environmental hazards. They even offer suggestions for over-the-counter medications and equipment to help make your journeys healthier.
USC International Travel Health Clinic

410 annual visitors

May 6 weeks
BUSIEST MONTH
recommended timing before your trip to schedule a travel clinic appointment

855 travel-related vaccines given in 2015

Learn more at pharmacyschool.usc.edu/travel or by calling 323-442-5882.

Edith Mirzalz of the USC International Travel Health Clinic providing itinerary-specific advice to students headed to South America

The clinic helps travelers going to a wide range of destinations.

MOST COMMON VACCINES:
- typhoid
- hepatitis A
- tetanus-diptheria-pertussis
- yellow fever
- flu
- Japanese encephalitis
- meningitis
- hepatitis A/hepatitis B

TOP DESTINATIONS OF TRAVELERS VISITING THE CLINIC:
- Thailand
- India
- Cambodia
- Vietnam
- Peru
- China

MOST COMMON CAUSES OF HOSPITALIZATION AMONG TRAVELERS RETURNING FROM THE TROPICS:
- malaria
- dengue fever
**Doctor’s Prescription for Overprescription**

Jason Doctor outlines the dangers of overprescribing antibiotics and offers proven, low-cost solutions in a March 25 *New York Times* article he co-authored with colleagues from UCLA and Harvard.

While antibiotics are crucial to combating bacterial infections, their widespread use for colds and other respiratory infections not only wastes millions of dollars annually, but also contributes to the rise of antibiotic-resistant bacteria, explains Doctor, an associate professor in the School of Pharmacy and director of Health Informatics at the USC Leonard D. Schaeffer Center for Health Policy & Economics. Approximately 23,000 Americans die annually as a result, according to the Centers for Disease Control and Prevention.

For his most recent study, published in the February issue of the *Journal of the American Medical Association*, Doctor and his team gathered data on the prescription rates of 248 clinicians at 47 primary care practices in Los Angeles and Boston over an 18-month period. They then spent another 18 months testing new approaches to promoting more selective prescribing when antibiotics were unneeded.

In one approach, physicians were ranked from highest to lowest in terms of inappropriate prescribing rates in their region. The participating doctors received monthly emails about their performance compared to their peers. Those with the lowest inappropriate antibiotic prescribing rates were congratulated for being “top performers.” These peer comparisons “almost completely eliminated inappropriate prescribing: from 19.9 percent in the pre-intervention period to 3.7 percent during the post-intervention period — an 81 percent reduction,” Doctor and his cohorts observe.

Another approach required physicians to write an “antibiotic justification note” that would be visible in the patient’s electronic medical record (EMR). This brief pause in the workflow, along with the prospect of social accountability, reduced inappropriate prescribing from 23.2 percent to 5.2 percent — a 77 percent reduction.

Doctor’s research builds upon his successful study in which Los Angeles physicians put posters in their exam rooms to explain safe antibiotic use and pledged to follow standard guidelines. These pledges, which the doctors also signed, reduced inappropriate prescribing by 20 percent.

A more recent study showed that simply regrouping how prescription options are displayed in EMR treatment menus makes a difference. Physicians were roughly 12 percent less likely to order antibiotics unnecessarily if treatment options were grouped together rather than listed individually.

“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,” write Doctor and his colleagues.

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**California Pharmacists Can Now Dispense Birth Control**

As of April 8, women in California can obtain hormonal birth control from their neighborhood pharmacy without a physician’s prescription. Made possible by SB 493, the new process will ease access for women of all ages.

To purchase one of several types of self-administered hormonal birth control, a woman must consult with a pharmacist, get a blood pressure reading and complete a questionnaire about her health. Health insurance will typically cover the cost.

While SB 493 passed the California legislature and was signed into law in 2013, regulatory discussions held up implementation until this year. Supporters say the law allows pharmacists to use their extensive knowledge of drugs and side effects to assist patients in a convenient setting.

Kathleen Hill Besinque — associate professor of Clinical Pharmacy and assistant dean for Curriculum and Assessment — played a key role in promoting the bill.

Besinque told the *Los Angeles Times* in April that pharmacists can and will refer women to a doctor if needed. “The point isn’t that women have to go to a pharmacy; it’s just one more option,” she said.

California is the third state to allow pharmacist-issued birth control, and several other states are working on similar legislation.
An Anticancer Antidepressant?

An international team of scientists exploring an enzyme known for affecting brain functions and behavior discovered what may lead to a new treatment to decrease the progression and metastasis of glioma cancer.

The USC School of Pharmacy-led study found that suppressing the enzyme monoamine oxidase A (MAO-A) reduced glioma tumor growth and increased survival in mice, opening the door for potential use of antidepressants as a cancer suppressant.

Glioblastoma, the most aggressive form of malignant brain tumor, usually becomes resistant to standard therapies, at which point no further treatment is available. Average survival time for patients after diagnosis is about 14 months.

“We are especially happy to learn that MAO-A inhibitors are able to slow down the drug–resistant glioma, which is an unmet clinical need,” says Jean Chen Shih, University Professor at the USC School of Pharmacy and Keck School of Medicine of USC. She is a two-time National Institutes of Health Merit Awardee and corresponding author of the paper published Feb. 9 in the journal Oncotarget.

Shih, internationally known for her decades-long contributions to the study of MAO and brain development, collaborated with glioma experts Florence M. Hofman and Thomas Chen, both of the Keck School of Medicine, and molecular biologist Kevin Chen and chemistry synthesis expert Bogdan Z. Olenyuk, as well as a number of international postdoctoral fellows and graduate students.

Shih and her collaborators found that the MAO-A inhibitors reduce cell proliferation and increase immune response. “Our data identified the MAO-A inhibitors as potential novel stand-alone drugs, or as a combination therapy with a low dose of the current treatment, TMZ, thus reducing the toxicity of TMZ,” says Shih, who is also the Boyd P. and Elsie D. Welin Professor in Pharmacology and Pharmaceutical Sciences. “We hope to do a clinical study in the near future to learn if this finding in animals will be applicable to humans as well.”

This research was generously supported by the Daniel Tsai Family Fund, Center for USC–Taiwan Translational Research and the National Institutes of Health.

Setting the Pace

To give unborn children suffering complete heart block a better chance at survival, Gerald E. Loeb helped invent the first micropacemaker that can be implanted in utero. Previous attempts to address fetal heart blocks focused on placing a pacemaker in the mother and attaching its electrical lead to the unborn child — a strategy doomed to fail as soon as the fetus shifted position. Loeb’s team fabricated a pacemaker small enough to fit entirely inside the fetus, and devised a way to implant it through a 3.5 mm tube guided by ultrasound.

The micropacemakers, which received a Humanitarian Use Device designation from the U.S. Food and Drug Administration, have already been successfully implanted in fetal sheep. Human trials could begin within a year.

Loeb is a professor of Biomedical Engineering and director of the Medical Device Development Facility at USC. He is an adjunct professor at the School of Pharmacy, where he teaches in the International Center for Regulatory Science.

School Earns Top NAPLEX Pass Rate in California

USC School of Pharmacy PharmD students had a 99.43 percent passage rate for the North American Pharmacist Licensure Examination in 2015. This high percentage puts the School in the top spot for overall passage rate in California and No. 3 in the entire country, according to an article in Pharmacy Times recognizing the achievement.
PRESCRIPTIONS FOR WICKED PROBLEMS
Cover Feature

Prescriptions for Wicked Problems

Improving the human condition is at the heart of the USC School of Pharmacy’s mission — from discovering new scientific knowledge and improving patient outcomes to preparing new leaders for the profession and advocating to increase value in healthcare. Now the School is harnessing its strengths to address some of today’s most complex societal challenges.
Think of how tightly the threads of a wick intertwine, and how tough they are to unravel without damaging the strands. Now consider the complexities of such physical and societal ailments as chronic disease or poverty — and how difficult they are to address without risking harm to those suffering, not to mention how elusive cures have proven.

That is why such challenges have become known as “wicked” problems. Originally coined in the 1970s, the term has recently gained currency as a way to describe issues that are multifaceted, contradictory, interrelated and resistant to change — think obesity and diabetes, cancer, aging and dementia, homelessness, addiction, sustainability and climate change, social justice, food and water security, cyber security and terrorism.

The term’s popularity might be new, but there is nothing novel about the dedication of both USC and the School of Pharmacy to tackling wicked problems. Such a focus is built into the DNA of the entire university, just as improving the human condition has always been at the heart of the School’s mission.

Even so, as today’s societal problems become increasingly intertwined and intractable, untangling them requires renewed vigor and flexibility, rethinking and reworking current practices, and increasing emphasis on collaboration and innovation.

“The big, complex problems facing the 21st century need big, complex entities to engage them,” says USC Provost Michael Quick, who spearheads the university’s wicked problems initiative. “Few institutions of higher education have the breadth to do this. We are one of the few. And it is our moral responsibility to do so.”

“As perhaps the nation’s most multidimensional school of pharmacy — with a pioneering curriculum and ongoing partnerships among the foremost researchers across multiple disciplines — the USC School of Pharmacy plays a crucial role in fulfilling this responsibility,” adds Interim Dean Glen L. Stimmel.

The following highlights just a few of the ways the School’s faculty, students and alumni are confronting some of today’s most complex societal challenges.
MANAGING CHRONIC ILLNESS
From the growing obesity and diabetes crisis to the persistence of cardiovascular disease as the nation’s No. 1 killer, chronic diseases extract an enormous toll on individuals, families and our economy. Some 90 percent of these conditions require medication as first-line therapy, underscoring the critical role of pharmacists in improving patient outcomes.

In a landmark, three-year research project funded by a $12 million grant from the Center for Medicare & Medicaid Innovation, the School of Pharmacy integrated clinical pharmacy services with primary care in Southern California safety-net clinics. Some 6,000 high-risk patients with conditions such as diabetes and hypertension enrolled in the study. Their regular interaction with the clinical pharmacy team led to an average 16.2 percent reduction in cholesterol and 22 percent reduction in blood-sugar levels. The pharmacists also identified an average of 11.4 medication problems per patient, mostly attributable to incorrect dosage and usage.

Overseen by Geoffrey Joyce, chair of the School’s Department of Pharmaceutical and Health Economics, and Steven Chen, chair of the Titus Family Department of Clinical Pharmacy, and the William A. and Josephine A. Heeres Chair in Community Pharmacy, the project serves as a national model. The duo won the Innovative Pharmacy Practice Award last year from the California Society of Health-System Pharmacists for their leadership on the study.

The School’s faculty, alumni and students also were instrumental in helping secure passage and implementation of California Senate Bill 493, which established provider status for pharmacists in fall 2013. The School remains at the forefront of the drive for national provider status.

Numerous USC School of Pharmacy scientists are pioneering novel approaches to help defeat cancer once and for all.
Numerous other researchers in the School are focusing on novel treatments for chronic disease. Associate Professor Kathleen Rodgers is developing a new, cost-effective oral medication to reduce and treat complications from diabetes, in collaboration with Associate Professors Stan Louie and Bangyan Stiles. Professor Wei-Chiang Shen is focusing on the negative effects current diabetes drugs have on the liver.

Other faculty are addressing cardiovascular disease, cystic fibrosis and chronic pain management, while Professor Mel Baron’s award-winning fotonovela series is helping remove barriers to treatment and screening — crucial to the prevention and management of chronic disease.

“Few institutions of higher education have the breadth to do this. We are one of the few. And it is our moral responsibility to do so.” —USC Provost Michael Quick

DEFEATING THE ‘EMPEROR OF MALADIES’
Despite major advances in precision cancer treatment, the death rate from the disease has not improved significantly since 1971, when the National Cancer Act was signed into law. Defeating this “emperor of maladies” is one of the greatest wicked problems of our time because of the disease’s infinite complexity. For instance, even cancer cells that begin in the same organ behave differently depending on the mutations driving their growth. And even the most miniscule traces of cancer left after surgery can grow and spread to other parts of the body.

Numerous USC School of Pharmacy scientists are pioneering novel approaches to help defeat cancer once and for all. J. Andrew MacKay, the Gavin Herbert Professor in Pharmaceutical Sciences, engineers polypeptide-based nanoparticles that deliver greater concentrations of cancer-fighting agents directly to tumors without damaging peripheral sites. He also has devised diagnostic imaging nanomedicines that can help determine which patients might benefit from a particular treatment.

Meanwhile Research Assistant Professor Jennica Zaro’s research aims to differentiate tumor cells from normal ones — one of the biggest challenges in cancer diagnosis and therapy. Using nanotechnology, her team has created a specific masking sequence of amino acids that prevents peptides from entering healthy cells, while allowing them to enter or bind to tumor cells.

Jean Chen Shih, University Professor and the Boyd P. and Elsie D. Welin Professor, is the world’s leading authority on the enzymes monoamine oxidase (MAO) A and B. An international research team she heads recently discovered that MAO-A inhibitors reduce the progression of glioblastoma, the most aggressive form of malignant brain tumor. (See story, page 11.) Shih previously found that suppressing MAO-A reduces or eliminates prostate tumor growth in mice.

Other faculty working on cancer advances include Stan Louie, who is developing new therapies for resistant breast cancer; Kathleen Rodgers, who is pursuing nanoparticle formulations to enhance chemotherapy; Assistant Professor Yong (Tiger) Zhang, who is engineering exosome nanoparticles for targeted cancer therapies; and Associate Professor Julio Camarero, who is targeting protein-to-protein interactions involved in the development of cancer.
COMBATING THE ALZHEIMER’S EPIDEMIC

More than 5 million Americans have Alzheimer’s, with triple that number predicted to suffer from the disease by 2050. It cannot yet be prevented, cured or even slowed. Meanwhile the cost of treatment continues to skyrocket.

One of the world’s leading experts in the field, Roberta Diaz Brinton — the R. Pete Vanderveen Chair in Therapeutic Discovery and Development — has pioneered two therapeutics for the prevention and treatment of Alzheimer’s that are currently in clinical trials: allopregnanolone, the first regenerative therapy to be tested for the disease, and phytoSERMS, which aims to treat age-associated cognitive impairment and menopause symptoms. She leads National Institute on Aging-sponsored basic, translational and clinical research focused on elucidating mechanisms that underlie late-onset Alzheimer’s, with emphasis on the aging female brain, since women account for some two-thirds of Alzheimer’s patients.

ADDRESSING ADDICTION AND MENTAL ILLNESS

Mental illness, addiction and homelessness might seem like disparate issues, but they are often linked. Financial stress might lead to substance abuse, for example, while the mentally ill could turn to drugs or alcohol in attempts at self-medication. Certainly, the poor and addicted are at higher risk of being forced out onto the streets. Meanwhile, a new scourge has joined the ranks of addictive substances, as prescription opioid abuse ruins countless lives and costs U.S. employers as much as $18 billion a year in lost productivity and medical expenses.

Thanks to research led by Professor Daryl Davies, a treatment for parasitic infections could soon be used to help overcome another life-draining affliction: alcoholism. Davies has spent several years examining the potential of ivermectin (IVM) as a therapy for alcohol-use disorders. His laboratory’s data from mouse models suggest that IVM can reduce the impact of alcohol on purinergic, or P2X, receptors in the brain. If successful, this use of IVM — the safety of which has long been demonstrated — would be the first truly effective drug option for breaking alcohol dependence.

Other faculty investigating issues of addiction and mental illness include Assistant Professor Melissa Durham, who is training pharmacists on emergency naloxone rescue to prevent opioid overdose, and Professor Julie Dopheide, who is developing new strategies to improve medication adherence among patients with mental illness. Associate Professor Susie Park is working on identifying genotype markers implicated in mood
The School continues to innovate in its training programs, with a comprehensive PharmD curriculum upgrade in the works.

disorders as well as drug-induced mood disorders. And throughout his long career, Glen L. Stimmel has played an instrumental role in the development of psychiatric pharmacy and remains a leader in the field.

FIGHTING INFECTIOUS DISEASE
Staph bloodstream infections strike some 3 million people in the U.S. each year. Patients receiving the current standard treatment have a 40 percent chance of failure, leading to complications, relapse, prolonged hospitalization and increased mortality. Professor Annie Wong-Beringer is developing a personalized treatment strategy based on individual host immune response and microbial characteristics measurable at the bedside.

CONTROLLING HEALTHCARE COSTS
For years, the United States has spent more on healthcare than any other nation, yet ranked no higher than 30th in patient outcomes. However, the Affordable Care Act (ACA) has only been partially successful so far in its triple aim of improving care, enhancing health and reducing costs. More people than ever before have access to coverage, yet medical costs continue to rise. Meanwhile, medical advances mean that Americans are living longer, but older patients also will be much sicker by 2030 than the average Medicare recipient is now, according to research led by Distinguished Professor Dana Goldman and other investigators at the USC Leonard D. Schaeffer Center for Health Policy & Economics.

Contrary to many detractors’ claims, the real problem with the ACA might be that it does not go far enough, he says. Goldman’s research demonstrates that the real wicked problem to be addressed is enhancing value in healthcare, rather than focusing so much on costs. He believes we must take a longer view instead of the current short-term outlook. Curtailing obesity earlier in life, for example, will improve lives and cut costs by reducing the risk of diabetes down the line.

Another Schaeffer Center study shows that treating just 5 percent of hepatitis C patients with the latest drugs would yield greater benefits than the current system of waiting until the disease advances and the liver is at risk of failure.
PREPARING FUTURE LEADERS
Next-generation professionals need specialized training to prepare them for the expanding clinical role of the pharmacist and for the increasing focus on collaboration across the health sciences. The USC School of Pharmacy has, since its inception, been a leader in pharmacy education — pioneering the now standard PharmD degree, establishing the nation’s first clinical pharmacy program and first clinical clerkships, and creating the first PhD in pharmaceutical economics and the first professional doctorate in regulatory science.

The School continues to innovate in its training programs, with a comprehensive PharmD curriculum upgrade in the works. The new curriculum emphasizes this academic year under one umbrella, ensuring a more cohesive, interdisciplinary education and research experience.

THE PATH FORWARD
From expanding scientific knowledge and implementing advances for patients to preparing new generations of pharmacy leaders and advocating for increased value in healthcare delivery, the School’s faculty, students and alumni lead the way in advancing the field’s benefits for society.

Such advances — and the further potential they represent — show that, while intractable, wicked problems are not insoluble. Certainly past challenges fitting the definition have been overcome, from polio to smallpox. Over the past century, life expectancy in the United States has increased by some 25 years, thanks to the significant curtailment of infectious disease and foodborne and hygiene-related illnesses, as well as the advent of environmental protections and safety regulations.

Granted, our extended lives have led to new epidemics of age-related and “lifestyle” conditions, from dementia and cardiovascular disease to increased diabetes and cancer rates, but these can be beaten as well. When each such wicked health problem is overcome, the School of Pharmacy will have helped pave the path to victory.
The USC School of Pharmacy celebrated its 109th Commencement in May before an audience of more than 1,500 family, friends, faculty and staff.

In addition, 35 pharmacists were recognized for completing residency training along with eight individuals who received certificates marking the conclusion of their fellowship programs. Christine Chen, PhD ’16, and Kimberly Moore, PharmD ’16, delivered student addresses.

“I challenge you to never lose sight of why you became a pharmacist,” Moore said. “Be the kind of pharmacist you would want your family member to have.”

USC Distinguished Professor Dana Goldman, Leonard D. Schaeffer Chair and director of the USC Schaeffer Center for Health Policy & Economics, served as the featured commencement speaker. The internationally recognized health economist described the 15-year difference in life expectancy between the top 1 percent and bottom 1 percent of income earners in the United States, and challenged graduates to find ways to help alleviate inequalities in healthcare.

“The most disadvantaged people will come through your doors. When they do, show them compassion,” Goldman told graduates. “And understand that the diploma you are about to receive gives you the power to address one of society’s greatest disadvantages.”
Graduates Challenged to Alleviate Healthcare Inequalities

Kari Kowalski

PharmD commencement speaker
Kimberly Moore

Commencement speaker Dana Goldman, USC Distinguished Professor and director of the Leonard D. Schaeffer Center for Health Policy & Economics

Interim Dean Glen Stimmel with Anna Papinska

PhD commencement speaker Christine Chen

Kari Kowalski

Lina Hamid
Inaugural Biles Speaker on #FiguringItOut

Mylan CEO Heather Bresch headlined the inaugural USC John Biles Speaker Series on Leadership, sharing insights in a talk titled #FiguringItOut. After Interim Dean Glen L. Stimmel welcomed attendees, former Dean R. Pete Vanderveen introduced Bresch to the capacity crowd. Interest was so great that the talk was presented on a video feed in a second room.

As the first female CEO of a Fortune 500 pharmaceutical company, who also has been named one of the “50 Most Powerful Women in Business” by Fortune, Bresch seems to have “figured it out.” Yet she emphasized that everyone’s career path is different, with no “nice, tidy roadmap to success.” However, she named a crucial step: Get outside your comfort zone personally and professionally.

“Challenge that status quo,” Bresch added. “There’s always a way to change things if you’re willing to work hard.”

Collaboration and listening to others are also essential, she emphasized. “Gaining insight from each other is what propels us all forward.” In that spirit, Bresch met with a group of student leaders after her speech for a face-to-face conversation. Mylan Chairman Robert Coury also joined the small group.

The USC John Biles Speaker Series on Leadership is part of the Margaret and John Biles Leadership Center, created through a generous gift from Allergan Chairman Emeritus and USC Life Trustee Gavin Herbert and his wife, Ninetta. The gift honors the late dean emeritus, who led the USC School of Pharmacy from 1968 to 1995, and his wife.

New Walgreens Conference Center Opens

The USC School of Pharmacy has unveiled the Walgreens Conference Center in the John Stauffer Pharmaceutical Sciences Center on the Health Sciences Campus. The conference and learning center, located on the building’s second floor, features an interactive smart board, four wireless-enabled modular workshop stations and audio/videoconferencing capability, among other amenities.

Nearly 18 months in the making, the center was made possible by a $250,000 gift from the company, as well as more than $500,000 in funding from the university.

At a ribbon-cutting ceremony on Feb. 26, Interim Dean Glen L. Stimmel thanked Walgreens and noted that the newly renovated, highly customizable room will be the School’s premier conference space.

The Walgreens Conference Center also houses the School’s new Margaret and John Biles Leadership Center, which brings influential voices from the public and private sectors to address pressing health-related concerns and provide students with an opportunity to develop essential leadership and entrepreneurial skills.

“The USC School of Pharmacy has always been a welcoming place where talented individuals solve complex problems by working collaboratively,” Stimmel said. “We’re proud to open a state-of-the-art facility that encourages innovation and collaboration, and I look forward to the transformative ideas and outcomes that will be generated there.”

The School of Pharmacy and Walgreens have enjoyed a decades-long affiliation, with the company supporting scholarships, student organizations and programmatic advances. In addition, retired Walgreens President of Pharmacy, Health and Wellness Kermit Crawford currently serves as executive in residence at the School.

“USC is a very fine institution, and Walgreens commends you on the initiative and the education you provide to students,” said Paul Huynh, Walgreens’ district pharmacy supervisor. “We will join you and walk with you on this journey of partnership and friendship.”
In Memoriam: Oscar Pallares

Oscar Pallares in 1955, shortly after his graduation from the School

Board of Councilors member Oscar Pallares, PharmD ’55, died on April 15. He was 86.

Pallares and his wife, Mary, have been longtime, generous volunteers and benefactors to the School.

“Dr. Pallares was an incredibly dedicated and loyal individual whose support for USC spans many decades,” says Interim Dean Glen L. Stimmel. “He was a Trojan through and through, and his support of the School has benefited countless students. He will be dearly missed at the USC School of Pharmacy.”

“He was a Trojan through and through.”

The owner of Kenneth Road Pharmacy in Glendale and other independent pharmacies, he was a lifetime member of Phi Delta Chi and one of the earliest members of QSAD Centurion, the premier support group of the USC School of Pharmacy.

Named Alumnus of the Year in 1986, Pallares received the Fred B. Olds Award from the USC Alumni Association in the early 1990s. The Pallares’ support of the School was recognized in 2010, at the dedication of the plaza in Centennial Park.

The Pallares' commitment to the School has become a family tradition: Their daughter Jean Pallares-Leonard, PharmD ’84, director of Pharmacy at Huntington Hospital in Pasadena, is an alumni preceptor.

Honoring Scholarship Donors

Chioma Nwozuzu, PharmD ’18, addressing donors

Guests at this year’s USC School of Pharmacy Scholarship Luncheon on April 25 were welcomed with a performance by the Trojan Marching Band and an outpouring of gratitude from scholarship recipients.

Christopher Hajou, PharmD/MS ’17 (Healthcare Decision Analysis), shared how he found his calling in pharmacy while serving as a medical assistant at a health center in an underserved area in Fresno, California. There, he helped young patients recovering from assault. He described his dream of establishing pharmacy-driven healthcare clinics in other underserved communities. “Many might think I grew up with very little,” he said. “I’ll tell you one thing I did grow up with, and that’s the drive to make opportunities count.”

Other student speakers at the event were Krysty Avila, Maya Ballis and Corey Kelsom — all PharmD ’17 — and Chioma Nwozuzu, PharmD ’18.

Interim Dean Glen L. Stimmel thanked donors for their generosity, noting that scholarships help students optimize their time in school, allowing them to excel in their studies, make a difference through community outreach, and provide leadership in state and national pharmacy organizations. “You help prepare the next generation to lead our nation and our profession,” Stimmel said.

More than 130 scholarship donors supported USC pharmacy students during the 2015–16 academic year.
When Donna Keissami, PharmD ’08, published Maddie Visits the Pharmacist, she fulfilled a lifelong dream of writing a children’s book. She also created a brightly illustrated way for kids to hear about a sick child, learn the importance of taking their prescribed medications and get a peek behind the counter at a pharmacist at work.

What prompted you to write Maddie Visits the Pharmacist?
My love for reading began as a young girl. The child in my book, Maddie, is named after my favorite little girl to babysit. When I started to formulate the story, I couldn’t find any children’s books about pharmacists. The choice to make the pharmacist a main character seemed obvious to me.

How can this book help children understand prescribed medications?
Children are generally not the easiest patients to accept medication. It’s helpful for them to read about another child being sick and ultimately feeling well. Whenever I have to give my son medication, I remind him about Maddie. He willingly opens his mouth and accepts his medicine!

What do you hope children will learn about pharmacists?
That pharmacists are friendly and that we do much more than just count pills. Parents tell me their children request the book and that it has served them well when trying to administer medication. My pharmacist friends enjoy it as an easy way to share with their children what we do as pharmacists.

What are your lasting memories of your time at the School?
Those were some of the best days of my life. I moved to Los Angeles from Houston for the sole purpose of pharmacy school, so I was completely new to the city. Not only did I amass a great deal of knowledge and earn my PharmD, but I also made lifelong best friends.
Alumni Honored at Awards Gala

Members of the classes of 2016 and 1966 joined faculty and friends at the School of Pharmacy’s annual Alumni/Senior Awards Gala, held May 7 at Town & Gown.

The 2016 Outstanding Alumna Award was given posthumously to Vice Dean Kathleen Johnson. Steven Chen — chair of the Titus Family Department of Clinical Pharmacy, and the William A. Heeres and Josephine A. Heeres Chair in Community Pharmacy — presented the award to Johnson’s husband, Wynnsan Moore. R. Pete Vanderveen, the School’s dean from 2005–2015, received the Honorary Alumnus Award. Ken Thai and K & B Pharmacy Associates Inc. were named Preceptor/Site of the Year.

Seven members of the Class of 1966 attended, and each was presented a medal marking their 50 years in the pharmacy profession.
Alumni Updates

1950s

**Gene Grobman.** PharmD ’56, is enjoying retirement in San Francisco. Fight on!

**Donald Hansen.** PharmD ’57, has been retired for 21 years.

1960s

**Glen Sysum.** PharmD ’66, JD, has retired after owning and operating businesses in California, Wyoming and Colorado. He also previously managed Toddy’s Pharmacy and King Sooper’s Pharmacy. He and his wife, Pamela, recently celebrated their 50th anniversary.

**Richard Sullivan.** PharmD ’67, is retiring and closing Star Drug in Claremont, California, after 45 years as a pharmacist.

**Leslie Sinclair.** PharmD ’68, is retired after working as a clinical pharmacist at Mercy in Mt. Shasta, California.

**Richard Otterstrom.** PharmD ’69, entered the family real estate business, where he specialized in residential income property sales and development. He has been involved in the state and local realtor associations’ leadership for 40 years and is currently a director of the Apartment Association of Greater Los Angeles.

1970s

**Jean Newby.** PharmD ’73, retired and now plays competitive table tennis. She medaled in the U.S. Open event for women over 70 and at the U.S. Nationals.

**Mario Jimenez.** PharmD ’77, was appointed director of Diversity Initiatives at Western University.

**Christopher Lomax.** PharmD ’78, was promoted to senior marketing manager, pharmacy advisor, at B. Braun Medical Inc. in Bethlehem, Pennsylvania — the U.S. headquarters of B. Braun Medical, a 176-year-old German company.

**Theresa Hyland.** PharmD ’79, became board-certified this year.

**Carl Kildoo.** PharmD ’79, is director of Pharmacy at City of Hope National Medical Center. He is also a preceptor.

1980s

**Pam Tarlow.** PharmD ’81, is an integrative pharmacist at Santa Monica Homeopathic Pharmacy. She is also a preceptor.

**Stan Nomura.** PharmD ’84, is a pharmacist at the U.S. Department of Veterans Affairs. He is a longtime preceptor at the School.

**Leticia Hernandez.** PharmD ’86, works at a health maintenance organization as a pharmacist care manager in primary care, where she is the medication therapy manager for a predominantly Spanish-speaking Latino community.

**Janet Jordan-Dumonchelle.** PharmD ’86, is pharmacist-in-charge at Sacramento State University’s Student Health Services Pharmacy. She received the California Pharmacists Association’s Generation Rx Champions Award at the organization’s West Coast Pharmacy Exchange in April 2015 in recognition of her work to host a pharmaceutical waste bin to dispose of expired and unused medications. She recently published a guest editorial in *Journal of Addictions Nursing* on preventing prescription drug diversion.

**Robert Torres.** PharmD ’86, a pharmacy owner for 25 years in Whittier, California, is a Patient Care Services pharmacist for Sav-On and an adjunct assistant professor of Pharmacy Practice at the USC School of Pharmacy.

**Sohail Masood.** PharmD ’88, has been chosen as an EY Entrepreneur of the Year 2016 Greater Los Angeles semifinalist.

**Scott Takahashi.** PharmD ’89, is a pediatric ambulatory care pharmacist at Kaiser Permanente Los Angeles (4904 Sunset). He has been a preceptor at the School for more than 20 years.

**Alan True.** PharmD ’89, retired from his position at MedComm Solutions, a company he co-founded in 1998 with two other pharmacists, including classmate Sherman Gong. The company was sold to Dohmen Corporation in 2011. True now works at a community pharmacy near his home in Albany, California.

1990s

**Terry Mah.** PharmD ’93, is a staff pharmacist at Costco Wholesale.

**Ernest Tom.** PharmD ’99, is a pharmacy district manager at Ralphs Grocery Company.

2000s

**Dikran Parsekyan.** PharmD ’00, is chief pharmacist at Ralphs Grocery Company. He is also an adjunct assistant professor at the USC School of Pharmacy and a clinical assistant professor at Western University of Health Sciences School of Pharmacy.

**Jane Kriengkauykiat.** PharmD ’01, is an infectious diseases pharmacist specialist at City of Hope National Medical Center.

**Nayiri Boghossian.** PharmD ’06, is clinical coordinator at Hollywood Presbyterian Medical Center.

**Sofia Gezalyan.** PharmD ’06, is director of Pharmacy at Hollywood Presbyterian Medical Center.
Sharlin Gevargeza, PharmD ’09 (pictured above with Walgreens District Manager Penah Dadayan and Walgreens District Supervisor Paul Huynh), is manager of the Walgreens Pharmacy in Santa Clarita, California. She received Walgreens’ 2015 Champion of Champions Award, which is presented annually to a pharmacist who delivers extraordinary patient care. Gevargeza, who has worked for Walgreens since 2010, won the award for both the Los Angeles North District and the Los Angeles-wide service area.

Elly Sarabi, PharmD ’10, is an inpatient pharmacist specialist at Kaiser Permanente.

Nick Mordwinkin, PharmD ’12, is senior manager of Corporate Strategy at Ultragenyx Pharmaceutical.

David Yuan, PharmD ’12, is a pharmacy supervisor at Lorena Pharmacy.

Barbara Blaylock MS ’15 (Pharmaceutical Economics and Policy), is a junior economist with OECD in Paris.

Andrew Messali MS ’15 (Pharmaceutical Economics and Policy), is an associate at Analysis Group in Boston.

We want to hear from you! Email your updates and career news to pharmcom@usc.edu to be included in the next edition of Class Notes.

Industry Fellowships Launch Careers

Fellowships provide postdoctoral scholars with hands-on experience in research and development, new product planning, managed care, medical communications, regulatory review and market access strategies — preparing them for a range of industry careers. Numerous Class of 2015 graduates directly entered fellowship programs at such companies as Allergan, Bayer HealthCare, Bristol-Myers Squibb, Genentech, Genzyme, and Eli Lilly and Company.

One of the longest-standing is the USC–Allergan Pharmaceutical Industry Fellowship Program. “Allergan and USC work as close partners in marking our fellowships the best opportunities for tomorrow’s great minds in our industry,” says Gavin S. Herbert, Allergan chairman emeritus.

“"I am dedicated to finding groundbreaking new ways of combining pharmacy and business toward directing the future of pharmaceutical innovation.”

DEREK KUWAHARA, BRISTOL-MYERS SQUIBB FELLOW

“My goal is to create a lasting impact by contributing to the process of drug development and commercialization.”

ANNA CHENG, GENENTECH FELLOW

“I plan to become intimately involved in designing early-stage clinical trials, eventually working with new classes of pharmaceuticals as they make their way from the bench to the bedside.”

JEFF PENZNER, WHOSE USC–ALLERGAN FELLOWSHIP EXPLORES RETINAL THERAPEUTICS
Stimmel Recognized for Career Achievement

Interim Dean Glen L. Stimmel received the 2016 Career Achievement Award from the College of Psychiatric and Neurologic Pharmacists (CPNP) Foundation, one of the nation's highest honors in psychiatric pharmacy.

Interim Dean Glen Stimmel with his CPNP Career Achievement Award

Stimmel, the John Stauffer Dean's Chair in Pharmaceutical Sciences and professor of Clinical Pharmacy, Psychiatry and the Behavioral Sciences at the School of Pharmacy and the Keck School of Medicine, was formally presented with the award in April at the CPNP Annual Meeting in Colorado Springs.

“Through his practice, research and teaching, Glen Stimmel has had a remarkable impact on the development of psychiatric pharmacy,” says CPNP Foundation President Barbara Wells. “He is an outstanding practitioner, a gifted educator and a productive researcher. It is a great honor for CPNP Foundation to be able to present him with the Career Achievement Award for his many contributions that improve the care of patients.”

Larry Ershefsly, vice president of Parexel International, adds: “The psychopharmacy residency program started by Dr. Stimmel in 1975 (and still going strong at USC) was among the first in the nation. His calling as a leader, educator, clinician and patient advocate has inspired generations of pharmacists and other healthcare providers. He is considered one of the first educators to identify the unique specialty practice knowledge and skills necessary to provide care to patients with mental disorders.”

Stimmel has mentored and encouraged countless students, faculty members, colleagues and pharmacists across the country, says USC School of Pharmacy Professor Julie A. Dopheide, who now directs the psychiatric pharmacy residency at USC. “Time and again, Glen has been called upon to lend his considerable talents as a clinician and educator to develop creative solutions for problems — whether it is a challenging patient case, a practice hurdle such as lack of access to care or an academic dilemma.”

“For many years, Glen Stimmel has been a leader in psychiatric pharmacy and pharmacy education,” says Charles F. Caley, clinical professor and psychiatric pharmacist at the University of Connecticut School of Pharmacy. “From my perspective, his leadership has been exemplified in his scholarship, his ability to teach effectively, in the insightful way he is able to generate consensus around difficult issues facing the specialty, and in the way he is always able to keep everything focused on the patients who live with mental health conditions.”

Pharmacy-Related Tort Law Explained

Pharmacy Practice and Tort Law, a new book by Fred G. Weissman — associate dean for Student/Faculty Affairs and Admissions and associate professor of Clinical Pharmacy — helps pharmacy students understand tort law, with a focus on civil liabilities that pharmacists could face in real-world practice.

Weissman and co-authors Jim Pinder and Mark R. Berns aimed to make the potentially perplexing laws more engaging and comprehensible by using case examples that illustrate clear applications of tort rules to the pertinent facts.

Weissman brings a wealth of experience to the text, having taught courses in pharmacy law as well as the popular freshman seminar Medical Controversies and the Law. He previously authored A Guide to California Community Pharmacy Law, which is described as the “go-to’ law reference for pharmacists practicing in California” and is now in its eighth edition. He is a 1963 PharmD graduate of the School and also holds a JD.
Dana Goldman Named Distinguished Professor

Dana Goldman, the Leonard D. Schaeffer Director’s Chair, has been named a Distinguished Professor. The designation is reserved for those who have brought special renown to USC and is held by only 25 faculty university-wide.

Goldman is founding director of the USC Leonard D. Schaeffer Center for Health Policy & Economics, a partnership between the USC Price School of Public Policy and the USC School of Pharmacy. With more than 100 affiliated faculty and staff, the Schaeffer Center unites scholars and experts from around the world and, under Goldman’s leadership, has quickly become one of the leading centers in the field of health policy.

A health policy advisor to the Congressional Budget Office, Goldman also serves on several editorial boards including Health Affairs and the American Journal of Managed Care. He has authored more than 200 articles and book chapters on healthcare and is a founding editor of the Forum for Health Economics and Policy.

In 2009, Goldman was elected to the National Academy of Medicine. He was the first recipient of the MetLife Foundation Silver Scholar Award. A sought-after expert by both policymakers and media, Goldman’s work has been featured in The New York Times, The Wall Street Journal, The Washington Post, CNN and National Public Radio, among others. Most recently, Goldman has been pivotal in the Schaeffer Center partnership with the Brookings Institution that established the new Leonard D. Schaeffer Initiative for Innovation in Health Policy.

Goldman holds a PhD in Economics from Stanford and a BA summa cum laude from Cornell University. He joined USC in 2009.

J. Andrew MacKay has been promoted to associate professor of Pharmacology and Pharmaceutical Sciences, with tenure. He has been a faculty member at the School since 2008. He also is the Gavin Herbert Professor in Pharmaceutical Sciences, effective July 1, 2016.

He earned a bachelor’s degree in Chemical Engineering and Biology from MIT in 1999. After working for a Boston-area biotech company, he entered the Joint Graduate Group in Bioengineering at the University of California, San Francisco/Berkeley, where he earned a Howard Hughes Medical Institute Predoctoral Fellowship. Upon completing a PhD in 2005, MacKay joined the Department of Biomedical Engineering at Duke University, where he earned a Kirschstein National Research Service Award Postdoctoral Fellowship.

In 2015, MacKay received his first Research Project Grant from the National Institutes of Health—a five-year, $1,587,885 RO1 grant to investigate microdomains for use in nanomedicine.

Melvin F. Baron, PharmD ’57, who has been a full-time faculty member at the School since 1990, has been promoted to full professor.

Baron first joined the USC faculty on a part-time basis in 1981, while operating a home healthcare center he founded in 1957.

A revered instructor at the School, he serves as director of the first-level externship program, which he helped create. He also co-directs the PharmD/MBA Program, is responsible for teaching clerkships in Pharmacy Administration and is faculty advisor to Phi Lambda Sigma.

Baron serves as a consulting pharmacist for several clinics that serve indigent patients in Los Angeles County. He was the first faculty member to identify medication-related quality and gaps in safety-net clinics, which led to the School’s largest-ever grant — $12 million, received in 2012 from the Center for Medicare and Medicaid Innovation. He is renowned for developing a series of popular fotonovelas to educate the Latino population about common chronic diseases and public health concerns.

Baron is a member of the California Safety Net Alliance Pharmacy & Therapeutics Committee, a fellow of the California Pharmacists Association and the American College of Apothecaries, and president of PharmaCom, a pharmaceutical communications company.

Among numerous honors, in 2008 he was named Pharmacist of the Year by the California Pharmacists Association.

“Few faculty can match his passion for providing an excellent educational experience for our Doctor of Pharmacy students,” said an announcement to faculty from Steven Chen, PharmD, chair of the Titus Family Department of Clinical Pharmacy, and the William A. Heeres and Josephine A. Heeres Endowed Chair in Community Pharmacy. “He has always been a popular faculty member, leader and mentor. His enthusiasm and commitment to USC and the profession is without compare.”

Nancy Pire-Smerkanich of the USC International Center for Regulatory Science has been appointed assistant professor of Clinical Pharmacy.
FACULTY UPDATES

RECOGNITIONS

Richard H. Dang, PharmD, RPh: elected to California Pharmacists Association (CPhA) Academy of Pharmacy Educators Board of Directors; graduated from the CPhA Leader Development Institute; designated a board-certified ambulatory care pharmacist by the Board of Pharmacy Specialties.

Jason N. Doctor, PhD: States of Washington and Illinois departments of public health implemented the “Precious Drugs, Scary Bugs” campaign developed by Doctor and his team to reduce inappropriate antibiotic prescribing.

Julie Ann Dopheide, PharmD: national appointee to Board of Pharmacy Specialties specialty council for psychiatric pharmacy.

Tien M. H. Ng, PharmD: named a fellow of the Heart Failure Society of America — the first time the organization has bestowed the fellowship designation. Ng is one of only two PharmDs among the inaugural cohort of 34.

IN THE NEWS

Roger Clemens, DrPH: quoted in The New York Times regarding how the body processes sugar and high-fructose corn syrup; quoted in Food Safety Magazine regarding food additive research.

Julie Ann Dopheide, PharmD: quoted in Pharmacy Times regarding clinical presentations of insomnia and treatment approaches.

Dana P. Goldman, PhD, Leonard D. Schaeffer Director’s Chair: authored article in Harvard Business Review encouraging healthcare stakeholders to take the long view; authored column in Forbes about high-cost drugs under the scrutiny of policymakers.

Joel W. Hay, PhD: interviewed on BYU Radio regarding drug prices; quoted in the Los Angeles Times regarding the lack of availability of insulin drug Afrezza; quoted in the Los Angeles Times regarding how setting limits on prescription drug prices could backfire for consumers; featured in The New York Times regarding using behavioral science to reduce inappropriate antibiotic prescribing.

Geoffrey Joyce, PhD: interviewed by Al Jazeera America about pharmaceutical pricing; quoted by San Jose Mercury News regarding presidential candidates speaking out about drug prices; quoted by the Los Angeles Times about California leading the way on drug price controls; quoted by the Los Angeles Times and Kaiser Health News about the economic and health impacts of artificially curtailing drug prices.

Darius N. Lakdawalla, PhD, Quintiles Chair in Pharmaceutical Development and Regulatory Innovation: interviewed by the American Journal of Managed Care’s AJMC TV regarding the cost and value of breakthrough therapies; authored editorial in The New York Times pointing to evidence showing price controls on drugs end up costing patients their health; quoted by Fox News regarding pharmaceutical drug pricing.

Jean C. Shih, PhD, University Professor, Boyd & Elsie Welin Professor: featured in Apple Daily (Hong Kong).

Neeraj Sood, PhD: quoted by Fox News and U.S. News & World Report regarding finding that people with high-deductible health plans don’t shop for more affordable care any more than those with low-deductible plans.

GRANTS

Julio A. Camarero, PhD: Department of Defense Office of the Congressionally Directed Medical Research Programs, two-year, $559,566 Lung Cancer Research Program Idea Development—New Investigator Award for development of novel antagonists; Lupus Research Institute, three-year, $300,000 award for therapeutic selective targeting of BAFF receptors.

Daryl L. Davies, PhD: 2016-17 USC Undergraduate Research Program, $7,500 grant for preclinical development of moxidectin for treating alcohol use disorder.

Stan Louie, PharmD: Ming Hsieh Institute for Engineering Medicine for Cancer, $115,000; 2016-17 USC Undergraduate Research Program, $7,500 award for preclinical development of moxidectin for treating alcohol use disorder.

J. Andrew MacKay, PhD: USC/Whittier Nanobiotechnology Initiative, one-year, $100,000 grant for protein–polymer nanomedicine for ocular therapy.

Yong (Tiger) Zhang, PhD: USC URAP grant, $6,400 for profiling an interactome in cancer cells; USC Research Center for Liver Disease, $25,000 pilot/feasibility project award.
Lianna Asatryan, PhD: Society for Neuroscience 45th Annual Meeting; 2015 American Association of Pharmaceutical Scientists (AAPS) Annual Meeting and Exposition, regarding how moxidectin reduces ethanol intake in mice, and selected to be part of the first-ever AAPS live blog during the meeting.

Kathleen Hill Besinque, PharmD, MSEd: American Pharmacists Association (APhA) 2016 Annual Meeting and Exposition, regarding pre-admission predictors of academic success in doctorate of pharmacy programs, and pharmacists’ knowledge, attitudes, beliefs and practices about pharmacist-initiated hormonal contraceptive programs.

Richard H. Dang, PharmD, RPh: California Pharmacists Association (CPhA) Leadership Weekend; National Association of Chain Drug Stores (NACDS) Community Pharmacy-Based Point-of-Care Testing Certificate Program hosted by CPhA; APhA 2016 Annual Meeting and Exposition, regarding the impact of refill synchronization on diabetes and hypertension outcomes in liver transplant recipients.

Daryl L. Davies, PhD: Society for Neuroscience 45th Annual Meeting; California State University, Los Angeles, invited talk regarding translational research and drug discovery in academia; 2015 American Association of Pharmaceutical Scientists (AAPS) Annual Meeting and Exposition, regarding how moxidectin reduces ethanol intake in mice; Gordon Research Conference: Alcohol & Nervous System, regarding using novel compounds for alcohol use disorder and the role of certain receptors in regulating dopamine homeostasis.

Jason N. Doctor, PhD: Outpatient Antibiotic Stewardship Meeting at the Pew Charitable Trust.


Melissa J. Durham, PharmD: 2016 California Pharmacy Student Leadership conference, regarding leading others; APhA 2016 Annual Meeting and Exposition, regarding pre-admission predictors of academic success in doctorate of pharmacy programs and the impact of clinical pharmacy services on a multidisciplinary specialty pain clinic.

Cynthia Lem-Lee Lieu, PharmD: 13th Annual UC Davis Pre-Health Student Alliance Pre-Medical and Pre-Health Professions National Conference, regarding nutritional support pharmacy and different types of pharmacists, and participated in a pharmacy admissions panel.

Stan Louie, PharmD: Society for Neuroscience 45th Annual Meeting; 2015 AAPS Annual Meeting and Exposition, regarding how moxidectin reduces ethanol intake in mice.

Edith Mirzaian, PharmD: 2016 California Pharmacy Student Leadership conference, regarding leading others; APhA 2016 Annual Meeting and Exposition, regarding the impact of refill synchronization on clinical outcomes in liver transplant recipients, pre-admission predictors of academic success in doctorate of pharmacy programs, impact of a pharmacist-intervention program on star ratings and trends in patient resistance to interventions, reducing use of high-risk medications in the elderly, impact of clinical pharmacy services in a multidisciplinary specialty pain clinic, and pharmacists’ knowledge, attitudes, beliefs and practices about pharmacist-initiated hormonal contraceptive programs.

Tien M. H. Ng, PharmD: American Heart Association Scientific Sessions 2015, regarding heart failure in patients with chronic kidney disease.

Glen L. Stimmel, PharmD, interim dean, John Stauffer Decanal Chair: America’s Pharmacist’s continuing education program regarding counseling patients on medication for adult psychiatric disorders; USC School of Pharmacy QSAD Retreat, regarding sexual therapeutics; University of Wisconsin’s continuing pharmacy education program, regarding depression, anxiety disorders, fibromyalgia and counseling patients who take medication for psychiatric disorders.

Fred G. Weissman, PharmD, JD: California Academy of Attorneys for Healthcare Professionals Conference, regarding the evolution of physician/pharmacist relationships; University of the Pacific continuing education program, regarding actions against pharmacists by the California Board of Pharmacy.

Michael Z. Wincor, PharmD: Annual Meeting of the Asian Association of Schools of Pharmacy, regarding active learning in the large classroom setting; met with pharmacists at the National Taiwan University Hospital and visited Taipei Medical University, Kaohsiung Medical University, and Chia Nan University of Pharmacy and Science.

Yong (Tiger) Zhang, PhD: 13th Annual Discovery on Target-Antibodies Against Membrane Protein Targets, regarding rational design of humanized agonist antibodies.
A Progressive Degree Yields Progressive Results

John W. Carlson III ’14, MS ’16 (Regulatory Science), likes keeping busy. He simultaneously pursued two bachelor’s degrees at USC — in Biochemistry and East Asian Languages and Cultures — and enrolled in USC’s progressive degree program, which enabled him to begin work on a master’s degree in Regulatory Science even as he completed his undergraduate studies.

“The progressive degree is a powerful option for students like John who are ambitious and want to move very quickly into a targeted career in industry,” says Frances Richmond, director of the USC International Center for Regulatory Science.

The son of a pharmacist and nurse, Carlson grew up in Michigan, where his interest in Asia was piqued by his town’s international friendship program with Yahaba, Japan. As an undergrad, he served as president of the USC Pre-Pharmacy Society and vice president of the Japanese Student Association. While working on the Regulatory Science degree, he participated in a yearlong exchange program with Waseda University in Tokyo.

The Regulatory Science program is designed to develop regulatory science leaders in industry, government and academia. “When I took that first class, I thought, ‘This is exactly what I want,’” Carlson says.

During his exchange program, he focused on economy and law as well as studying the Japanese language. He also served an internship in global government affairs and policy with EMD Serono, a global policy advocacy firm. The firm’s affiliate, Merck Serono, hired him as a Tokyo-based policy analyst once he completed his master’s.

“We’ve been very impressed with the quality of his work, his dedication and his interest in government affairs and policy, which is distinct from a traditional regulatory track,” says Carlson’s supervisor, Kent Jancarik, MS ’03 (Regulatory Science), senior director of Global Public Policy at Merck Serono.

“It can be hard to enter the industry without any pharmacy or regulatory science experience,” Carlson says. “I definitely think the master’s program gives you that foot in the door.”

New Options for Undergraduates

In the 2016–17 academic year, the USC School of Pharmacy will offer new undergraduate courses on the University Park Campus that can be taken individually or built into a Science and Management of Biomedical Therapeutics minor.

The new courses are designed for USC undergraduates interested in careers in health-related fields including pharmacy and medicine as well as life sciences, nutrition and food sciences, diagnostics and medical devices.

Undergraduates in pre-healthcare programs such as medicine, pharmacy and dentistry will be able to take new courses in pharmacology, pharmaceutical sciences and toxicology, with a focus on legal and illicit drug use and abuse. Those interested in the many careers in industry or government can take courses that combine science, law, finance and business as it relates to regulation of biomedical products. Offerings include courses that will introduce students to drug and device development and feature topics and case studies related to the regulatory challenges associated with these processes.

USC Garners CPhA Prizes

USC School of Pharmacy students won two competitions at the California Pharmacists Association West Coast Pharmacy Exchange in San Francisco, April 29–May 1. Competing against teams from 11 other schools of pharmacy throughout California, members of the USC chapter of the Academy of Student Pharmacists won the Student Pharmacist Quiz Bowl (represented by students Maya Ballis, Emily Chang, Denny Woo, Brian Phan and Lyndsie Okumura) and the Pharmacy Patient Pain Counseling Competition (represented by Ballis and Chang).
Students Excel at Clinical Skills Competition

Fourth-year PharmD students Austin Wang and Joanne Lin earned third-place honors at the national Clinical Skills Competition at the American Society of Health-System Pharmacists meeting in New Orleans in December. Some 128 teams representing pharmacy schools across the country participated in the national competition.

The Clinical Skills Competition focuses on an interactive, team-based analysis of clinical scenarios for hospital and health-system pharmacists. It provides students with the opportunity to enhance their skills in providing direct patient care in collaborative practice with physicians.

Poetry Inspired by Pharmacy

Valentine’s Day was extra sweet for PharmD student Ruth Madievsky, as it marked the release of her debut book of poetry, Emergency Brake, published by Tavern Books. Madievsky, who expects to graduate in 2017, has previously published poetry and fiction in a number of literary journals and was a 2015 Tin House Scholar in Poetry.

How do you juggle writing with your USC School of Pharmacy studies and your work at a downtown HIV clinic specializing in maternal care?

I get most of my writing done in the evenings, during lunch breaks, on weekends and occasionally before class (which is why 10 a.m. classes are my favorite). The busier I am with school and work, the greater my urge to write as soon as I can make the time.

Has your writing evolved as a result of your pharmacy training?

I’m hugely inspired by what I’m learning in pharmacy school and the patients I work with. I used to refer to some of my poems as “pharmacy poems” — a distinction that’s become obsolete since nearly every poem I write takes something from my pharmacy life. Every poet has their own lexicon. Mine is full of the language of the body, of drugs and therapeutics, and what they can and can’t do for us.

Who are your poetry mentors?

When I was first starting out in poetry, I would read a book and hope that, one day, that poet would do a reading in Los Angeles so that I could hear them live. Eventually, I learned that I could actually study with some of these poets. Natalie Diaz, Matthew Dickman, David St. John, Cecilia Woloch and Matthew Zapruder are some of the poets whose mentorship I am grateful for. All of them were instrumental in welcoming Emergency Brake into the world.

What are your ambitions in pharmacy and in literature?

After graduation, I hope to complete a pharmacy residency program. Right now, I am interested in HIV and other infectious diseases, psychiatry and pediatrics. I hope to work very closely with patients.

As for my literary goals, I am currently working on a short story collection, and hope to find an agent and sell the book. I would love to eventually be invited to lead a writing workshop at one of the wonderful writing conferences around the country.

What advice would you give fellow pharmacy students who have artistic ambitions?

I would encourage any student artists among us to keep their art alive while they’re in graduate school. Pursuing pharmacy and poetry simultaneously has made me both a better clinician and a better writer. Art and science do not have to be competitive forces!
Pharmacy Students Bring Home APhA Honors

The USC chapter of the American Pharmacist Association (APhA)–Academy of Student Pharmacists (ASP) returned from the APhA 2016 Annual Meeting & Exhibition in Baltimore with several regional awards for patient care projects.

The USC student-led community health projects Operation Diabetes, Operation Heart and Operation Immunization received Region 8 awards, recognizing the accomplishments of these highly successful programs that provide screening, education and other services throughout the community.

“Our students are incredibly dedicated to serving patients in the community,” says Richard H. Dang, assistant professor of Clinical Pharmacy and site coordinator for the USC Community Pharmacy Residency Program. “They are reaching hundreds of underserved local residents through these programs. I am thrilled that they received recognition for their efforts at this prestigious national meeting.”

Maya Ballis — current president of the USC APhA chapter and the USC California Pharmacists Association chapter, and winner of the USC Local Patient Counseling Competition — represented the School at the APhA–ASP National Patient Counseling Competition during the meeting.

School Hosts National Compounding Competition

The USC School of Pharmacy hosted the Sixth Annual National Student Pharmacist Compounding Competition, welcoming more than 120 participants from across the country for two days of tournaments in March. The conference, held for the first time at USC, also featured a trivia game, poster presentations and workshops offering students new skills as well as networking opportunities.

“Compounding is personalized medicine,” said third-year PharmD student Sai Upadhyayula, president of the USC student chapter of the National Community Pharmacy Association, who helped bring the event to campus. “You’re creating a novel dosage form, and you’re working with the clinical triad — the patient, the prescriber and the pharmacist — to create something that doesn’t exist commercially.”

The compounding-pharmaceuticals company MEDISCA was a major sponsor of the event. MEDISCA has been a philanthropic partner of the School since 2012, thanks to an introduction by compounding pharmacist Sam Sheldon, PharmD ’62. The company has donated more than $400,000 worth of equipment to the School’s state-of-the-art compounding lab and $100,000 in scholarships to students interested in exploring a career in compounding.

“We thank MEDISCA for their support in educating USC School of Pharmacy students to be 21st century leaders who bring unique skills to the field of pharmacy,” said Interim Dean Glen L. Stimmel.

Kids’ Day

USC School of Pharmacy students welcomed Los Angeles Unified School District middle school students to the Health Sciences Campus in April for the 19th annual Kids’ Day, a superhero-themed event designed to inspire students to pursue healthy lifestyles and careers in healthcare.

After participating in workshop rotations, attendees enjoyed lunch on Pappas Quad and watched a dance performance by School of Pharmacy students. The student-run honorary service organization Skull and Mortar has hosted Kids’ Day every year since 1998.
Students Honored at Awards Gala

Thirty-seven student awards were presented at the School of Pharmacy’s annual Alumni/Senior Awards Gala, held May 7 at Town & Gown.

Among them, the Merck Academic Excellence Award was given to three students with the highest grade point averages: Seh Jin Rhee, Christine Lee and Joyce Lau. Class President Kimberly Moore spoke on behalf of the Class of 2016.

Festival of Books

Sandy On, Lyndsie Okumura, Brian Phan, Maya Ballis, Alen Hakimi and Devin Panlasigui were among 80 student pharmacists who provided diabetes, hypertension and body fat analysis screenings to more than 500 Angelenos at the 21st annual Los Angeles Times Festival of Books on April 9. The event was the School’s largest health fair of the 2015–16 academic year.

Students Earn Top Awards at ISPOR

Graduate students from USC’s program in Health Economics have won one or more of the six student presentation awards at the annual meeting of the International Society for Pharmacoeconomics and Outcomes Research (ISPOR) in nine of the last 10 years.

This year, Yifan Xu, who is pursuing a PhD in Health Economics, won the Best Student Podium Award for her presentation on comparative effectiveness of two treatments for patients with metastatic colorectal cancer. Nikhil Bhagvandas, a master’s student in Pharmaceutical Economics and Policy, won the Best Student Poster Award for his work on the cost-effectiveness of therapies used to treat bipolar disorder depression.

Professor Joel Hay co-authored both presentations.
Groovy Lab Work

Do you recognize any of these three folks in a 1960s-era laboratory at the School? Write to us at pharmcom@usc.edu.

Mike Washington, PharmD ’72, identified classmate Paul Polk, PharmD ’72 (left), while both William Lee ’71 and Jana Cohen ’73 identified Ed Lau ’73 (right). The two men flanked faculty member Jack Schlegel in our Fall 2015 PhotoShop entry.
This year, more than 130 USC pharmacy students benefited from scholarships funded by donors.

Help the USC School of Pharmacy continue to attract and retain the very best and brightest students by making a gift to support student scholarships today. To learn how to structure a gift customized to your financial planning needs, contact Karen Thomas at 323-442-2483 or karentho@usc.edu.

“I made an investment in myself to attend the No. 9 pharmacy school in the nation. Cardinal Health has made an investment in me, which I will use to help start pharmacy-driven healthcare clinics in underserved communities.”

Christopher Hajou, PharmD/MS ’17 (Healthcare Decision Analysis), addressing donors at the 2016 Scholarship Luncheon

pharmacyschool.usc.edu/giving/making-a-gift

Above: Daniel Rim, director of Sales at Cardinal Health, with Christopher Hajou and his family at the 2016 Scholarship Luncheon on April 25, 2016
save the date...

**AUGUST 15–19**
School of Pharmacy Orientation Week
USC Health Sciences Campus
Information: 323-442-1383 or khorgan@usc.edu

**AUGUST 22**
First day of classes, 2016-17 academic year

**NOVEMBER 4–5**
USC Homecoming/Reunion Weekend
USC University Park Campus
Information: 323-442-1738 or stanovic@usc.edu

**FEBRUARY 1–8, 2017**
Hawaii Winter Conference
Sheraton Maui Resort and Spa Maui, Hawaii
Information: 323-442-2400 or pharmce@usc.edu

Ena Abasi Inyang, PharmD ’16 (right)