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Dear Colleagues:

While I am uncertain to whom this can be attributed, “May we live in interesting times” is certainly a fitting quote for 2016. As I reflect on the year, its politics, its busy-ness, and the work of our Academy, perhaps “interesting” sums it up!

That said, I have often called myself a “pathological optimist.” Certainly positivity is among my top five strengths according to the StrengthsFinder® assessment, and my preference is to see the opportunities rather than dwell on more negative aspects of a situation. In 2016 our delegates approved a new strategic plan and our leaders, members and staff are working collaboratively to move its priorities forward as aggressively as possible. At its November meeting, the AACP Board of Directors affirmed a set of Entrustable Professional Activities for pharmacy graduates and adopted a statement on diversity and inclusion as part of our vision, mission and values statements.

The U.S. Senate and House of Representatives delivered the 21st Century Cures Act to the desk of President Obama for one of his last signatures on any legislation from the 114th Congress. This unusual show of bipartisan support for key research priorities is a sign of hope for the country and for our research scientists who in many cases are leading the way in finding answers to the challenges that are targets for progress in the legislation—cancer, the opioid epidemic, precision medicine and brain science. While AACP and our colleagues with whom we advocate for adequate support for biomedical research, broadly defined, can’t rest on the belief that our work is done, this legislation fortifies the nation’s commitment to the country’s leadership in discovery and innovation.

*Academic Pharmacy Now* is one of AACP’s windows into that world as each issue identifies programs of research and service undertaken by our faculty and our students that address unmet needs in our communities, our nation and the world. As you approach the end of 2016, I hope you will have at least a few quiet moments for reflection on your own accomplishments for the year. Thank you for your commitments to quality education, service to patients and society, and for innovation in its many forms.

Happiest holidays and best wishes for a healthy and productive new year!

Sincerely,

Lucinda L. Maine, Ph.D., R.Ph.

CEO and Publisher
New Web site Connects Mental Health Patients and Pharmacists

By Kristen Cole

Identifying pharmacies that provide mental health services is important for patient treatment and now there is a way to do that online.

The College of Psychiatric and Neurologic Pharmacists (CPNP) Foundation recently launched a Web site with a searchable directory of more than 850 mental health pharmacies across the country.

“Individuals with mental health conditions should expect to engage a community pharmacist when needed in order to best understand their medications and how to get the greatest benefit from them,” said University of Connecticut School of Pharmacy Clinical Professor Dr. Charles Caley, who led the project as the CPNP Foundation’s president.

Patients can search the Mental Health Pharmacy Directory to find a participating pharmacy in their area and see a list of services that the pharmacy provides.

The CPNP Foundation defines a mental health pharmacy as one that meets a number of criteria, including providing on-site assistance and education about psychiatric medications; communicating with mental healthcare providers to resolve medication-related problems; dispensing special mental health medications such as clozapine or long-acting injectable antipsychotics; and motivating adherence by providing patients with individualized medication reminder packages, devices or delivery schedules.

An estimated 1 in 5 adults in the United States will experience mental illness during the course of a year, according to the National Alliance for the Mentally Ill. Nearly half of all adults in the U.S. will develop at least one mental illness during their lifetime, according to the Centers for Disease Control and Prevention.

The mental health pharmacy Web site was developed in response to a national survey of individuals with mental illness who were asked about their experiences with pharmacists.

Approximately 75 percent of those surveyed reported that they seldom or never received assistance from their pharmacist in monitoring the effectiveness or safety of their medication. The greatest concern raised by 58 percent of the respondents was the lack of private space in the pharmacy for an individual to discuss a medication issue with the pharmacist.

“The realities of high prescription volumes and busy, non-private environments makes it difficult for many individuals to access the knowledge, skill and support of pharmacists,” said Caley. “Active support can lead to better treatment outcomes.”

The CPNP Foundation focuses on the needs of individuals living with psychiatric and neurologic disorders, their families, and health professionals in general practice to further evidence-based treatment.

Kristen Cole is Director of News & Editorial Communications at the University of Connecticut.
New Research Center Aims Big With Personalized Treatment

A new nanomedical research center at Midwestern University/Glendale takes a team approach to making a big impact on cancer treatments for humans and animals.

Earlier this year, Midwestern University approved the establishment of a new Nanomedicine Center of Excellence in Translational Cancer Research (Nanomedicine COE-TCR) by the College of Pharmacy-Glendale (CPG). Such a move will help solidify interdisciplinary teams of faculty that have begun productive collaborations, allow MWU to be more competitive for research and training programs, and assist in forming partnerships with industry.

“Our vision is to build a growing institutional research investment on the broad and extensive experience of our multidisciplinary MWU-CPG team of well-established investigators in nanoscience and nanomaterials,” said Dr. Mitchell Emerson, dean of the College of Pharmacy-Glendale. The center will advance the knowledge and application of the next generation of personalized and targeted cancer medicines in alignment with the university’s global One Health Initiative, with the resultant research benefitting human and animal patients.

While nanomedicine in general refers to the medical application of nanomaterials and biological devices, our Nanomedicine COE-TCR focuses on the development and evaluation of novel nanomaterials for biomedical research and applications, as well as creating advanced therapies and drug delivery systems which can specifically treat only diseased tissues and/or organs, even at the cellular and subcellular level,” said Dr. Tamer Elbayoumi, associate professor of pharmaceutical sciences, who serves as executive co-director of the center alongside Dr. Volkmar Weissig, professor and chair of pharmaceutical sciences, who serves as co-director for strategic support.

A Competitive Edge

Elbayoumi sees the multidisciplinary aspect of this endeavor as part of the role of a pharmacy school and as key members of the healthcare team. Administrators of the center have already established multiple productive collaborations with MWU faculty representing the College of Health Sciences (CHS), the Division of Basic Science, The Arizona College of Osteopathic Medicine (AZCOM), the College of Dental Medicine-Arizona (CDMA), and the College of Veterinary Medicine (CVM), all based on the university’s Glendale Campus, in addition to the Chicago College of Pharmacy (CCP), at the Illinois campus.

Translational in nature, the center will bring therapies into fruition, from the bench to the bedside, by partnering research faculty with clinical faculty affiliated with MWU who have outside clinical practices. Thanks to a newly established collaboration with multiple clinical practitioners, and practice sites all over the greater Phoenix area, the center has initiated pre-clinical-translational skin cancer research projects, following the partnership with Affiliated Dermatology and Affiliated Laboratories Bio Repository.

“We are testing our compounds and prototypes on commercial or non-clinical samples, as well as screening sample patients’ profiles and collecting samples from melanoma and basal cell carcinoma from the patients through Affiliated Dermatology,” Elbayoumi said. “We have established a tissue bank, Affiliated Laboratories Bio Repository (ALBR), for collected samples, solid tumors and circulating cells, along with complete patient profiles. We are trying to screen those to identify the ones that are the best candidates to be treated with our targeted therapy.” The center has also established a tissue bank for animal specimens, through the veterinary medical school, to research treatments for canine cancer.

Weissig adds that the multifaceted research collaborations fostered within the center will allow MWU to be more competitive with regard to research and training programs, more competitive when applying for grants, and assist in the establishment of partnerships with regional pharmaceutical industry players. Student pharmacists at the College of Pharmacy will also play a key role.
“The center is open to all pharmacy students and we also offer an elective focused on nanomedicine. The content for that course comes directly from the work of our center.”
— Dr. Volkmar Weissig

“We are relying heavily on student involvement,” Weissig said. “The center is open to all pharmacy students and we also offer an elective focused on nanomedicine. The content for that course comes directly from the work of our center.”

Additionally, the center is creating a comprehensive pre-clinical research training program for Midwestern students, and provides a base for MWU-AZ pre-clinical research residency track program for AZCOM/CDMA/CVM students, as well as a nanomedicine-focused research for M.S. students in the Biomedical Science program.

Thinking down the road to future collaborations with other universities, Weissig noted, “Each investigator who is a member of this center already has ongoing collaborative work with other institutions. We are really reaching out big time.”

Members of the new Midwestern University Nanomedicine Center of Excellence in Translational Cancer Research, from left to right: Tamer Elbayoumi, Ph.D., professor, CPG and co-director, Nano COE-TCR; Diana Guzman-Villanueva, Ph.D., postdoctoral research associate, CPG; Mingyi Yao, Ph.D., assistant professor, CPG; John Mitchell, Ph.D., professor, College of Dental Medicine–Arizona; Nagaraj Vinay Janthakahalli, Ph.D., assistant professor, biochemistry; Mitchell Emerson, Ph.D., dean, CPG; Volkmar Weissig, Ph.D., chair, pharmaceutical sciences, CPG and co-director, Nano COE-TCR. Photo Credit: Midwestern University.

Web Exclusives
Visit the Nanomedicine Center of Excellence in Translational Cancer Research Web site to read about current research projects, center personnel and more: http://bit.ly/2gMitAb
A Molecular Calling Card

Your diet, medications and beauty products leave molecular traces on the objects you touch, providing an unbiased, data-driven profiling method for crime scene investigations and other potential applications.

By Heather Buschman

We leave behind trace chemicals, molecules and microbes on every object we touch. By sampling the molecules on cell phones, researchers at University of California, San Diego School of Medicine and Skaggs School of Pharmacy and Pharmaceutical Sciences were able to construct lifestyle sketches for each phone’s owner, including diet, preferred hygiene products, health status and locations visited. This proof-of-concept study, published in November by Proceedings of the National Academy of Sciences, could have a number of applications, including criminal profiling, airport screening, medication adherence monitoring, clinical trial participant stratification and environmental exposure studies.

“You can imagine a scenario where a crime scene investigator comes across a personal object—like a phone, pen or key—without fingerprints or DNA, or with prints or DNA not found in the database. They would have nothing to go on to determine who that belongs to,” said senior author Dr. Pieter Dorrestein, professor in UC San Diego School of Medicine and Skaggs School of Pharmacy and Pharmaceutical Sciences. “So we thought—what if we take advantage of left-behind skin chemistry to tell us what kind of lifestyle this person has?”

Lifestyle Likes and Dislikes

In a 2015 study, Dorrestein’s team constructed 3D models to illustrate the molecules and microbes found at hundreds of locations on the bodies of two healthy adult volunteers. Despite a three-day moratorium on personal hygiene products before the samples were collected, the researchers were surprised to find that the most abundant molecular features in the skin swabs still came from hygiene and beauty products, such as sunscreen.

“All of these chemical traces on our bodies can transfer to objects,” Dorrestein said. “So we realized we could probably come up with a profile of a person’s lifestyle based on chemistries we can detect on objects they frequently use.”

Thirty-nine healthy adult volunteers participated in Dorrestein’s latest study. The team swabbed four spots on each person’s cell phone—an object we tend to spend a lot of time touching—and eight spots on each person’s right hand, for a total of nearly 500 samples. Then they used a technique called mass spectrometry to detect molecules from the samples. They identified as many molecules as possible by comparing them to reference structures in the GNPS database, a crowdsourced mass spectrometry knowledge repository and annotation Web site developed by Dorrestein and co-author Dr. Nuno Bandeira, associate professor at the Jacobs School of Engineering and Skaggs School of Pharmacy and Pharmaceutical Sciences at UC San Diego.

With this information, the researchers developed a personalized lifestyle “read-out” from each phone. Some of the medications they detected on phones included anti-inflammatory and anti-fungal skin creams, hair loss treatments, anti-depressants and eye drops. Food molecules included citrus, caffeine, herbs and spices. Sunscreen ingredients and DEET mosquito repellent were detected on phones even months after they had last been used by the phone owners, suggesting these objects can provide long-term composite lifestyle sketches.

“By analyzing the molecules they’ve left behind on their phones, we could tell if a person is likely female, uses high-end cosmetics, dyes her hair, drinks coffee, prefers beer over wine, likes spicy food, is being treated for depression, wears sunscreen and bug spray—and therefore likely spends a lot of time outdoors—all kinds of things,” said first author Dr. Amina Bouslimani, an assistant project scientist in Dorrestein’s lab. “This is the kind of information that could help an investigator narrow down the search for an object’s owner.”

Monitoring Medication Adherence

There are limitations, Dorrestein said. First of all, these molecular read-outs provide a general profile of person’s lifestyle, but they are not meant to be a one-to-one match,
like a fingerprint. To develop more precise profiles and for this method to be more useful, he said more molecules are needed in the reference database, particularly for the most common foods people eat, clothing materials, carpets, wall paints and anything else people come into contact with. He’d like to see a trace molecule database on the scale of the fingerprint database, but it’s a large-scale effort that no single lab will be able to do alone.

Moving forward, Dorrestein and Bouslimani have already begun extending their study with an additional 80 people and samples from other personal objects, such as wallets and keys. They also hope to soon begin gathering another layer of information from each sample—identities of the many bacteria and other microbes that cover our skin and objects. In a 2010 study, their collaborator and co-author, Dr. Rob Knight, professor in the UC San Diego School of Medicine and Jacobs School of Engineering and director of the Center for Microbiome Innovation at UC San Diego, contributed to a study in which his team found they could usually match a computer keyboard to its owner just based on the unique populations of microbes the person left on it. At that time, they could make the match with a fair amount of accuracy, though not yet precisely enough for use in an investigation.

Beyond forensics, Dorrestein and Bouslimani imagine trace molecular read-outs could also be used in medical and environmental studies. For example, perhaps one day physicians could assess how well a patient is sticking with a medication regimen by monitoring metabolites on his or her skin. Similarly, patients participating in a clinical trial could be divided into subgroups based on how they metabolize the medication under investigation, as revealed by skin metabolites—then the medication could be given only to those patients who can metabolize it appropriately. Skin molecule read-outs might also provide useful information about a person’s exposure to environmental pollutants and chemical hazards, such as in a high-risk workplace or a community living near a potential pollution source.

Study co-authors also include: Alexey V. Melnik, Zhenjiang Zech Xu, Amnon Amir, Ricardo R. da Silva, Mingxun Wang, UC San Diego; and Theodore Alexandrov, UC San Diego, European Molecular Biology Laboratory and SCiLS GmbH.

This research was funded, in part, by the National Institute of Justice, National Institutes of Health, European Union’s Horizon 2020 Programme and São Paulo Research Foundation.

Heather Buschman, Ph.D., is senior manager of communications and media relations at the University of California, San Diego Health. Reprinted with permission.

Web Exclusives
Read more about the 2015 study using 3D human skin maps at http://bit.ly/1EWdXAd.
community impact
Taking Action to Fight Addiction

Pharmacists are on the frontlines of a national opioid crisis, using groundbreaking research, innovative education methods and community outreach to fight back.

By Jane E. Rooney and Kirsten F. Block
A dramatic spike in the use of prescription painkillers over the past 20 years precipitated an opioid abuse epidemic that has become a national public health emergency. The statistics are grim: More people died from drug overdoses in 2014 than in any year on record, and more than six out of ten of those deaths involved an opioid, according to the U.S. Department of Health and Human Services. Since 1999, the rate of overdose deaths involving opioids nearly quadrupled. A Substance Abuse and Mental Health Services Administration (SAMHSA) survey indicates that of the 21.5 million Americans 12 or older that had a substance use disorder in 2014, 1.9 million of those involved prescription pain relievers. Heroin overdoses are also surging in the United States. President Obama signed the 21st Century Cures Act on December 13, 2016, which includes providing states with grants worth $1 billion over the next two years for drug abuse prevention and treatment programs.

Addressing this unprecedented epidemic does not fall to one type of health practitioner alone. An interprofessional team approach is required to tackle the various components, from prevention to addiction to overdose to treatment. Pharmacists and pharmacy educators are playing key roles in fighting the opioid epidemic. Pharmacy schools are working on several fronts, in general, to reduce prescription drug abuse and help patients battling opioid addiction, specifically. One primary area of research focuses on avenues that will reduce the potential for opioid abuse. Efforts are underway at some pharmacy schools to prepare future healthcare providers to identify substance abuse behaviors and to intervene with appropriate interventions. Educational outreach efforts in communities include helping those who struggle with addiction and educating younger audiences about the dangers of prescription drug misuse.

This article explores the actions that several pharmacy schools are taking in the areas of research, teaching and service to put a stop to prescription drug abuse and help abate the escalating opioid crisis.

**Pharmacy Research Tackles the Opioid Epidemic from Many Angles**

Whether acute or chronic, pain is something that affects nearly everyone. However, treatment of pain with opioids has created additional burdens to patients and the healthcare industry. Research at colleges and schools of pharmacy is addressing the epidemic head-on to understand the crisis and explore new ways to remedy it.

A necessary step in solving the opioid abuse epidemic is to fully understand its scope. At the Virginia Commonwealth University School of Pharmacy, graduate students Batul Electricwala and Anisha M. Patel have explored the issue of just how widespread and costly opioid overdoses are. Both students are advised by Dr. Norman V. Carroll, a professor in the Department of Pharmacotherapy & Outcomes Science.

Electricwala’s research examined opioid overdoses in those who have a prescription opioid (users) and those who don’t—including family members of users and other people who have no immediately identifiable source of opioids. From 2011 to 2014, opioid overdoses in all groups increased, and
“If this practice [a pharmacist’s dispensing of naloxone without a prescription] becomes widespread, it has the potential to drastically reduce the rate of opioid-related deaths.”

— Dr. Norman V. Carroll

those increases came with substantial direct medical costs in the year following a poisoning. “Most of the research on opioid-poisoning costs examines the emergency department and inpatient costs associated with the initial poisoning event. Some number of patients suffer long-lasting effects of the poisoning, and the cost of these effects has not been examined prior to Ms. Electricwala’s work,” explained Carroll.

Meanwhile, Patel focused her research on pediatric opioid exposures. Over a five-year study period, Patel observed different causes of exposure depending on age. Exposures in young children were mostly accidental, while adolescent exposures tended to be intentional and severe. Given this finding, future prevention efforts should be tailored to each audience. Regardless of the cause, pediatric opioid exposures produced a heavy economic burden. More than 90 percent of the total economic costs associated with pediatric opioid poisonings examined in Patel’s study could be attributed to productivity costs, nearly all of which were due to opioid poisoning-related mortality.

Together, these studies support increased efforts to prevent and treat opioid poisonings, such as state laws allowing pharmacists to dispense naloxone, an FDA-approved drug that reverses the effects of opioid overdoses, without a prescription. The ability of naloxone to counteract an opioid depends on its timely administration, meaning a pharmacist’s dispensing of naloxone without a prescription could be the first line of defense against opioid-related mortality. “If this practice becomes widespread, it has the potential to drastically reduce the rate of opioid-related deaths,” Carroll noted.

One solution to accidental opioid poisonings is to better identify which patients would benefit more from alternative treatments. A team of researchers at the Touro College of Pharmacy–New York recently presented a comprehensive review of the scientific literature on pain management with opioids that found that people with a certain gene mutation do not respond as well to opioid pain medications and may need to be managed differently to get relief.

Though there are standard dosages for opioids, studies have shown that patients react differently to them. “Some people don’t seem to respond as well, and doses need to be raised in order to have adequate pain control, but that increases the risks of side effects, including addiction,” said Dr. Priyank Kumar, an assistant professor and head of laboratory research.

The researchers looked at about 60 studies over a 10-year period to examine a known gene variation, called a single nucleotide polymorphism or SNP, found on an opioid receptor. The studies showed that people with a difference of one nucleotide—they had an A118G, rather than the standard A118A—had a decreased sensitivity to opioids and were also more susceptible to side effects including addiction.

Kumar and his team are advocating for genetic testing for this polymorphism in patients before patients with chronic or serious pain are prescribed opioids. “It will help us in designing a better pain management regime for the patients with A118G polymorphism,” he said. “Genetic testing may explain and predict many of the clinical responses seen with opioid medications, and may help the clinician identify those patients at genetic risk of opioid misuse and addiction.”

For those who are susceptible to opioid addiction, research to develop new pain medications may be the answer. A team at the University of Maryland School of Pharmacy led by Dr. An-
“UMB 425 is a breakthrough in the development of therapeutics to treat chronic pain,” said Andrew Coop, Ph.D., professor in the Department of Pharmaceutical Sciences and associate dean for academic affairs. “Unlike other drugs developed to act on only one biological target, UMB 425 acts on two different opioid receptors in the body.”

“UMB 425 is a breakthrough in the development of therapeutics to treat chronic pain,” said Andrew Coop, professor in the Department of Pharmaceutical Sciences and associate dean for academic affairs, has developed one such drug that shows great potential to advance treatment and improve quality of life for individuals living with chronic pain. The compound, known as UMB 425, is as strong as morphine, but early studies indicate that not only does the drug exhibit diminished tolerance with no obvious toxic effects, but patients are also less likely to become addicted to it.

“UMB 425 is a breakthrough in the development of therapeutics to treat chronic pain,” said Coop. “Unlike other drugs developed to act on only one biological target, UMB 425 acts on two different opioid receptors in the body. When activated at the same time, these receptors work together to provide pain relief and slow the body’s development of tolerance to the drug. This diminished tolerance allows a lower dose of the opioid to be administered for a longer time period, while still achieving the same level of pain relief.”

“Historically, medicinal chemists have developed drugs aimed at only one biological target,” he continued. “However, two drugs administered together have the potential to metabolize differently in different individuals, as well as

Additional Resources for Healthcare Professionals

Centers for Disease Control and Prevention (CDC)  
http://www.cdc.gov/drugoverdose/index.html

Substance Abuse and Mental Health Services Administration (SAMHSA)  
https://recoverymonth.gov/

Medication Assisted Treatment  
http://www.samhsa.gov/medication-assisted-treatment

Screening, Brief Intervention, Referral and Treatment (SBIRT)  
http://www.samhsa.gov/sbirt

Surgeon General, Turn the Tide Rx  
http://turnthetiderx.org/
A single compound that is able to provide both pain relief and diminished tolerance has the advantage of a defined ratio that we can optimize to ensure patients receive the maximum pain relief, while experiencing minimum adverse effects and decreasing the likelihood that they will become addicted to the drug.”

Coop and his team conducted several in vitro and in vivo studies to determine the drug’s effectiveness in alleviating pain and diminishing tolerance over time. If future research and clinical trials are successful, UMB 425 could have a significant impact on the treatment and quality of life for individuals living with chronic pain.

Schools Provide Students with the Educational Foundation to Make a Difference

Many pharmacy schools are working to prepare their students to help patients with addictions and dependencies. In September 2015, Shenandoah University’s Bernard J. Dunn School of Pharmacy received a three-year grant for close to $1 million from SAMHSA that allows students from

Getting Our Nation’s Leaders to Listen

By Jeffrey O. Ekoma

The opioid epidemic continues to impact the lives of many people living in the United States. As the toll of people affected by opioid abuse and misuse continues to rise, so does the response from the health and education community. The Surgeon General of the United States, Dr. Vivek Murthy, in the report Facing Addiction in America: The Surgeon General’s Report on Alcohol, Drug, and Health, heightens the public’s awareness of the opioid epidemic, as well as other substance abuse issues. Murthy’s message stresses the importance of an evidence-based approach to addressing this public health threat. President Barack Obama, during his administration, expressed his desire, as outlined in his last budget request to Congress, for more funding to programs and initiatives that address solutions to battling opioid abuse.

In early 2016, the Federation of Associations of Schools of the Health Professions (FASHP), of which AACP is a member, began discussions about how health professions associations could collaborate with the Office of National Drug Control Policy (ONDCP) to support ongoing efforts to combat the opioid epidemic. This led to AACP meeting with ONDCP staff in April 2016 to discuss how schools and colleges of pharmacy could contribute to the administration’s efforts, and to share with ONDCP staff how our members influence policy decisions at AACP. Ultimately, ONDCP requested that AACP reach out to all member schools to gauge their interest in committing to educate students about life-saving opioid intervention, as well as how to counsel patients and others on safe and appropriate naloxone use. The response to ONDCP’s request was overwhelming, with more than 90 schools and colleges of pharmacy expressing their commitment.

AACP staff continue to remain engaged with ONDCP by regularly attending stakeholder meetings and face-to-face meetings with ONDCP staff. In addition, AACP recently joined the Collaborative for Effective Prescription Opioid Policies (CEPOP), which seeks to unite stakeholders behind a comprehensive and balanced policy approach to reduce prescription opioid abuse and promote effective treatment options for those affected by the opioid epidemic. AACP was a strong supporter of the Comprehensive Addiction and Recovery Act (CARA), which aims to address the opioid epidemic through programs for treatment, prevention, recovery, overdose reversal, veterans and criminal justice reform. In addition, AACP advocated for the passage of the 21st Century Cures Act (HR34) which authorizes $1 billion in funding to states for opioid abuse reduction over two years.

As the new administration arrives to Washington and President-elect Donald Trump begins to set his legislative agenda, AACP remains committed to advocating for funding aimed at assisting federal public health agencies in their ability to provide aid to states and local communities affected by the opioid epidemic. Additionally, AACP will continue to promote and disseminate the knowledge of our members to stakeholders and policy makers. As we work to raise the profile of pharmacy and pharmacy education, it is imperative that we “suit up” and continue to fight for the millions of Americans who have been negatively affected by opioids. We can do this together.

Jeffrey O. Ekoma is Policy and Professional Affairs Manager at AACP.
all graduate-level health professions to learn to apply Screening, Brief Intervention and Referral for Treatment (SBIRT) principles. According to Dr. Penny Shelton, former associate dean for academic affairs at Shenandoah who coordinates the SAMHSA grant for the School of Pharmacy, the money will be used to do three things. In addition to providing SBIRT training to pharmacy students, physician assistant students, occupational therapy students and some nurse practitioner students, the school will develop an interprofessional clinical experience in which students use SBIRT training as part of the care that would be provided to patients in clinical rotation. Shelton said students are assigned in teams of two (usually a student pharmacist is placed with a student in another specialty) to go on rotation together.

“They are providing care emphasizing skills they have learned while in school, but we weave in an ability to model and facilitate the SBIRT training they learned,” she explained. The third component is community outreach within the university’s health district. “We are targeting other health professionals in practice to teach them SBIRT, as well as educating preceptors on these principles. It’s hard for our students to practice the skill set if the preceptors don’t know it.”

Students complete two hours of online training prior to a two-hour interprofessional workshop in which they learn how to apply SBIRT principles. Shelton said the pharmacy school also partnered with the university’s theater department to create standardized patients that exhibit substance abuse disorders. “Theater students act out the role of the patient,” she said. “It gives our students a real-life application of the SBIRT skill set.” Third-year student pharmacists have completed one round of training, as have second-year physician assistant students and first-year occupational therapy students, as well as some nurse practitioner students, particularly those working on a certificate in mental health. “In year two, we’ll do the same training but with a different class. Over a three-year window, the goal is to train three years of classes.”

An interprofessional clinical experience launched in year one; more students will take part this year and physical therapy students will be included. “We’re also launching community outreach in year two,” Shelton noted. “We want to grow practitioners who are located in the health district we’re in, so they can model SBIRT in their practices.” Feedback from students and faculty has been very positive. This year will also include a push to have trainees use an app the school designed to help faculty track the impact of training. When students use SBIRT in the field, they can open the app and input information about how they are utilizing the skills they learned.

In July 2016, an interprofessional task force was created at Wayne State University to develop core priorities to integrate into the curriculum at the school to better prepare students in health professions to address this public health issue. A deliverable was provided to the president of the university and approved in August 2016. Three faculty members from the school of pharmacy were invited to join the task force: Dr. Victoria Tutag-Lehr, Dr. Randall Commissaris and Dr. Brittany Stewart.

At Marshall University in West Virginia, the School of Pharmacy works closely with the Cabell-Huntington Health Department on its harm reduction program. The department received a $75,000 grant in 2015 to support education and risk-reduction programs for drug-addicted individuals. A portion of the grant funds was used to develop a community-based education program.

“We want to grow practitioners who are located in the health district we’re in, so they can model SBIRT [Screening, Brief Intervention and Referral for Treatment] in their practices.”

— Dr. Penny Shelton
offered several times weekly by Marshall’s pharmacy school to train individuals to use naloxone.

According to Dr. Charles Babcock, clinical assistant professor, more than 1,000 people have received naloxone through the program and at least as many have been trained, not just at the health department. “Through outreach events at local churches, schools, women’s clubs, recovery places and professional gatherings...if anyone calls, we try to train them,” Babcock said. “We have trained people from several other states as well as several other health departments. I am certified to train other trainers. This has been very good for other healthcare providers and other health departments that are beginning a harm reduction program.”

All P3 students at the pharmacy school are trained to be trainers. A new elective course, Curbing the Impact of Medication Abuse, will be offered to P3 students this year. A group of students from P1 through P4 are visiting schools in Cabell County as part of the school’s community outreach program. Some non-rotation P3 students are enrolled in a populations-based research course that is conducting research through both the school and the harm reduction program at the health department.

All APPE students on P4 rotations have an opportunity to visit the harm reduction program. Students sit with nurses during needle exchanges and discuss the societal impact that both abuse and harm reduction have in the community. “I have an APPE student (P4) on rotation basically every
community impact

block,” Babcock said. “The students are responsible for teaching the class, documenting all trainings, providing naloxone refills to those who need more and providing naloxone to patients by using the education rules for pharmacist dispensing (under pharmacist supervision).”

In 2016, West Virginia passed a law allowing pharmacists to dispense naloxone over the counter as long as certain educational requirements are met. Babcock estimates that the clinic provides naloxone to 20–30 people per week. “We are proud to be putting the medication in the hands of patients who use it appropriately,” he said. “With a reduction of documented deaths, no increase in Hepatitis C rates and more than 140 patient reports of lives saved, we feel that our program is working very well.”

Outreach to the Community and Beyond

Pharmacy schools aren’t just focused on preparing future healthcare providers to address drug abuse and addiction. They are also heavily involved in community-based education activities and providing resources to local populations. For example, the University of Minnesota College of Pharmacy is working to help people rebuild substance-free lives in the northern part of the state, where heroin addictions have been especially problematic and the number of deaths associated with heroin and opioids are higher than in any other part of the state. Assistant Professor Dr. Laura Palombi works with the Carlton County Drug Court, a specialized, problem-solving court program that targets non-violent criminal offenders who suffer from addiction to drugs. Palombi

All Hands On Deck

Dr. Jeffrey Bratberg, clinical professor at The University of Rhode Island College of Pharmacy, serves as chair of AACP’s Substance Abuse Education and Assistance SIG. He is also actively engaged in SAMHSA-supported research, community-partnerships focused on reducing the impact of opioid abuse, and finding ways to incorporate this public health issue into the pharmacy curriculum. Here he shares some of his thoughts on the important roles pharmacists must play in fighting the escalating opioid epidemic, as well as how AACP members can become engaged through research, teaching or service.

Q: What are some of your thoughts on ways society can utilize pharmacists to reduce overdoses?

In a recent report1, the U.S. Surgeon General has called on all healthcare professionals to expand services for the millions Americans with opioid use disorder (OUD), in particular, medication-assisted treatment and opioid overdose response, since 90 percent of them require treatment and are not receiving it. The 21st Century Cures Act allocated $1 billion over the next two years to pay for this urgently needed response, outlined in the Comprehensive Addiction and Recovery Act signed into law this summer. As the most accessible medication safety and public health specialists, pharmacists are primed to augment and sustain their existing responses to the opioid epidemic. Pharmacists provide harm reduction services such as nonprescription syringe sales, syringe disposal, naloxone, and referrals to treatment for those misusing prescription and illicit opioids. This is the greatest area of impact on overdose death reduction, as heroin deaths have increased > 20 percent from 2014–2015, while deaths from synthetic opioids (mostly illicitly manufactured fentanyl) is up > 70 percent in the same time period.2

Pharmacists should establish personal, store-based, or corporate policies to ROUTINELY suggest or co-prescribe naloxone for lower-risk patients using opioids, especially at daily morphine milligram equivalents > 50, and/or any opioid in combination with benzodiazepines, especially now that black box warnings for increased risk of death have been placed on all products in these classes. Pharmacists fulfill their professional responsibility to the community as drug information experts by making naloxone the standard of care for opioids, while also reducing public stigma against this safe and effective lifesaver. In the majority of states, pharmacists and other healthcare professionals can recommend and dispense naloxone to friends and family of those with OUD. Pharmacist advocates should engage their communities, policymakers, overdose task forces, and insurers to replicate the example of Rhode Island, which is first and only state to mandate public and private insurers to pay for naloxone whether it’s for a patient, caregiver or someone in the position to respond to an overdose.

In an recent NEJM paper, even though more naloxone formulations are available, the cost of both generic and branded naloxone products has increased dramatically, straining access for
meets weekly with professionals in the community who are dedicated to helping those with addiction, such as probation officers, social services and law enforcement.

“In lieu of incarceration, drug courts use a treatment-based approach in addition to intensive supervision and judicial oversight to support chemically-dependent participants in maintaining sobriety,” Palombi said. While in Drug Court, participants complete treatment, follow Drug Court recommendations for maintaining sobriety, provide random urinalysis tests and comply with random home visits. The program lasts for at least a year. As a pharmacist, Palombi can help participants navigate the healthcare system and answer questions about treatment for opioid abuse and opioid reversal agents. The Drug Court is also a learning opportunity for her students. “They learn about the daily struggles of the patients to maintain sobriety and see the more personal side of addiction,” she said.

Recognizing that pharmacists are on the front lines of the healthcare system, the state of Connecticut enacted legislation last year that gives pharmacists greater access to resources that can help prevent overdoses. In collaboration with the Connecticut Pharmacists Association and the State of Connecticut Department of Consumer Protection Drug Control, the University of Connecticut School of Pharmacy is providing required training for the state that allows pharmacists who have been trained and certified to prescribe naloxone. While pharmacists have always been allowed to dispense naloxone when the highest risk populations who obtain naloxone from community groups.3

Pharmacists, as citizens, as role models, and as health professionals are always in a position to respond to and educate others about overdose, and should all purchase and carry naloxone. Pharmacists should seek out one of the many national and state-based continuing professional education programs on how to best deliver overdose response education to increase the community distribution of naloxone. The evidence is clear that when more people carry naloxone, overdose death rates are nearly cut in half.

Q: What’s the role of the Substance Abuse Education and Assistance SIG in fighting the opioid epidemic?

The SIG is advocating colleges and schools of pharmacy to modernize, expand and update their curriculum on substance use disorders, in particular, to require this content for all student pharmacists. We seek to collect and disseminate best practices and innovative curricular delivery methods on the prevention and treatment of opioid use disorders, from interdisciplinary programs, laboratory and simulation cases of overdose response, to experiential experiences training community members and groups on overdose response and naloxone. These submissions will form the foundation to the update of the 2010 AACP White Paper on Curricular Guidelines on Substance Abuse and Addictive Diseases.

Q: What are some ways AACP members can get involved, in either research, teaching or service, to reduce the impact of opioid abuse?

Any and every AACP member can find a role in mitigating the opioid epidemic through one or more of the following: teaching student health professionals and patients about prevention and treatment of OUD; community engagement and advocacy to expand the role of the pharmacist in overdose prevention and response; working with government agencies and departments of health to reduce stigma, expand evidence-based, lifesaving treatment of this chronic disease, and make naloxone the standard of care for the most stigmatized disease in the world according to the World Health Organization.

Sources:
1. Vivek H. Murthy, Ending the Opioid Epidemic—A Call to Action, New England Journal of Medicine
presented with a prescription from a prescriber, upon completion of the two-hour online course, they will also be able to prescribe the drug to patients and caregivers in the state.

The regulations require pharmacists to provide education on the signs and symptoms of opioid overdose and engage patients in discussion of recovery resources for those with issues of dependence. Additionally, pharmacists are encouraged to engage patients and caregivers in education surrounding risks of opioid respiratory depression for those who take opioids for legitimate medical purposes.

Dr. Jill Fitzgerald, associate clinical professor of pharmacy practice and director of pharmacy professional development at the UConn School of Pharmacy, noted that this marks the first time that pharmacists are being given prescriptive authority in Connecticut. “Pharmacists are among the most accessible healthcare providers,” she said. “Data show that there is a proportional reduction in opioid overdose death with increasing naloxone availability in the community.” She explained that UConn is providing continuing education to pharmacists throughout the state to increase awareness of the requirements for pharmacists for certification, and to give them the necessary tools to provide this service.

In addition, “UConn’s School of Pharmacy launched a project called ‘No Friend Left nAlox-ONE,’” she continued. “The name of the effort stems from the fact that bystanders often have an issue with a possible drug emergency, but they tend not to call 911 or they leave the scene for fear of prosecution. The project aims to do peer-to-peer education on signs and symptoms of emergency. It stresses the idea that this is a medical emergency, which requires a 911 call and to remain with the person until help arrives.”

Other efforts across the country emphasize educating younger audiences about the dangers of drug abuse. The New Mexico Heroin and Opioid Prevention and Education (HOPE) Initiative is a strategic partnership between the University of New Mexico Health Sciences Center and the U.S. Attorney’s Office to address the heroin and opioid abuse epidemic that is devastating communities throughout the state. The initiative started in 2015 as a comprehensive prevention and education effort after the U.S. Attorney General asked each federal prosecutor across the country to address the heroin and opioid epidemic within their respective districts.

At the University of New Mexico College of Pharmacy, the Generation Rx program educates middle school, high school and college students, parents and senior citizens about the dangers of
Wayne State's APhA-ASP Generation Rx student pharmacists held 12 prescription drug misuse awareness and education events in 2016, reaching approximately 1,400 members in the surrounding Detroit communities. At these events, students provided interactive education and games regarding safe medication disposal, poison prevention and misuse of medications. The students collaborated with several community organizations and coalitions such as the Love Detroit Prevention Coalition, the Detroit Science Center, and the Arab American Pharmacists Association (AAPA) to expand community outreach. The AAPA student pharmacists have been working in collaboration with C-ASIST (Community-Advocate Support Inspire Service Teach) to provide awareness and education in the Arab American, Islamic and other communities near Detroit.

Pharmacy schools are also educating policymakers to build statewide support for confronting the epidemic by devoting more resources to prevention and treatment at the community level. The Drake University College of Pharmacy and Health Sciences collaborated with the U.S. Attorney’s office and the governor’s office on drug control policy in Iowa last August to host a forum for nearly 100 professionals who implement programs and policies from associations, regulatory agencies, healthcare practices and legislative offices. “The goal was to bring a variety of professionals together and begin discussions on how to better work together to combat opioid abuse and heroin addiction,” explained Dr. Renae Chesnut, dean of the College of Pharmacy and Health Sciences. “We provided background on the drugs and began talking about statewide and individual community actions that can make an impact.”

Chesnut said that the college’s faculty members provided national and statewide data on opioid abuse, pharmacological background on the drugs and their abuse potential, and CDC recommendations and best practices. In addition, the college brought in a panel of healthcare professionals to talk about an interdisciplinary approach to handle addiction and abuse. Chesnut noted, “We also had a parent speak who recently lost her son to opioid overdose. Part of her grieving process is to share her story with professionals and the public and make a call to take action.”

Chesnut noted that the forum was a springboard for a number of other educational events around the state and that the Iowa Department of Public Health also joined the conversation. She is working with the U.S. Attorney’s office in Iowa and with high school guidance counselors to identify ways to reach out and educate parents. Chesnut said the next steps are to continue to work with the U.S. Attorney and the governor’s office. “It is very appropriate that pharmacy has a seat at the table to talk about how to combat the problem.”

Jane E. Rooney is a freelance writer based in Oakton, Virginia. Kirsten F. Block, Ph.D., is AACP’s associate director of research and graduate programs. Reports from various colleges and schools of pharmacy also contributed to this article.

“Pharmacists are among the most accessible healthcare providers. Data show that there is a proportional reduction in opioid overdose death with increasing naloxone availability in the community.”
— Dr. Jill Fitzgerald

#HealthyStartsHere
Is your school making a difference in the fight against opioid abuse? Share your stories on social media and use #HealthyStartsHere.
Welcome to Academic Pharmacy

Get to know the newest member of the AACP staff.

Nicholas Monts, M.A., Student Affairs Coordinator

Q: What are your main responsibilities at AACP?
I have a pretty broad background in education, including teaching high school social studies and working with workforce development and AmeriCorps programing at the community college-level. Having the opportunity to work with a national association is a new and exciting experience for me.

Q: How have your previous experiences prepared you to work at AACP?
I help coordinate all things student affairs—at this point in the annual cycle, I’m working to keep PharmCAS updated, as well as developing the new 3.0 design for the 2017-2018 school year. Next, I’ll be helping coordinate the Walmart Scholars and Express Scripts scholarship programs. I’ll also be working on the Pharmacy is Right for Me campaign and looking for new ways to promote the profession to young people.

Q: What do you for fun outside the office?
I like to spend time with my family, and travel when possible. We haven’t been able to travel as much with the new addition to our family (our daughter just turned one), but we hope to get her out as soon as we get a chance!

Nick can be reached by e-mail at nmonts@aacp.org or 703-739-2330 ext. 1017.

Revisit Posters from Pharmacy Education 2016

Didn’t get a chance to visit a poster, or two, at the Annual Meeting? Thanks to AACP’s new enhanced online poster presentation, you can now easily view a digital version of a Research and Education, or School, poster submitted to AACP.

Visit http://bit.ly/zh9qTBN and start at the Index on the left. After opening a list of posters within a particular topic, simply search for a last name or keyword by clicking Control+F. You can also view the posters in PDF format.
Nominate an Outstanding Preceptor at Your School

AACP’s Master Preceptor Recognition Program honors exceptional preceptors, who are not full-time employees of a pharmacy school, for their commitment to excellence in experiential education and professional practice.

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This award seeks to honor developing faculty who are engaged in and/or supporting scholarly teaching and the scholarship of teaching and learning. Nominees must demonstrate:
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- Proof of efforts that impact the activity of teaching, and resulting learning, in a scholarly fashion; and
- Excellence and contributions to the scholarship of teaching and learning that are disseminated through pharmacy education literature.


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Your AACP membership offers a rich collection of programming, resources and professional development opportunities. Make a resolution in 2017 to:
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- Collaborate with peers in AACP Sections & SIGs
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