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Dear Alumni and Friends,

As I shared in my last Dean’s column, I have spent the past several months meeting with many different groups — faculty, staff, students, practitioners and alumni throughout the state — to hear your thoughts on the college and pharmacy practice in Minnesota. I shared an overview of what I heard with faculty in February and am now working on how best to address some of the challenges and opportunities you conveyed.

The information I learned in my “listening sessions” will help shape our five-year strategic plan. A collegiate retreat will be held later this spring to start drilling down on who we are and in what direction we want to move.

My goal is to create a strategic plan that is bold in vision and articulates how the college can serve as a hub for catalyzing practice and leading in educational innovation through collaboration and partnerships.

I have been learning about the college’s rich history as we have been gearing up to celebrate our 125th anniversary throughout the year. We will have many events and opportunities to celebrate and honor our outstanding alumni, faculty, staff and students. I hope to see you at these events (get up-to-date event details at www.pharmacy.umn.edu/news).

I want to thank you for sharing your stories about your time at the college, and helping me better understand how the college has played a significant role in pharmacy practice in Minnesota and beyond. Your input is extremely important to me personally and to the college as we continue to strive for excellence in our teaching, research, practice and outreach.

Thank you,

Lynda S. Welage, PharmD, FCCP
pharm@umn.edu

From the Dean

My goal is to create a strategic plan that is bold in vision and articulates how the college can serve as a hub for catalyzing practice and leading in educational innovation through collaboration and partnerships.
Save the Dates

**June 18: 4th Annual David Grant Symposium**
The symposium is held in honor of late Professor David J.W. Grant, a leader who helped to define the field of solid-state science. Leading researchers, from both academia and industry, will gather to share their most cutting edge research. This symposium will cover the current topics that are of importance to different aspects of drug product development. It will be a place for close interactions and exchange of stimulating ideas. More details at [www.pharmacy.umn.edu/news](http://www.pharmacy.umn.edu/news)

**June 22: Pharmacogenomics Conference: Genomic Testing to Individualize Drug Therapy**
This one day conference will provide education on a range of topics including cancer somatic mutations and selection of targeted therapies, emerging pharmacogenomics (PGx) areas such as analgesics and how to apply PGx in minority populations, clinical PGx guidelines, use of PGx in children, implementation of PGx in practice settings, insurance reimbursement, evidence for cost effectiveness and improved quality of care. More details at [www.pharmacy.umn.edu/news](http://www.pharmacy.umn.edu/news)

**Oct. 5: 125th Anniversary Celebration Event**
As part of our milestone anniversary year, we will celebrate at an event immediately following the MPhA conference at the Minneapolis Marriott NW in Brooklyn Park, Minn. More details available soon at [www.pharmacy.umn.edu/news](http://www.pharmacy.umn.edu/news)

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**Annual Pharmacy Gala**

A record 265 students, faculty, alumni and friends attended the 13th Annual Pharmacy Gala on Jan. 20. The event raised approximately $2,000 for the Michelle Mentzer Scholarship, which is named after a pharmacy student who lost her battle with cancer during her first year of pharmacy school.

The evening began with a social hour that included a slideshow in memory of Mentzer, and also featured past scholarship recipients and honored the 2017 recipient, Malia Hain. For the second year in a row, Mentzer’s family travelled from South Dakota to attend the event and speak in memory of Michelle.

Thank you to the Pay it Forward Organization for planning this year’s event, which was sponsored by Cub Pharmacy, Century Mortar Club, College Board, Phi Delta Chi, Kappa Psi, and Professional Student Government.
Stand Together

OPIOID + HEROIN
Community Forum

Addiction affects our families, friends, and community but help and hope is available. Join the discussion and learn more.

FREE Dinner & Childcare Provided
Presentation and Q&A
Speakers include medical professionals, treatment experts, law enforcement & community members.

RESOURCES WILL BE AVAILABLE.
Combatting the opioid crisis in Northern Minnesota

Christmas Eve 2014 was Nicole Metcalf’s low point. She had just been arrested for possessing and selling meth. Her addiction to the drug was all consuming. Meanwhile, relatives were seeking custody of her children who were also struggling with their own mental health and addiction problems.

“My family had washed their hands of me. I was so broken,” said Metcalf, a resident of Thomson, Minn. She remembers meeting with her probation officer, waiting for the worst and finding compassion. “He said: ‘I believe in you Nicole.’ He didn’t even know me, but he believed in me.”

Rather than prison time, Metcalf entered into Carlton County Drug Court, a high-accountability program centered around long-term treatment and setting individualized goals to live a healthier life.

Drug courts have been put in the national spotlight recently after the White House’s national opioid commission recommended states increase their use. The focus on treatment rather than punishment is aimed at breaking the addiction cycle. For Metcalf, it worked. With help from coaches, she got sober, entered treatment, mended relationships with family and graduated the program in 2016.

“I still have a lot of work today to continue to think correctly and make good decisions,” Metcalf said. “That can be hard even when you’re not struggling from addiction, right? But I’m grateful. I’m very grateful.”

Driven to End Addiction

Assistant Professor Laura Palombi visits the Carlton County Drug Court every week. She’s been working with drug court since 2014 and it’s one of her primary areas of focus as she works to find answers to the opioid crisis. Palombi has worked with Metcalf and many others, working to find a path to overcome addiction.

“My job is to support them, and open doors for them,” Palombi said. “It’s remarkable to see how our Drug Court participants have transformed their lives.”

The data shows drug court makes a difference. An article Palombi published cites several positive outcomes. Drug Court has been shown to be cost-effective and linked to reduced recidivism. A 2012 report from the State Court Administrator’s Office cited that drug offenders who went through the program had a much lower long-term rate of re-conviction than the comparison group.

Even as Drug Court was showing success, Palombi noticed a disturbing trend in her community. Opioid abuse was popping up again and again. It increased to massive proportions — dominating

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headlines and eliciting a national public health emergency designation from President Trump.

Just last year, there were more than one million opioid-related ER visits in the U.S. The Duluth area in particular has been hit hard. St. Louis County has the highest opioid overdose death rate in the state of Minnesota.

This trend concerned Palombi, and she knew she needed to intervene.

“Fighting opioid addiction isn’t just a job. It means a lot to us and to our families. This is our community too,” said Palombi.

That’s why Palombi and several others in the College of Pharmacy have taken it upon themselves to tackle the issue alongside and in partnership with the surrounding communities.

“Each community has its own strengths that we need to build on if we’re going to find solutions to this epidemic,” Palombi said.

From the Ground Up

To create community-focused interventions, the members of each community need to be part of the conversation, says Palombi. So, that’s where they started: with community forums.

In 2015, Palombi received seed funding from the University’s Clinical Translational Science Institute, which provides resources and support for researchers. She used the grant to organize a community forum focused on the opioid epidemic in Cloquet, Minn.

The event brought together community members, tribal community leaders, public health professionals, police officers and other law enforcement officials, addiction recovery advocates, local non-profits and health care professionals. People recovering from addiction and families who had been impacted by opioid abuse shared their stories and offered examples of healing and hope.

Nearly 250 community members showed up for the Cloquet forum. Since then, the college has organized additional forums in Moose Lake, Hinckley, Ely and Kanabec County, and a second forum in Cloquet in 2016.

The forums serve to educate the public and gather community members around the issue of addiction. But they also act as a starting point to guide researchers and public health workers. The discussions often shine a light on gaps or introduce ideas to battle addiction in the community.

“What [Dr. Palombi is] so good at and what I really value from the time we’ve worked together, is her ability to build collaborative teams,” said Becky Foss, Director of Health and Human Services for Pine County.

Foss collaborated with Palombi’s team on a recent forum at Grand Casino Hinckley, which drew 300 people.

“When I left the forum that evening, I was moved,” said Foss. “I’ve seen a lot in my career and I don’t cry very often, but I was moved to tears of joy knowing we had so many people at this forum. I knew we could really impact the community in a positive way.”

The turnout suggests Palombi’s approach is on-target: the community wants to be involved in the discussion. And what’s more, to make change the community needs to be part of the solution. They lead the change — it isn’t prescribed to them.

Identifying Gaps, Making Change

When someone overdoses on opioids, the excess of the drug causes certain body functions to shut down. Opioid receptors in the brain are located right next to the part of the brain regulating functions like breathing and circulation. In most cases, the heart slows to a dangerous rate, or the brain goes without oxygen for extended time — leading to death.

Naloxone, considered the overdose antidote, targets those opioid receptors. It blocks the effects of opioids and reverses the process of the body shutting down. Naloxone (often referred to by the brand name Narcan) doesn’t cause tolerance or dependence, and creates no clinical effects in absence of opioids.

“We know there is strong evidence naloxone is saving lives,” says Assistant Professor Heather Blue.

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COMMUNITY

Partner Solutions

Marsha Millonig
Interim Exec. Director
Minnesota Pharmacists Association

Laura Palombi
Assistant Professor

Heather Blue
Assistant Professor

Michael Swanoski
Senior Associate Dean
College of Pharmacy
Duluth

Keri Hager
Assistant Professor

ILLUSTRATION: WENDY MANKE
Continued from page 8

“Is naloxone a cure for opioid misuse disorder? No. But if naloxone can save someone’s life, that’s one more opportunity for them to seek treatment.”

In 2016, the Minnesota legislature moved to allow pharmacists to prescribe and dispense naloxone to the public — in addition to doctors, physician’s assistants and advanced practice nurses. Despite legislative support, many prescribers remain wary to prescribe naloxone.

Blue wants to understand why and to use that data to tailor resources, education and outreach to address it.

In partnership with the Minnesota Department of Health, the Minnesota Pharmacists Association and the Minnesota Board of Pharmacy, Blue sent a survey on naloxone awareness to all licensed Minnesota pharmacists — more than 8,000 individuals. The data is still coming together but preliminary findings seem to point to one conclusion.

“There’s concern among some pharmacists that dispensing naloxone could have the possibility of increasing opioid use, but there’s no evidence to support that claim,” Blue said.

She said the survey findings point to a greater need for education, resources and support around dispensing naloxone and clearing up biases. Blue is working with Palombi and outside partners to increase naloxone access on the Iron Range.

Marsha Millonig, Interim Executive Director of the Minnesota Pharmacists Association, said the impact of this collaboration flows both ways.

“Their research will help us identify barriers and gaps so we can better support Minnesota’s pharmacy community,” Millonig said.

“Community partnership is crucial, and Dr. Palombi and Dr. Blue have been the glue that keep it together.”

Blue and Palombi have already organized continuing medical education courses for all prescribers: doctors, pharmacists, nurse practitioners and dentists. They hope to build awareness of naloxone and provide resources to help pharmacists prevent overdose in their communities. In addition, Palombi is working in partnership with the Steve
Rummler HOPE Foundation to provide free naloxone kits to community members in St. Louis and Carlton counties. They’re also meeting pharmacists in face-to-face trainings across Northern Minnesota, and working with the Rural AIDS Network to provide needle exchanges and opioid takeback locations for free and proper disposal of unused medications.

In the end, everyone shares the same goal, says Blue: to reduce opioid deaths. Community pharmacists are part of that narrative.

“At some level we were all part of creating this problem,” Blue said, “Whether it was overprescribing or not realizing the larger implications of the risks associated with opioid use, we didn’t fully understand how much our patients were suffering. We all need to work together to solve it.”

From the classroom to the clinic

Two-thirds of Minnesota pharmacists have been trained at the University of Minnesota College of Pharmacy. Experts say that offers a huge opportunity.

“The opioid crisis is a public health emergency impacting virtually all of our communities throughout Minnesota,” said Michael Swanoski, Senior Associate Dean of the College of Pharmacy, Duluth campus. “To meet our mission and live up to our values, the College of Pharmacy is compelled to help address this crisis. We’re uniquely qualified to provide education on the management of chronic pain that does not include the use of opioids, and to provide information on strategies to treat opioid use disorders and overdose prevention and reversal interventions that save lives and support recovery.”

Students are going to play a key role in reversing the opioid epidemic. Palombi and Blue have collaborated with Assistant Professor Keri Hager to bring the focus on fighting addiction inward — to the classroom.

Hager worked with the Medical School, Duluth campus, to put together a special interprofessional class session focused on the opioid epidemic. Students from both fields — medicine and pharmacy — come together for a day to review several opioid abuse case studies. The session sparks a discussion about addiction stigma, how providers treat chronic pain and the importance of community interventions to prevent opioid overdose.

“By the time they leave the University of Minnesota, our pharmacists are going into communities with knowledge of the crisis, ready to hit the ground running to create solutions to address it,” Blue said.

“Opportunities that engage students in interprofessional dialogue while exploring critical public health issues are necessary for students,” Hager said. “Collaborating with each other will be critical to find solutions to address the opioid epidemic when they go out into practice.”

In fact, students are already getting involved. They’ve helped plan and attended public forums with Palombi. One student joins her nearly every week at Drug Court.

Another student, Parker Johnson, is conducting qualitative research on the impact of Drug Court. Johnson, in his second year of pharmacy school on the Twin Cities campus, is a part of a team that is analyzing surveys of Drug Court participants. He hopes their input will help illuminate treatment gaps, areas for improvement, and techniques that could be applied in more programs across the state.

“Rather than telling people with addiction what we think is best for them, we’re asking: what can we fix?” Johnson said.

He too has seen addiction consume lives. He grew up in a small town in West-Central Wisconsin. He watched friends from high school battle opioid abuse and go on to abuse meth and other substances.

“I’ve witnessed firsthand how hard it is to quit, but I’m also seeing how the right atmosphere can help people get back on track,” Johnson said.

Amidst the statistics, it can be difficult to see the positives, says Johnson. As he reviews surveys, it gives him hope and optimism hearing stories about how people have found new life after addiction and are learning to cope in healthy ways.

Stories like Metcalf’s

Since starting Drug Court, Metcalf enrolled in college. She’s on track to graduate in the spring and hopes to become an addiction counselor. Metcalf has taken a dark place in her life and is using it to help others. Every restored relationship and every person she helps down the road could be traced back to the moment when she found a new path.

“We might never know how many lives we save, or how many people end up in treatment, but it’s not just one person’s life that’s saved,” said Palombi. “It’s a ripple effect. When you can help one person recover, you don’t know what kind of impact that will have on an entire community.”

—Erin McHenry
Promising Male Birth Control Pill has its Origin in an Arrow-Poison

After decades of research, development of a male birth control may now be one step closer. Professor Gunda Georg and colleagues are working on a promising lead for a male birth control pill based on ouabain (/wä'ba-in/) — a plant extract that African warriors and hunters traditionally used as a heart-stopping poison on their arrows.

State of the search

While the birth control pill has been available to women in the United States for nearly six decades — and FDA-approved for contraceptive use since 1960 — an oral contraceptive for men has not yet come to market. The pill has provided women with safe, effective and reversible options for birth control, while options for men have been stuck in a rut.

Today, men have just two choices when it comes to birth control: condoms or a vasectomy. Together, these two methods account for just 30 percent of contraception used, leaving the remaining 70 percent of contraceptive methods to women. An estimated 500,000 American men opt for a vasectomy each year — a small number given the need for

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contraception. Vasectomy is an invasive procedure to do that’s also difficult and invasive to reverse.

When it comes to birth control options for men, the need is clear. Unplanned pregnancy rates remain high across the globe. It’s time for more options.

Hormonal versus nonhormonal

Researchers are exploring both hormonal and nonhormonal options for male birth control pills. Current hormonal agents under study involve the sex steroids progestins and testosterone.

While the male hormonal birth control pill option is in clinical human trials and likely closer to market, it has several potential side effects: In addition to potentially causing weight gain and changes in libido, it has the ability to lower the levels of good cholesterol (HDL-C) in men, which could negatively affect the heart health of users. The long-term effects of using hormones for male oral contraception are unknown, and it will likely be decades before this information is available.

At the College of Pharmacy, Georg, Jon Hawkinson, Shameem Syeda, and colleagues have focused on nonhormonal contraception methods that work by targeting sperm motility — biology-speak for the sperms’ ability to move or swim effectively. Good motility is a necessary condition for fertilizing a female egg.

In collaboration with Gustavo Blanco at the University of Kansas, College of Pharmacy researchers have homed in on ouabain: a toxic substance produced by two types of African plants. Mammals also produce ouabain in their bodies, though at lower nonlethal levels that scientists think can help control blood pressure. In fact, physicians have used ouabain in very small doses to treat patients with heart arrhythmias or suffering from heart attacks.

A cross-section of a cell membrane shows how pumps made of protein subunits move sodium and potassium ions in and out of the cell.

From toxin to contraceptive

Researchers know that ouabain disrupts the passage of sodium and potassium ions through cell membranes; it interferes with the proper function of proteins that transport the ions in and out of cells. Some of the ion-transporting protein subunits targeted by ouabain are found in cardiac tissue — its ability to disrupt proper heart function is what makes ouabain a deadly poison. But ouabain also affects another type of transporter subunit called α4, which is found only in sperm cells. This protein is known to be critical in fertility — at least in male mice.
For 10 years, Georg and colleagues have been studying ouabain as a potential breakthrough in their quest for a male birth control pill. However, ouabain by itself isn’t an option as a contraceptive because of the risk of heart damage. So they set out to design ouabain analogs — versions of the molecule that are more likely to bind to the α4 protein in sperm than other subunits in heart tissue.

In the lab, they used the techniques of medicinal chemistry to create a derivative of ouabain that is good at zeroing in on the α4 transporter in sperm cells in rats. Once bound to those cells, it interferes with the sperms’ ability to swim — essential to its role in fertilizing an egg. Their new compound showed no toxicity in rats.

Because the α4 transporter is found only on mature sperm cells, the contraceptive effect should be reversible — sperm cells produced after stopping the treatment presumably won’t be affected. Ouabain may also offer men a birth control pill option with fewer systemic side effects than hormonal options.

Next steps on the road to drug discovery

Their results are promising because their candidate molecule, unlike ouabain, is nontoxic in rats. Their modification is a big step forward in the process of developing a nonhormonal male birth control pill. But there’s a lot left to do before men can buy this contraceptive at the pharmacy.

After their ouabain analog showed promise in rat studies at reducing sperm motility, future studies will focus on the effectiveness of their lead compound as an actual contraceptive in animals. They need to prove that a reduction in sperm movement translates into a drop in egg fertilization.

Then, they’ll begin the standard steps in drug discovery such as toxicology and safety pharmacology studies as we advance toward planning and conducting clinical trials. The team is already taking the next step to test their compound in animal mating trials. If things continue as planned, they hope to get to human clinical trials within five years.

“Reversible, effective male birth control is within sight,” said Georg. “World Health Organization numbers suggest that reducing sperm motility by 50 percent or less is sufficient to temporarily make a man infertile. Our ongoing research brings us one step closer to expanding the options for male birth control, providing the world’s 7.6 billion people with a much-needed option for safe and reversible contraception.”

This article was originally published on The Conversation.
Attention!
You must have a signed form on file with school before the nurse can access your medication. NO EXCEPTIONS!

COVER YOUR COUGH

IT'S OKAY TO ASK FOR HELP

MAKE HEALTHY CHOICES

SCHOOL NURSE

ILLUSTRATION BY LISA HAINES
Medication Management in Minnesota Schools

Exploring Options for Pharmacists to Partner with Licensed School Nurses

When students in the college receive a scholarship, they are invited to an event to introduce scholarship recipients with the donors who make them possible.

A conversation between Professor Randy Seifert and Cindy Van Kirk—a donor’s daughter who happens to be a licensed school nurse (LSN)—sparked an idea: How could pharmacists collaborate with school nurses to advance high-quality medication management for the benefit of Minnesota students?

Today’s LSNs are responsible for increasingly complex medication management and administration issues.

“Students attend school for six to seven hours each weekday and our LSNs are concerned with the medication challenges they see on a daily basis,” said Assistant Professor in the Department of Pharmacy Practice and Pharmaceutical Sciences, Meg Little, EdD, RN.

An increase in the rates of childhood asthma, diabetes, obesity, mental health and other diagnoses—along with advances to allow more students with complex medical issues to attend school—have led to the increasing expansion of the LSN role.
Increasingly, students require medication administration at school with the top three drug categories of asthma medications, psychiatric medications and insulin.

Little and Seifert approached Mary Jo Martin, past president of the School Nurse Organization of Minnesota (SNOM), and were invited to present on the concept to its board of directors.

“We received very interesting information from the SNOM board members and determined that the idea merited further exploration,” said Seifert.

As a next step, researchers from the college, SNOM and the Minnesota Department of Health conducted a 32-question online survey of LSNs in Minnesota—the results of which were published last year in the Journal of the American Pharmacists Association.

The potential benefit of formally connecting community pharmacists with LSNs was confirmed through the research. The survey found that the majority of LSNs felt strongly that partnerships with pharmacists would improve medication management in schools, and that very few of the LSNs had any formal existing relationship with a pharmacist.

“A licensed school nurse is often the sole health care provider in a school district,” said SNOM president Susan Nokleby, MS, RN, LSN, NCSN. “Collaboration between health care providers is essential to coordinating services for students. Having a LSN and pharmacist relationship would enhance safe medication management for students.”

According the Little and Seifert, the next steps are to seek funding opportunities to establish a model and community standard, and then to develop a pilot program for the pharmacist-LSN partnership.

“From serving as a resource for consultations, to working directly with the school nurses on training, policies and procedures for disposal and storage, proper administration and more, there are many opportunities for collaboration between pharmacists and school nurses,” said Seifert. “We’re excited about the potential this type of partnership has to optimize drug therapy outcomes for students.”

Medication management concerns identified by licensed school nurses:

- medication availability
- health literacy
- pharmacist consultations
- follow-up and evaluation
- family-centered care
- issues with delegating administration of medications
- communication
- professional development
In late October, five College of Pharmacy faculty members travelled to Shanghai, China, to attend the second annual bilateral research symposium that highlighted research being done at the college and at China Pharmaceutical University (CPU).

The presentation topics at the symposium included cancer chemotherapy, design of new antibiotics, pharmacogenetics, Chinese medicine and more. While in China, U of M faculty also toured CPU and met with several faculty and students there.

Professor Jayanth Panyam described the symposium and visit as a “substantial scientific exchange.”

In addition to Panyam, college faculty who participated in the visit included Courtney Aldrich, Gunda Georg, Ling Li and Robert Straka.

The purpose of this symposium was to create a bridge between scientists at the college and CPU, and to promote cooperation between scientists internationally. This symposium was a result of the consortium collaboration the college shares with Michigan, Ohio and five Chinese pharmacy schools.

To continue establishing opportunities between student and faculty research from the two universities, the college is currently planning the next symposium, which will be held in Minnesota later this year.
A Global Leader for Rare Diseases

The college has a long history of leadership in addressing the challenges of rare diseases and orphan drug development. Over the years, that leadership has extended from Minnesota to India and across the globe.

Ramaiah Muthyala and Marilyn Speedie hold Governor Dayton’s proclamation of Rare Disease Awareness Day.
It’s taken decades of work and a commitment from researchers, patients, policy makers and clinicians to begin to effectively address the challenges associated with orphan drug discovery. The college’s leadership in finding treatment options for rare diseases began under Larry Weaver, who served as dean from 1966 to 1984.

“Dean Weaver had a passion for orphan drugs and worked diligently to get the Orphan Drug Act implemented after it was approved by Congress in 1983,” said Dean Emeritus and Professor Marilyn Speedie.

Weaver’s passion didn’t stop there

“When the college was establishing a series of endowed chairs in the mid-90s, he advocated for one of those chairs to be dedicated to orphan drug development,” said Speedie.

Today, Professor Jim Cloyd holds the Lawrence C. Weaver Endowed Chair and serves as the Director of the Center for Orphan Drug Research.

In 1994 Weaver also was involved in the founding of Minnesota-based Orphan Medical.

“Larry Weaver accomplished a great deal nationally by bringing attention to rare diseases and the need for orphan drug development,” said Speedie.

In the U.S. there are more than 7,000 rare diseases affecting 25 million Americans.

“The power of rare diseases is that when you cumulate all of the people who have rare diseases, it’s a huge number of people affected,” said Speedie.

From Minnesota to global

Fast forward to 2018 and the college’s leadership in orphan drugs has extended across the globe. Research Associate Professor Ramaiah Muthyala is the founder, president and CEO of the Indian

**Rare Disease Day 2018**

The Center for Orphan Drug Research sponsored this year’s Rare Disease Day event, which focused on research and brought together more than 200 researchers and members of patient advocacy groups. The theme of this year’s event was the promise and challenges of gene therapy for rare diseases.

Held on the last day of February each year, Rare Disease Day aims to raise awareness among the general public and decision-makers about rare diseases and their impact on patients’ lives.

Learn how the Center for Orphan Drug Research provides hope for people with rare diseases at [www.pharmacy.umn.edu/centers-and-institutes/center-orphan-drug-research](http://www.pharmacy.umn.edu/centers-and-institutes/center-orphan-drug-research)
Tell us about your leadership role of the AMCP student chapter.

I’m very proud of my time as president of our Academy of Managed Care Pharmacy (AMCP) chapter during my third year of pharmacy school. While president, my leadership team and I started a new regional conference focused on managed care topics and their impact on patient care.

We created another new initiative where we led a group of our AMCP members on a field trip to Chicago to tour AbbVie and CVS/Caremark.

Lastly, we implemented bi-weekly speaker event meetings which drew on leaders from managed care, pharmaceutical industry and other unique areas of healthcare to expose students to the vast opportunities for pharmacists that are not usually talked about at our school. I’m also proud to see how the initiatives we implemented during my presidency have progressed and been built upon.

What did you learn?

At the core of my experience as president, the biggest lesson I learned is: it’s all about people. No matter which area of pharmacy you end up in, your ability to interact with people and your professional network will define your career. This understanding, along with my knowledge of managed care, helped position me well for the next phase of my career.

How will you apply it to your career after you graduate?

After graduation, I’m moving to New Jersey. I accepted the One Trade/Access Services Fellowship with Sanofi and will be working with the trade, channel distribution and payer teams across their drug portfolio. I’m excited to start this role and am looking forward to the new experiences.

Why did you choose pharmacy as a career?

It may sound cliché, but I think pharmacy chose me because I hated taking medicine up to about the age of 15. However, at the core of my career choice is my background. I was born in Ibadan, Nigeria, with the typical rough upbringing of many African immigrants. However, I always saw my upbringing as a positive in character-building and the reason why I’m where I am today. Like the U.S, there are huge gaps in care and access to healthcare in Nigeria. This is a problem I want to help solve or improve from a system level, so I’ve always known I would end up in the healthcare field, I just was not sure exactly where.
In 11th grade, I did a career test activity and pharmacy was ranked second on my list. A couple months later during a conversation with my dad, he suggested pharmacy as a career with no prior knowledge of my career test activity results. These events caused me to start considering pharmacy as a potential career.

What interested you in managed care pharmacy?

The big picture approach of managed care is what I’ve always been drawn to. During my first year of pharmacy school, I quickly learned that managed care was at the center of all the different sectors of pharmacy. So, if I could understand it, I would understand the different perspectives of the key players in the healthcare system and therefore have a more holistic approach to the problems our healthcare system faces.

Why did you choose the U of M College of Pharmacy?

As many of my peers know, I am a UW-Madison alumnus and a huge Badger fan. However, I chose to attend Minnesota over Madison for pharmacy school simply for one reason: opportunity. I knew Minnesota would provide a broader range of career exposure and I also had a gut feeling that Minnesota was where I needed to go to reach a higher potential for myself. Best decision I’ve ever made. Go Gophers!

A Global Leader for Rare Diseases
Continued from page 21

Organization for Rare Diseases (IORD) — an umbrella organization representing all rare diseases and patients in India. Its mission is to raise the awareness of rare diseases in India, advocate for public policy and promote orphan drug development.

When Muthyala first came to the University, he joined the Center for Drug Design as senior associate director. After five years, he moved to the Center for Orphan Drug Research. While the orphan drug industry was progressing in the United States, the pharma industry for orphan drugs was nonexistent in many countries. As awareness spread, he launched a personal mission to raise awareness in India and other developing countries.

“In India, parents are often helpless when they have a child with a rare disease; the patient does not have a voice like patients do in the United States,” said Muthyala. “India supplies 25 percent of the world’s pharmaceuticals; however, there are no incentives for the pharmaceutical industry to develop drugs for rare diseases.”

In 2016, Muthyala organized the Indo-U.S. Rare Diseases Conference held on the University of Minnesota campus to increase awareness and encourage drug development collaborations. Minnesota Governor Mark Dayton proclaimed Nov. 16 of that year as Rare Disease Awareness Day.

“What Ramaiah has done is with the encouragement of the college, but he’s done this on his own through his leadership and commitment,” said Speedie. “He has been remarkably successful in India by bringing attention to rare diseases and his work has extended to a global awareness with the United Nations, the World Health Organization through Rare Diseases International and UN NGO committee for Rare Diseases and beyond.”

In the U.S. there are more than 7,000 rare diseases affecting 25 million Americans.
Around the Globe

Over winter break, members of the Phi Delta Chi fraternity from both Duluth and Twin Cities chapters helped set up four clinics in villages surrounding Antigua, Guatemala. The students provided care for more than 200 patients who all received vitamins and anti-parasitic drugs, as well as toothbrushes and toothpaste for the children. They also conducted medical consults with a physician.

This was the third year in a row the group has volunteered through International Volunteer Headquarters. This year’s group included pharmacy students Renee Berg, Megan McMullen, Haley Noeldner, Carolyn O’Donnell, Megan Olander, Tuesday McAuliffe Staehler, Miranda Strohschein and Larissa Voss. Professor Karen Bastianelli and pre-pharmacy student Paul Bastianelli also participated.
During the first week of January, six students participated in a medical service campaign in Cusco, Peru. They saw approximately 500 patients.

The trip brought into perspective how resources and access can be very limited, and allowed students to see the importance of cultural competency in practicing patient-centered health care.

The students who participated in the service trip include Sara Brown, Allie Jean Humphrey, Cristina Guimaraes, Deann Tims, Thuy-Tien Ngoc Pham, and Jenny Nguyen.

Learning About Cultural Competency in Peru

Students on these mission trips received financial support from the Century Mortar Club Student Activities Committee.
Nearly 200 pharmacists, student pharmacists and others attended Minnesota Pharmacy Legislative Day on Feb. 27.
A record 75 visits with legislators were made!
On Feb. 24, the Minnesota Pharmacy Student Alliance held its first Pre-Legislative Day Health Fair at the Capitol Rotunda. They educated the public and legislators about what pharmacists can do, as well as safe medication use, managing common health conditions, and healthy living.
On Oct. 20, reunion class members went back to school and had lunch with the Dean and attended a seminar at Weaver-Densford Hall. They also toured the college and cheered on their friends in the Homecoming Parade. On Saturday, Oct. 21, alumni, faculty, staff and students attended a pre-game reception at the McNamara Alumni Center prior to the football game.
When second-year students Seojung Kang and Joe Corbino wanted to expand their knowledge in global health and pharmacy, they found an ideal opportunity in Seoul, Korea.

Held in September 2017, the International Pharmaceutical Federation (FIP) World Congress of Pharmacy and Pharmaceutical Sciences meeting offered Kang and Corbino the opportunity to network with other pharmacists and future pharmacists from across the globe.

Both students are active in the college’s chapter of the International Pharmaceutical Students’ Federation and are interested in the intersection of global health and the pharmacy profession.

“I’ve always been interested in international health and finding ways to connect that with pharmacy,” said Kang. “It’s a huge time and monetary commitment to attend an international conference, but this was such a valuable experience. For those pharmacy students interested in working internationally, FIP is a great way to network and to apply a more global perspective to what we’re learning as a pharmacy student.”

In Seoul, Corbino and Kang attended educational presentations and a variety of business meetings. They also had an opportunity to meet American Pharmacists Association Executive Vice President and CEO Thomas Menighan.

“It was amazing to see how pharmacy works in other countries,” said Kang.

A major takeaway for both is how advanced the pharmacy profession is in the United States compared to other countries.

“In Minnesota, we’re able to practice pharmacy at the top of our license,” said Corbino. “Having this international perspective allows me to appreciate that.”

Both plan to apply that international perspective to their plans after graduation. Kang hopes to work in the pharmaceutical industry, possibly in an international location, and also has career aspirations in academia.

Corbino is interested in the clinical side of pharmacy and plans to specialize in infectious disease. His long-term goal is to establish pharmaceutical programs in developing countries, perhaps with the World Health Organization, the CDC or a nonprofit.

“Chances are the job I want most likely doesn’t exist today,” said Corbino. “Incorporating everything I’ve learned along the way would be the ultimate goal.”
For the Record …
News about Faculty, Students, Alumni, and Friends

Grants

**Jeff Bishop** received a donor-funded 2017 Enhance Comprehensive Pharmacist Services to Improve Patient Health Clinical Research Award of $25,000 for his project, “Medication Therapy Management and Pharmacogenetic Evaluation in Mental Health.”

**Caity Frail** is co-investigator on a $3.5M R01 for the project, “Adherence Wizard.”

**Oscar Garza** received a $1,240,753 grant from the National Institute for Occupational Safety and Health for his project, “Promoting Safety and Worker Health for Immigrant Dairy Workers.”

**Gunda Georg** is the PI of a $8.3M NIH U54 Center Grant for the project, “Contraceptive Discovery, Development, and Behavioral Research Center (2017-2021).” Other College of Pharmacy researchers involved are Leigh Allen, Jon Hawkinson, Michael Walters and Henry Wong.

**Carrie Haskell-Luevano** received a $125,000 Winston and Maxine Wallin Neuroscience Discovery Fund grant for her project, “Discovery of Opioid Receptor Endogenous Allosteric Modulators for the Treatment of Pain and Addiction.” **Philip Portoghese** is co-investigator.

**Betsy Hirsch** received a $156,382 contract from Merck for her project, “A Retrospective Multi-center Study to Assess Patient Outcomes Following Treatment with Ceftolozane/Tazobactam.”

**Stephanie Huang** received a $2.225M five-year NIH/National Cancer Institute RO1 grant for her project, “Drug Repurposing in Breast Cancer.” She also received a $159,908 grant from the Avon Breast Cancer Crusade for her project, “Whole Genome Expression Based Drug Repurposing in Metastatic Breast Cancer.”

**Reena Kartha** received a $15,000 grant from the United Leukodystrophy Foundation for her project, “Therapeutic Effect of Nervonic Acid in Lowering Very Long Chain Fatty Acids in Adrenoleukodystrophy.”

**Nam Chul Kim** received a $125,000 Winston and Maxine Wallin Neuroscience Discovery Fund grant for his project, “Ubiquitin Dependent Processes in ALS-FTD and Multisystem Proteinopathy.”

**Susan Marino** is PI of a two-year, $380,448 investigator-initiated grant from Veloxis Pharmaceuticals for the project, “Comparison of the Cognitive and Motor Effects of Treatment Between an Immediate and Extended Release Tacrolimus Based Immunosuppression Regimen in Kidney Transplant Recipients.” **Angela Birnbaum** and **Scott Cooper** are co-investigators.
Venkatram Mereddy received a $30,000 grant from the Randy Shaver Cancer Research and Community Fund for his project, “New Drugs for the Treatment of Glioblastoma and Breast Cancer Metastasis to Brain.”

Melanie Nicol received a K08 award from the NIH NIAID for her project, “Evaluating Antiretroviral Pharmacology in the Female Genital Tract to Optimize HIV Prevention.” Total funding over 5 years is $847,011.

Jayanth Panyam received a $30,000 grant from the Randy Shaver Cancer Research and Community Fund for his project, “Antibody-Drug Conjugate Targeting HSPG2 for Muscle-Invasive Bladder Cancer.”

Mark Schneiderhan received a donor-funded 2017 Enhance Comprehensive Pharmacist Services to Improve Patient Health Clinical Research Award of $6,000 for his project, “12-month Retrospective Review of Clinical Outcome Measures in Patients Receiving Comprehensive Medication Management Pharmacist Services in a Community Mental Health Setting.”

Jon Schommer received a $7,236 sub-award (primary source: NIH and National Institute of Minority Health and Health Disparities) for his project, “Patient-Centered Community Pharmacy Based HIV Care Model.” He also received a $4,000 sub-award (primary source: National Association of Chain Drug Stores Foundation) for his project, “Pharmacy Technicians’ Willingness to Perform Emerging Tasks in Community Practice.”

Ron Siegel received a $60,000 grant from Genentech, Inc. for his project, “Artificial Gut Simulator for Evaluation of Supersaturated Drug Formulations with Simultaneous Dissolution and Absorption.”

Deb Skaar received a donor-funded 2017 Enhance Comprehensive Pharmacist Services to Improve Patient Health Clinical Research Award of $25,000 for her project, “Creating a 21st Century Precision Medicine Intensive Care Unit (ICU).”

Raj Suryanarayanan received a $200,000 Academic Health Center Faculty Research Development Grant for his project, “Optimal Intestinal Delivery of Therapeutic Microbiota Following Oral Administration.”

Awards & Recognitions

Danielle Bishop was selected as a member of the External Program Review Committee through the Minnesota Department of Human Services.

Oscar Garza was named a Community-Engaged Scholar and was appointed to the Clean Water and Sustainable Ecosystems-Just and Equitable Communities Intersection Collaborative.

Carrie Haskell-Luevano was elected to serve on the Institute for Translational Neuroscience Steering Committee.

Reena Kartha was awarded a second year of fellowship funding from the Lysosomal Disease Network. The fellowship will allow her to continue and expand her research related to oxidative stress and inflammation in Gaucher Disease.

Richard Kingston was elected a member of the American Botanical Council’s Board of Trustees.
Rory Remmel, Bill Oetting, Pamala Jacobson, Amutha Muthusamy and others coauthored the paper, “CRISPR/Cas9 genetic modification of CYP3A5 *3 in HuH-7 human hepatocyte cell line leads to cell lines with increased midazolam and tacrolimus metabolism,” which was selected as the winner of the James R. Gillette Drug Metabolism and Disposition Best Paper of 2017 in the Metabolism category.

Tim Stratton received the 2018 Minnesota Campus Compact Presidents’ Civic Engagement Steward Award.

Calvin Sun was admitted as a Fellow of Royal Society of Chemistry, recognizing his efforts that have made an impact in a field of the chemical sciences.

Beshay Zordoky was named a Masonic Cancer Center Women’s Health Scholar.

Comings & Goings

Mahmoud Al-Kofahi joined the Dept. of Experimental and Clinical Pharmacology as a tenure-track assistant professor. His research focus is in the analysis and simulation of the pharmacokinetics-pharmacodynamics of biologics and antibody drug conjugates; as well as modeling circadian and ultradian rhythms of adrenal steroids in children with congenital adrenal hyperplasia.

Joseph Kolar joined the college as a gift officer.

Todd Sorensen Elected President-Elect of the American Association of Colleges of Pharmacy

Professor Todd Sorensen was elected president-elect of the American Association of Colleges of Pharmacy, the national organization representing pharmacy education in the United States. He is the third AACP president from the University of Minnesota in the past decade — former faculty member Rod Carter served as AACP president from 2010-11, and Professor Marilyn Speedie served 2007-08.

“T’im excited to serve AACP in this capacity at a time when the organization is taking on the role of convener to mobilize engagement of schools in several priority areas,” said Sorensen. “This is the type of leadership work I have engaged in for many years and in several venues. There are important issues facing the Academy and the profession, and no school can navigate these successfully on their own. I look forward to the opportunity to help AACP create the strategies, support systems, and accountability for action that will accelerate change in our academic and professional communities.”
**Students**

**Hongbo Pang** joined the Depart. of Pharmaceutics as a tenure-track assistant professor. His research focus is on how to transport the cargo to the site of interest in the human body with high specificity and efficiency. His research synergizes multiple disciplines spanning from cell and cancer biology, peptide chemistry, nanomaterial to clinical imaging, and cancer therapies.

**Catherine St. Hill**, director of research advancement, left the college for a principal research scientist position with Allina Health.

**Kweku Konadu Amponsah-Efah**, a Pharmaceutics graduate student, received a $5,750 Bighley Graduate Fellowship.

**Alina Cernasev**, a Social & Administrative Pharmacy graduate student, received a $4,500 Olsteins Graduate Fellowship.

**Cliff Csizmar**, a Medicinal Chemistry graduate student, received a $5,750 Bighley Graduate Fellowship.

**Katlyn Fleming**, a Medicinal Chemistry graduate student, received a $5,750 Bighley Graduate Fellowship and a $5,500 Rowell Graduate Fellowship.

**Krutika Harish Jain**, a Pharmaceutics graduate student, received a $5,750 Bighley Graduate Fellowship.

**Dmitri Konorev**, a Medicinal Chemistry graduate student, received a $5,500 Rowell Graduate Fellowship.

**Davin Rautiola**, a Pharmaceutics graduate student (mentor: Ron Siegel), received a Pre-Doctoral Fellowship in Pharmaceutics from the Pharmaceutical Research and Manufacturers of America Foundation. The award provides a stipend of $20,000 per year for two years.

**Natalie Schmitz**, Experimental and Clinical Pharmacology graduate student (advisor: Jim Cloyd), received the Drake University College of Pharmacy and Health Science’s Young Alumni Achievement Award.

**Maggie Sundstrom**, PD3, won the local APhA-ASP Patient Counseling Competition and represented the University of Minnesota at the APhA annual meeting in March.

**Max Thompson** and **David Vermeulen**, both PD4s, received NCPA Foundation Presidential Scholarship Awards.

Our student chapter received second place for the Academy of Managed Care Pharmacy’s Chapter of the Year Award.

**Alumni & Friends**

**Patrick Gleason** (BS 1992, PharmD 1993), adjunct professor, was elected to the Academy of Managed Care Pharmacy Board of Directors.

**Thomas Rector** (PhD 1983) passed away Feb. 1, 2018. He was part of the college’s Kellogg Clinical Scholars Program.
Alicia (Engbrecht) Beseres, '11, and her husband Chris welcomed Zoe on March 9.

Maria (Amaro), '11, and Corey Simmons, '12, welcomed Emma Leona and Asher Edward on April 19, 2017. They join big brother Aiden James.

Ling Xu, '10, and her husband Ellis Warner present their future pharmacists James (born Aug. 30, 2015) and Madison (both June 23, 2017).

Calling all new moms, dads and grandparents! Have you recently had a little bundle of joy arrive at your home? The College of Pharmacy wants to know! Please send an email with news about your baby or grandchild, along with your mailing address, to pharm@umn.edu to receive a “Future Pharmacist” baby shirt (available in 12 months size). In exchange, we ask that you send a photo of your new “Future Pharmacist” to include in the next issue of The Pharmacy Record.
Pharmacy Practice
Mariner Project

The Mariner Project is a national initiative that is designed to engage early career clinical faculty in exploration of academic roles, responsibilities, policies and practices through a series of expeditions across a cohort of 19 peer institutions.

The project was developed and is coordinated by Professor Todd Sorensen and his colleague Professor Leigh Ann Ross from the University of Mississippi.

To date, college faculty who have participated in the program include Associate Professor Keri Hager who visited the University of Georgia, and Assistant Professor Megan Undeberg who visited the University of Illinois-Chicago. Other faculty are scheduled for visits later this year.

“It’s one thing to read an article or listen to a presentation by a colleague at a conference, and it is quite another to go to the physical space and experience what is happening at a peer institution by interacting directly with colleagues in their environment,” said Hager.

“In this regard, the Mariner Project provided me with an excellent opportunity to connect, learn, and get inspired to improve teaching and learning at the University of Minnesota College of Pharmacy.”

The college has also hosted faculty visiting from the University of North Carolina, the University of Utah, and the University of Washington.