

December 2021

MESSAGE FROM THE DEAN

Dear Friends and Colleagues,

Here we are, end of the year and end of the semester. We made it!

The holiday season has been exceptionally enjoyable for the college this year as we received a \$2.2 million gift this month from a donor who wishes to remain anonymous. The funds will help to jumpstart our Rural Health Initiative and I have been told that this is the largest single gift in the history of the college. This level of support will set into motion our vision to make health care more accessible for Washington's rural and underserved communities. In addition, I have received several other commitments to support the Rural Health Initiative and I am extremely humbled by the support we have received.

As someone who grew up in rural Washington, this initiative is personal for me and a labor of love. Our Rural Health Initiative will serve the underserved citizens across rural Washington, create pathways so that student pharmacists and post-graduate pharmacists can specialize in delivery of rural health care, and catalyze economic development in these areas. Our efforts will initially focus on rural areas in the central and eastern regions of the state, but my hope is that the solutions and programs that we develop together will be scalable to include all rural areas of the state and beyond.

We have already begun our work on the Rural Health Initiative. Associate Deans Julie Akers, Angie Stewart and I took a road trip through central Washington earlier this month where we met with health systems and pharmacies in the area to share this initiative. Julie's note below summarizes the fruitful discussions we had with alumni and colleagues. The input we received on this trip has been invaluable, and we look forward to hearing more on how we can serve Washington state with this initiative.

I am also grateful to all the donors who contributed to the [Dean's Excellence Fund](#) on [Giving Tuesday](#). Your generosity and commitment to our college have helped so many students. These funds will go toward scholarships, travel expenses for students to attend conferences, and vaccination supplies.

As I reflect on the many conversations that I've had throughout the year, I am struck by the level of your engagement and vision for our college and the profession. You are helping us to build a better future for our students and the profession in the state of Washington.

I close by paraphrasing comments made at the recent WSPA meeting by a fellow alumnus and dear friend of the college, Chris Greer (I told you I was going to steal your words, Chris!): I love my profession and I love this college and all of its alums, students, faculty, and staff. You make me proud to be a Cougar pharmacist.

Thank you all for another terrific year. I wish you all a warm, happy, and healthy holiday season and I look forward to another trip around the sun together. Let's do this!

Sincerely,



Mark Leid, Professor and Dean
WSU College of Pharmacy and Pharmaceutical Sciences



Top Stories

Healthy holidays gift guide

With the holidays coming up fast we could all use a few extra ideas of gifts to help brighten the days of those we hold dear. College of Pharmacy and Pharmaceutical Sciences faculty weigh in with gift ideas to help make this winter healthy and bright.

Contributing faculty members:



Julie Akers, associate dean for external relations and associate professor of pharmacotherapy



Danial Baker, J. Roberts and Marcia Fosberg Distinguished Regents Professor and director of the Drug Information Center



Taylor Bertsch, assistant professor of pharmacotherapy



Jennifer Robinson, associate dean for professional education and professor of pharmacotherapy



Damianne Brand, Yakima director of student services and assistant professor of pharmacotherapy

APPS

Julie Akers

I use the AllTrails app. It is extremely easy to use as it gives location, length of trails, and elevation change. I can customize hike difficulty based on which of my kids are going. You can also sort by activity for the trail including bicycle, horse, or motorized vehicle use.

Danial Baker

Some of the smartphone apps are very useful. My preference is an app that's made for track running because it's also useful for walking, hiking, skiing, snowshoeing, and cycling records.

BOOKS

Taylor Bertsch

Know someone that has special interests or is working on a new hobby? There is a book for that, they make great gifts and can help others excel in any avenue of life.

Danial Baker

One of the many books about hiking in the Spokane area.

EXPERIENCES

Jennifer Robinson

My favorite healthy holiday gifts are the ones in which facilitate spending time with my loved ones. This could be tickets to a concert, movie, symphony, sporting event or play. It could be a spa day, a fishing excursion or a planned day hike. The amount of money spent does not matter as long as the activity and the time invested is geared toward the interest of the intended participants. This year my 14-year-old son is requesting a cooking class with his grandfather and my daughter is wrangling for a fishing trip with her dad.

Often, we assume people want or need stuff when what we are really in need of is time and connection.

Damianne Brand

A gift certificate to participate in something creative like a painting or pottery class. We all get a little busy and need to “reawaken” our creative sides!

Finally, look for experiences where you are trying new things. Snowshoeing, sledding, or training to hike are great options to get your body moving but for it to not feel like just exercising.

Danial Baker

- A Discover Pass (for Washington state recreation lands) is always a great idea. There are an amazing number of locations in our region to explore during any season that require a Discover Pass for parking and to help offset the maintenance of these great assets.
- If you own a bicycle, inline skates, or walking/running shoes, find a parking spot anywhere along the Spokane Centennial Trail and enjoy! While this is a free trail, a donation to the Friends of the Centennial Trail is a great idea to help support this important community resource.
- If your friend or family own a bike, give them a day pass to the Route of the Hiawatha.
- Donate to the Dishman Hills Conservancy and go explore all the hiking just outside of Spokane. You would be amazed how many trails are in this location. You might see some wildlife and if you go in the spring or summer, you will see lots of wildflowers.

FOR THE HOME

Damianne Brand

I would suggest a gift certificate to a grocery delivery service specializing in organic and healthy foods (Misfit Market or Imperfect Foods) or a few months of meal kits or even Home Chef where they make it and you just heat it up. This could also be homemade and put in frozen containers for a “taste of home.” Food is always welcome when we need a good meal but do not want to plan and shop for all the ingredients.

Taylor Bertsch

Everyone’s life could use a little bit of green.

Something that can brighten your day and bring a little bit of produce/fresh herbs into your life is a hydroponic garden. You can buy these locally at plant shops, department stores or online. It allows for year-round fresh herbs like basil (can be made into a nice pesto when you have excess), dill (always pairs well with seafood or pickling items), thyme (excellent for poultry), sage, etc.

Plants! If you don’t have direct sunlight in your house or office, there’s an indoor plant for that! Have plenty of sun (like a south facing window)? There’s TONS of plants for that. I think there are serious benefits towards having a green house or office. Plants can last forever if you take care of them. My favorite is the fenestrated monstera.

OUTDOOR GEAR

Danial Baker

- A headlamp of any brand, but it depends on how much light you want. The best units are those that offer a bright white light of various intensities and the option for a red light when you don’t want it to interfere with your dark vision. I use them most of the time for walking in the very early morning and evening in the late fall and winter months (plus a flashing red light, like those sold for the back of a bicycle, to place on my back pocket or backpack). I also use it for riding the Trail of the Hiawatha and for snowshoeing before or after a day at work or alpine skiing during the winter.
- Alpine skis, snowboards, cross-country skis, or snowshoes are all ways to get you outside in the daylight hours or at night during the winter months. It is amazing how clear it is in the mountains on those gray and dreary days of winter at the lower elevations. I spend most weekends at an alpine ski resort and/or snowshoeing.

- A backpack is always a great idea. Small ones are useful for short trips where you might need some water, snack, a clothing layer, or a place to store your keys and wallet. Larger day packs are very useful for longer trips where more clothing, food, water, binoculars, maps, and a first aid kit might be a good idea. A hydration unit or water bottles are both good options. Shorter hikes I tend to use a refillable water bottle and on longer hikes or rides a hydration unit. During the winter I tend to use a water bottle because the hose on the hydration pack can freeze up, unless you buy one with an insulation cover that surrounds the hose and mouthpiece.
- A kayak or canoe can be purchased or rented. The Little Spokane River is not that far away from downtown Spokane and is a great escape from the urban environment and to see wildlife. Just remember to purchase a Discover Pass or use the commercial shuttle service that’s available during the summer months.
- Bear spray is a must if you choose to hike anywhere outside of the urban area. Make sure you know how and when to use it before venturing out on your adventure. A great way to learn about this product is to go to the [Bear Spray Introductory Video](#) on the Yellowstone National Park website.

Cannabis use could cause harmful drug interactions

By Judith Van Dongen, originally published in the [WSU Insider](#) December 13, 2021

Using cannabis alongside other drugs may come with a significant risk of harmful drug-drug interactions, new research by scientists at Washington State University suggests.

The researchers looked at cannabinoids—a group of substances found in the cannabis plant—and their major metabolites found in cannabis users’ blood and found that they interfere with two families of enzymes that help metabolize a wide range of drugs prescribed for a variety of conditions. As a result, either the drugs’ positive effects might decrease or their negative effects might increase with too much building up in the body, causing unintended side effects such as toxicity or accidental overdose.

While more research needs to be done, the authors said one early takeaway from these studies is that it’s important to be careful when using cannabis with other prescription drugs.

“Physicians need to be aware of the possibility of toxicity or lack of response when patients are using cannabinoids,” said Philip Lazarus, senior author on the papers and Boeing distinguished professor of pharmaceutical sciences. “It’s one thing if you’re young and healthy and smoke cannabis once in a while, but for older people who are using medications, taking CBD or medicinal marijuana may negatively impact their treatment.”



Boeing Distinguished Professor of Pharmaceutical Sciences Phillip Lazarus is the senior author on the study.



Shamema Nasrin, a graduate student in the pharmaceutical sciences and molecular medicine program, served as the first author for a study suggesting possible negative cannabis-drug interactions

The findings were described in a pair of studies published in the journal *Drug Metabolism and Disposition*. One study focused on a family of enzymes known as cytochrome P450s (CYPs), whereas the other looked at UDP-glucuronosyltransferases (UGTs), another enzyme family. Together, these two enzyme families help metabolize and eliminate more than 70 percent of the most commonly used drugs from the body.

While there has been limited previous research focused on potential drug interactions caused by cannabinoids, this new research provides the first known comprehensive look at the interaction between three of the most abundant cannabinoids—tetrahydrocannabinol (THC), cannabidiol (CBD) and cannabinol (CBN)—and their metabolites and all of the major CYP enzymes. This is also the first known research that looked for interactions between these cannabinoids and UGT enzymes, specifically.

“Cannabinoids stay in your body only for about 30 minutes before they are rapidly broken down,” said first author Shamema Nasrin, a graduate student in the WSU College of Pharmacy and Pharmaceutical Sciences. “The metabolites that result from that process stay in your body for much longer—up to 14 days—and at higher concentrations than cannabinoids and have been overlooked in previous studies, which is why we thought we should focus on those as well.”

The researchers used manipulated human kidney cells that allowed them to look at a single enzyme at a time and validated their results in human liver and kidney specimens in which many of these enzymes were present. They found that cannabinoids and the major THC metabolites strongly inhibited several CYP enzymes. One key discovery was that one of the most abundant THC metabolites, called THC-COO-Gluc—which had not been previously studied in this context—appears to play a major role in inhibiting several key enzymes in the liver. Looking at the UGT enzyme family, the researchers found that all three cannabinoids, but especially CBD, inhibited two of the primary UGT enzymes present in the liver. CBD was also found to block three enzymes that account for about 95 percent of kidney UGT metabolism, which helps clear toxins and certain drugs from the body.

“If you have a kidney disease or you are taking one or more drugs that are metabolized primarily through the kidney and you’re also smoking marijuana, you could be inhibiting normal kidney function, and it may have long-term effects for you,” Lazarus said.

Nasrin added that these interactions between CBD and UGT enzymes could be inhibiting kidney function in patients with acute kidney disease or kidney cancer, who may be using CBD to treat pain or to try to reduce the side effects from anti-cancer drugs.

“Taking CBD or marijuana might help your pain but could be making the other drug you’re taking more toxic, and that increase in toxicity may mean that you can’t continue taking that drug,” Nasrin said. “So, there could be serious ramifications for anti-cancer drugs, and that’s only one example of the many drugs that could potentially be affected by the cannabinoid-enzyme interactions we’re seeing.”

Others who worked with Nasrin and Lazarus on this research include Christy Watson, Yadira Perez-Paramo, Keti Bardhi, Gabriela Fort and Gang Chen, all of whom are, or previously were, at the WSU College of Pharmacy and Pharmaceutical Sciences.

Funding for these studies came from the Health Sciences and Services Authority of Spokane County and the State of Washington’s Initiative Measure No. 502, which funds the university’s Alcohol and Drug Abuse Research Program.

Driving a reproductive health campaign during a pandemic

As the COVID-19 pandemic began to spread across the country in early 2020, student pharmacists Brooke Kotlarz, Kaitlan Belocura and Kennedy Erickson worked with various stakeholders in the community to educate and empower individuals on reproductive health. They share their experience of pivoting to a virtual campaign in Washington state and discuss the vital role that pharmacists play in helping to inform local communities about reproductive health.

By Brooke Kotlarz, Kaitlan Belocura, and Kennedy Erickson

Getting Started

In light of inconsistent and incomplete sexual education offered in public schools throughout the state of Washington, the Washington state Legislature passed Senate Bill 5395 in December 2020 requiring all public schools to teach comprehensive sexual health education by the 2022-2023 school year. Born and raised in Spokane, Brook Kotlarz knows first-hand about the limited nature of sexual education historically offered throughout schools in eastern Washington, prompting the need for this legislation — that is, if any education is offered at all. As a long-time resident and local pharmacy intern, she has become very aware of the myths and concerns that arise when talking to patients about sexual health related medications and how vital it is to dispel

misinformation to protect public health. For example, a common misconception is that emergency contraceptives cause abortions. Another common misconception is that emergency contraceptives are best used the morning after having unprotected sex. Through our presentations, we were able to educate our participants that emergency contraceptives do not cause abortions, as they actually work by preventing sperm from reaching an egg to cause fertilization. In addition, emergency contraceptives are more effective if taken as soon as possible after unprotected sex.

To combat this kind of misinformation, the Washington State Pharmacy Association chapter at Washington State University created the PhRESH committee (Pharmacists for Reproductive Education and Sexual Health) headed by third-year student pharmacists Kennedy Erickson, Kaitlan Belocura, and Brook Kotlarz in 2020. The mission of this committee is to promote safe, accessible, and accurate information on reproductive health so that patients can make informed decisions on what is best for them and their reproductive or sexual health needs. The program was brought over from our friends at the University of Washington. Over the past two years, the PhRESH program at WSU has focused mainly on what emergency contraception is and how to get it based on peer feedback and the committee members' anecdotal experience within the community.



PhRESH delivers its first- ever presentation dismantling common myths related to emergency contraceptives on the WSU Spokane campus in February 2020.

Expanding Reach in a Virtual World

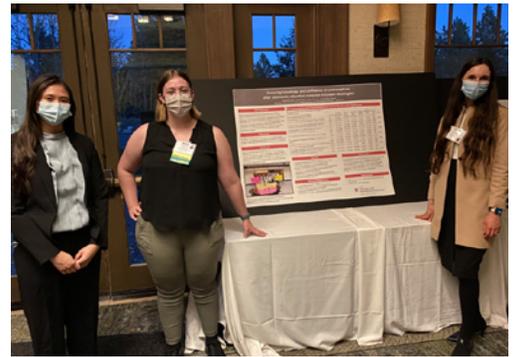
After piloting their first live poster presentation for student pharmacists in February 2020, PhRESH was excited to present this education to broader audiences and made plans to speak at the local community colleges within the city of Spokane throughout the remainder of the semester. However, like every other student organization, plans for in-person events had to be cancelled as a result of the state-mandated lockdown to protect the public from COVID-19. While disheartening, PhRESH was still determined to continue their educational presentations and worked together to adapt their presentations to reach members in the community in a virtual setting.

Throughout the 2020 fall and 2021 spring semester, PhRESH scheduled multiple live Zoom presentations with colleges and universities throughout eastern Washington. Most participants were students ages 18 to 26 who identified as female. They also created a recorded video version of the presentation to share on their , and with the help of a fellow student pharmacist, Kellyan Nguyen, they were able to share the video with other local organizations like the YWCA, Planned Parenthood, and with a great deal of success. To minimize language barriers, they sought out the help of fellow student pharmacists, Jolyslene Robles Mendoza and Karina Méndez, who translated all materials and videos into Spanish. The videos in both English and Spanish were sent to Raiz, a Planned Parenthood program created by Latinx for Latinx, and the YWCA to educate both staff and patients. Kellyan distributed the brochures in Spanish at a feminine hygiene drive in the winter of 2020. One of the largest presentations they delivered was for the WSU Pullman campus, which drew in over 300 participants! Participants of these presentations received information about how they can access emergency and long-term contraceptives, and where they can get additional help for their sexual health needs. PhRESH kept these virtual presentations fun by integrating interactive trivia and discussion into each session.

Breaking Down Barriers to Care

Despite integrating information on how to navigate insurance, coupons, and other financial resources, PhRESH identified through pre- and post-quality assurance surveys that participants from the Pullman campus felt that the cost of over-the-counter emergency contraceptives still posed a financial barrier following the presentation — preventing those participants from accessing them. In response, the PhRESH committee teamed up with CougarStarter to fundraise for an emergency contraception drive, where they raised \$1,265 to both purchase emergency contraceptives and create educational brochures to give to students on the WSU Pullman campus. Many WSU alumni came together to support and fund the campaign!

Normally, a single emergency contraceptive can cost \$30 to \$50 at most pharmacies without a prescription. With the money they raised from CougStarter, PhRESH hosted their emergency contraceptive drive on August 17, 2021, where they distributed over 140 free emergency contraceptives with a retail value of over \$4,000. Each bag contained candy, one package of emergency contraception, and information about how emergency contraception works and what sexual health resources are available to students on and off campus. All bags were distributed in less than three hours with many Pullman students of different genders surprised and thankful for the free 'Plan B'.



Kaitlan Belocura (left), Brook Kotlarz (middle), and Kennedy Erickson (right) present results of their educational outreach over the past year and a half at the Washington State Pharmacy Association's Annual Meeting in Cle Elum, Washington.

Our Impact

Recognizing that there was an overall increase in self-reported knowledge and confidence across all presentations, the students took their work further with the help of faculty member Dr. Jennifer Miller to investigate the tangible impact they had made statistically. Out of the 515 total participants, 248 took the pre-survey and 171 took the post-survey. For every question, there was a significant increase in the perceived confidence and knowledge of the participants surrounding emergency contraceptives. In fact, approximately 94% of respondents agreed or strongly agreed that they were confident in accessing emergency contraceptives both with and without insurance, in comparison to only 42% of respondents agreeing or strongly agreeing prior to the presentations. Equipped with the newfound data, the students prepared a poster presentation that they gave at the WSPA 2021 Annual Meeting on October 29. The culmination of which would not have happened without the help of Dr. Julie Akers, University of Washington's PhRESH, Jolyslene Robles Mendoza and Karina Méndez.

A Call to Action: Get involved with PhRESH!

Going forward, the students who started the PhRESH committee are excited to see where their efforts could go next. The current PhRESH committee would like to get more student pharmacists involved with the committee and host a second emergency contraception drive in Yakima. By collaborating with the Yakima campus and utilizing the Spanish resources translated by Jolyslene and Karina, we hope to extend our reach and continue to dismantle barriers to reproductive care within that community.

A NOTE FROM JULIE AKERS

Dear Friends and Colleagues,

I am sure many of you are still recovering from too much food and an amazing win on the football field over the Thanksgiving holiday. I know I am! The WSU College of Pharmacy and Pharmaceutical Sciences has much to be thankful for, which includes a large, transformational donation toward the Rural Health Initiative. This gift allows the college to move from an idea to implementation. In addition to scholarships and a rural health focused track within the curriculum, the college will collaborate with partners across central and eastern Washington to increase access to care through embedded faculty positions, residencies, and student experiential opportunities.



Dean Leid, Dr. Angie Stewart and I started those conversations with potential collaborators the week after Thanksgiving. Although showing up at four community pharmacies in Wenatchee on the Monday morning after a holiday isn't ideal, it provided a chance for Dean Leid and I to thank the staff for their dedication to patient care during the pandemic, and frankly thank them for showing up to work each day. We then spent three days meeting with systems across central Washington who provide care to rural communities as well as specialty pharmacist-

provided behavioral health care. We came away from those meetings excited about the future of the Rural Health Initiative and impressed with the innovative ways organizations embed pharmacists into their care models.

While in Wenatchee the CougaRx Nation held a networking social at Columbia Valley Brewing. It was a great evening of connection including alumni from decades ago to recent graduates, and even a few current students on rotation in the area. Thank you to those who took the time to join us. We would like to invite all alumni to our next CougaRx Nation event, which will be at [Cougar Crest Winery in Walla Walla on January 27](#). We have a [group rate for the Courtyard Walla Walla](#) for those not from the area.

Students find tremendous value in listening and learning from those who have blazed the trail ahead of them, often opening their eyes to career paths they never considered. Dr. Brooke Ramay and Steve Boulanger are just two recent examples of this. Their experiences inspired students in our Career Seminar Series. Brooke joined us virtually from Guatemala to speak about her work in antimicrobial resistance in low- to middle-income countries and the development of an antimicrobial stewardship program in five hospitals across Guatemala. Steve Boulanger, class of 1988, shared his extensive experience in long-term care pharmacy, providing insight for our students into this growing area of pharmacy practice. Thank you, Brooke and Steve, for giving your time to student pharmacists. If any of you are interested in participating in the Career Seminar Series, please reach out to me.

The Graduate Research Seminar presentations continue to blow me away. Not only are graduate students doing amazing research, but their presentation skills are superb. Great job to each of you who has presented this semester and to their faculty mentors. If you know someone interested in joining the graduate program, the [final deadline to apply is January 10](#).

As we finish up the year, from my family to yours, we wish you a safe holiday with time for relaxation and adventure before launching into 2022. With my best and, as always, Go Cougs!



Julie Akers, Associate Dean of External Relations
WSU College of Pharmacy and Pharmaceutical Sciences

Spotlight on Success

Acquiring research experience during pharmacy school

Emily Hitt is a fourth-year PharmD candidate at Washington State University College of Pharmacy and Pharmaceutical Sciences. The author would like to acknowledge J. R. White, PA-C, PharmD, for his encouragement and editorial support with this article.

Getting involved in research can provide a competitive edge needed to secure postgraduate opportunities after pharmacy school, which is vital if you wish to pursue a career in academia or research. Research experience, presentations, and publications are valued by residency program directors and can provide a competitive edge for opportunities after pharmacy school.

The development of research skills can enhance pharmacists' capability to deal with constant changes in science and clinical practice.¹ Clinical practice often requires pharmacists to interpret, use and communicate published research findings. Early involvement allows student pharmacists to gain exposure and become more comfortable with the research process while acquiring skills in data and time management, critical thinking, and drawing evidence-based conclusions.



Emily Hitt is a fourth-year Doctor of Pharmacy candidate whose personal experience led her to research hypothyroidism.

How and why to get involved

The most important first step is determining what kind of research interests you. Would you rather be at the lab bench working with cell cultures, or would you be more comfortable working from your computer? Pay attention in your classes. Are there fascinating topics that you want to explore further? Personal experiences can also help point you in the right direction. I was born without a thyroid gland and as a result am naturally fascinated by endocrinology, which led me to develop and carry out a project about hypothyroidism. If you have lost a loved one to cancer, you may want to make a difference investigating potential new therapeutic targets in an oncology lab. A chemistry lab focusing on the synthesis of new drug molecules is another option if you love chemistry and want to build on your organic/medicinal chemistry knowledge.

Take a responsible conduct of research course if you can. Your school may already require this based on available research opportunities. You can gain experience with writing abstracts and learning how to critically evaluate original research in the course. A course like this can also give you valuable insight on the most important components of research, such as mentoring, IRB approval, animal research, and avoiding plagiarism and unethical behavior.

Being involved helps you form connections and develop a support system. My consistent attendance at my school's weekly graduate seminars has led to friendships with graduate students and conversations with faculty. Hearing advice from multiple people can be extremely beneficial for your personal growth and can help you build a strong professional network.

What has research taught me?

Research has taught me these five critical skills.

Reciprocity. Mentors are taking time and effort to invest in you and your project. As the mentee, you drive the relationship and play an active role. Take initiative, be prepared for meetings, and listen to your mentor's suggestions. Always think about both sides and enter research with a long-term mindset.

Patience. Writing, editing, and publishing a manuscript can take months. The progress you make won't always be on your preset schedule. A final draft and publication do not happen overnight.

Perseverance, resilience, and courage. My initial attempts at research did not end well, leaving me hopeless and discouraged. I have learned how to persevere in the face of uncertainty, fear, and rejection. It can be scary to put yourself out there. Even if the thought of standing up in front of people makes your knees shake and heart race, your knowledge can bring out confidence you never knew you had. Research allows the shyest and quietest individuals to shine.

Independence and resourcefulness. Your mentor is a source of guidance, but they won't always be by your side. Learn how to use your resources rather than emailing your mentor every time you have a question or feel stuck.

Teamwork. Research teaches you how to collaborate with a common shared goal. Mentoring: It goes both ways

Getting involved with the right mentor and identifying what your goals are for research is essential. Research teaches many important and translational skills that extend beyond the project's topic and is a commitment that takes patience and perseverance. Mentorship is an essential part of success in research, and a partnership that can benefit both mentors and mentees.

Ask yourself some tough questions. Are you open to feedback? Are you comfortable asking for help? What do you want out of a mentoring relationship? Strong and supportive mentorship is vital for research success. The right match and an established relationship will make life easier for both parties. Initiate a conversation with faculty to discuss any ideas or current collaborative projects. Weekly meetings about class material helped me establish a relationship with a professor who later became my research mentor.

Five key features of effective mentoring relationships can be explained through reciprocity, mutual respect, clear expectations, personal connection, and shared values.² These elements will enable you and your mentor to develop a stronger connection and tackle any setbacks or issues as a team. You and your mentor should have a clear idea of what you hope to accomplish together. Honesty and communication from the beginning about the

feasibility of a partnership can prevent heartache and disappointment later. Determine how to communicate in a way that works best for both of you. You and your mentor cannot read each other's minds!

When things don't go right

Despite your best intentions, you may wind up in a mismatched situation. Personality clashes, unrealistic expectations, the wrong project, or poor timing may be the reason for the lack of harmony. Ending a mentoring relationship in a civil and professional manner should always be the goal. Reflect on what could have been done differently and move on with grace. In extreme circumstances, science can get nasty. Racism, discrimination, sexual misconduct, or personal attacks are not okay. Do not be afraid to seek help if these issues are happening.

Enjoy the ride

Being involved in research has been an unforgettable part of my journey. Treasure the opportunity and enjoy the ride, even when you wake panicking from a research nightmare (we have all had them). Research will not always be butterflies and rainbows. Even with the best mentor, editing a manuscript is difficult. Learning and mastering new lab techniques takes time. Getting used to animal research can be painfully challenging. That first rejection from a journal will sting. Moments of frustration, mistakes, and setbacks are inevitable along the way. Remember that there will also be smiles and victories to celebrate. Learn from others who have been through it all before. You will become stronger, more resilient and a well-rounded future pharmacist by contributing to science in meaningful and innovative ways.

References

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2. Straus SE, Johnson MO, Marquez C, et al. Characteristics of successful and failed mentoring relationships: a qualitative study across two academic health centers. *Acad Med.* 2013;88(1):82–9.

***This article first appeared in the American Pharmacists Association website on [November 11, 2021](#).*

Alumni Spotlight: Pharmacy Career in Oncology

Natasha Olson, class of 2014, shares her professional journey from becoming a pharmacy intern at Rite Aid to manager of clinical initiatives with NCODA (National Community Oncology Dispensing Association). Her passion for patient-centered care led her on a path to oncology pharmacy, where she now shares her experience and best practice with other clinicians. Hear her story to learn about the various opportunities from a career in pharmacy.

Can you tell us about your career journey?

Even before I started pharmacy school, I knew that I wanted to own my own pharmacy. I worked as an intern for many years during undergraduate studies at various independent pharmacies (like Odessa Drug). I quickly learned that I did not want to own my own pharmacy and considered maybe retail pharmacy at a chain was more my niche. All through pharmacy school I interned at Rite Aid, with the intent to stay on after graduation. During my APPE rotations, I treated every block as a 6 week job interview. This really paid off when I was offered a job at a long-term care pharmacy. I worked with Omnicare for four years before being offered a job as a clinical oncology pharmacist at Summit Cancer Centers. Being a clinical oncology pharmacist was more work than I ever expected, but more rewarding than I ever expected. My boss gave me the flexibility to focus on what was most important to me: the patient. During my four years at Summit Cancer Centers, I was a very active member of NCODA. Eventually NCODA approached me with the opportunity to join their clinical staff as a manager of clinical initiatives.

What do you do?

As a manager of clinical initiatives, I am responsible for the development and maintenance of clinical guidance documents, like the [Positive Quality Intervention \(PQI\)](#), for oncologists, pharmacists, and nurses. Most of these

documents are around medications, which makes me a great person for this job with my previous experience as an oncology pharmacist. I also help with the development of clinical content for our international meetings and work on other projects that might benefit from a clinical eye.

Why did you choose this career path?

As with so many people, cancer has personally touched my life. Shortly before switching to oncology, my mom underwent cancer treatment. It was fascinating from a pharmacist's perspective all of the nuisances of oncology. The biggest challenge with my mom's case was the interactions with her medication for Myasthenia Gravis (MG), a chronic autoimmune disorder, and the constant tweaking of doses for both her MG medications and her chemotherapy. When the opportunity to become an oncology pharmacist presented itself, I jumped. I love the challenge of oncology pharmacy. There are new medications and indications that are approved almost daily. Pharmacists play a crucial role in the proper management of oncology patients in more ways than just dispensing. From the educating of other staff members about medications, teaching students, helping patients with financial assistance, and the traditional pharmacist role, we are an integral part of the medically integrated team.



Olson shares her professional journey at a WSU NCODA Professional Student Organization meeting.

What is the most rewarding part of your job?

The most rewarding part of my job is knowing that the projects that I am working on really help people in practice. When I was in clinical practice, I would use these documents that I now help to develop. They were extremely helpful for me and for my patients. Although I miss direct patient care, it is extremely rewarding to know that I can still help patients.

What is the best career advice you can offer student pharmacists?

Network! Take advantage of every conference, event, and professional interaction that you have. You never know who could be a potential mentor or your future boss. The connections that you make can have far reaching effects on your life personally and professionally, so do not waste these opportunities!

Student pharmacists work across disciplines to solve complex patient cases

Working with future physicians, nurses, and health care providers across disciplines is a vital part of the WSU Doctor of Pharmacy program. It prepares student pharmacists for a real world setting where they may be collaborating with providers on the best plan of action for unique patient situations. For example, how does one treat a 72-year-old patient who is recovering from prostate cancer and living with type 2 diabetes and rheumatoid arthritis?

“When students are thrust into real-life situations where they must work with other health care providers—not just across disciplines, but also across cultures, it gives them a chance to put into practice what they learn in class,” said WSU Pharmacotherapy Professor Megan Willson.

This cross-collaboration was displayed last month when students from 30 institutions across 6 countries split into five teams to create a plan of action for a patient case in the first ever International Interprofessional Case Competition. Along with five students from Washington State University, teams across time zones and countries from the United Arab Emirates to the United States, competed in teams to present their recommendations on treating a patient case to judges.



Third-year Doctor of Pharmacy student Emma Morgan was on the winning team in the International Interprofessional Case Competition.

“This was such a unique opportunity because it was an accurate representation of what it will be like working interprofessionally once we graduate,” noted Emma Morgan, a third-year pharmacy student at Washington State University’s Doctor of Pharmacy program. “The time zone differences presented a unique challenge but we were able to communicate well and collaborate with each other to create a well-rounded treatment plan. The patient case was very complicated, and I wouldn’t have been able to do it without my team!”

The five teams had to create a 15-minute video of their plan to care for the patient as well as a short reflection on how the team overcame challenges of working interprofessionally and internationally. Faculty from five different institutions judged each team’s submissions and then interviewed each team for fifteen minutes about their approach to each case.

“I’m very proud of all students who took part in this competition. It was clear that they learned a lot from this experience and understood the value of patient-centered care,” said Willson who was also one of the judges for the competition.

PHILANTHROPY FOCUS

Did you know? If you’ve ever thought about making a philanthropic donation to the college, this is a great time to do it. Why? Because the CARES Act, which allows you to deduct 100% of your charitable gift, expires on December 31 of this year. Learn more from the WSU Foundation or contact Kelly Sylvester, director of development for the College of Pharmacy and Pharmaceutical Sciences, at 509-368-6675 or kelly.sylvester@wsu.edu if you have questions.

Learn more about giving at pharmacy.wsu.edu/give

Alumni News

We had a chance to visit with **Steve Smith** ('80 Pharmacy) and his wife, **Natalie** ('80 MS History) on a recent trip to Phoenix. Steve and Natalie shared stories about renting a house from **Sue Merk** ('76 Pharmacy), who is also the godmother of their daughter. It’s amazing how interconnected the CougaRx Nation is! Both Steve and Natalie are fully retired, and Natalie is involved with the Arizona Humanities Council, while Steve has taken up a new hobby of making impeccable handcrafted wood furniture. In fact, he took first place in a recent competition. You can email them at sismith200@gmail.com to say hello and inquire about wood furniture!



Derek Matlock ('15 PharmD) has been promoted to Clinical Operations Pharmacist at TabulaRasa Healthcare (TRHC) in Tucson, Arizona. TRHC provides patient-specific, data-driven technology that enable health care organizations to optimize medication regimens with the goal of improving health outcomes. Congratulations, Derek!



Congratulations to **Ruby Siegel** ('21 PhD Pharmaceutical Sciences), who has landed a job at the Northwestern University Feinberg School of Medicine as a Histocompatibility and Immunogenetics Laboratory Director in Training. She will be moving to Chicago immediately to start her new adventure and will be missed in the PBS building. Congratulations and best wishes from all of us at the college.

Tyler Young ('13 PharmD) and his wife Amy, have owned [Vashon Pharmacy](#) on Vashon Island, Washington for over four years and are doing very well. They plan to launch clinical and medical services in 2022, as well as expand their high-end vitamin lines to tap into the functional nutritional medicine category.

Want to be listed in our alumni updates? Send us your career information or let us know what you've been up to at pharmacy.gocougs@wsu.edu!



Other News

Double shot season: Doctors say it's safe to get flu and COVID-19 vaccinations at the same time

With flu shots and COVID-19 boosters both now available, Associate Dean for Professional Education Jennifer Robinson joins other local experts to answer some of the most common questions about flu vaccines and getting the two shots at the same time.

[Read more from The Spokesman-Review](#)

Certain foods and beverages can interact with drugs

Can consuming specific foods or beverages effect how medications work? Pharmaceutical Sciences Professor Mary Paine explains how certain food-drug interactions can lead to a decrease, or increase, of medication concentrations.

[Read more from the Washington Post](#)

Transgender Care Is Patient Care

Pharmacotherapy Assistant Professor Cheyenne Frazier explained the opportunities for pharmacists to provide gender-affirming care while serving as lead speaker for the American Society of Health-System Pharmacists (ASHP) Midyear session, "Caring for transgender people: insights and points of controversy in medication therapy."

[Read more from ASHP Midyear Daily News](#)

Pandemic pivots: Pharmacy closes and dog food's out of stock—what now?

Don't let supply chain disruptions get in the way of taking care of your health. Pharmacotherapy faculty members Julie Akers and Danial Baker recently talked to the Spokesman Review about why it's a good idea to plan ahead and the various issues that may be impacting pharmacies nationwide.

[Read more from The Spokesman-Review](#)

Advancing Native American health sciences at WSU Spokane

As the Native American Health Sciences program expands, it opens more opportunities for Native students interested in pursuing an education in the health sciences.

[Read more from the WSU Insider](#)

Science Explained: What does a booster shot do for immunity?

What exactly is a booster shot, and why do we need it? Pharmacotherapy Assistant Professor Nicole Rodin recently talked to the Daily Evergreen to help answer just that question.

[Read more from the Daily Evergreen](#)

Webcast: Pharmacists and the Effective Management of Diabetes

Pharmacotherapy Vice Chair & Allen I. White Distinguished Professor Josh Neumiller recently joined a panel discussion about the critical role that pharmacists play in helping patients manage diabetes.

[View the webcast from Pharmacy Times](#)

Wake Up With Research: Pain and Addiction

Pharmaceutical Sciences Professor Mary Paine joined faculty from the College of Arts and Sciences, College of Nursing, and Elson S. Floyd College of Medicine to discuss their research on pain and addiction. Paine is nationally renowned for her cutting-edge research on natural product-drug interactions.

[Watch on YouTube](#)

Faculty Scholarship

PUBLICATIONS

J. Roberts and Marcia Fosberg Distinguished Regents Professor of Pharmacotherapy and Director of the Drug Information Center **Danial Baker** published, “Drug utilization evaluation – asparaginase erwinia chrysanthemi (Recombinant) (Rylaze),” in Wolters Kluwer Health’s The Formulary Monograph Service (FMS) in October 2021. Wolters Kluwer Health is a drug and health information publisher, the FMS is a resource used in the formulary decision making process for hospitals and managed care systems on recently released and investigational drugs.

Pharmacotherapy Clinical Professor and Director of Quality Assurance Improvement & Accreditation Preparation **Terri Levien** and **Danial Baker** published, “Drug Utilization evaluation – belumosudil (Rezurock),” in the FMS in October 2021.

Danial Baker published, “Drug utilization evaluation – infgratinib (Truseltiq),” in the FMS in October 2021.

Drug Information Center Resident **Regan Smith** and **Danial Baker** published, “Drug utilization evaluation – finerenone (Kerendia),” in the FMS in October 2021.

Danial Baker published, “Drug utilization evaluation – belumosudil (Rezurock),” in the FMS in October 2021.

United States Transuranium and Uranium Registries (USTUR) Assistant Professor **Maia Avtandilashvili** and USTUR Director and Professor **Sergei Tolmachev** published, “Four-decade follow up of plutonium contaminated puncture wound treated with Ca-DTPA,” in the peer-reviewed Journal of Radiological Protection in December 2021.

USTUR Postdoctoral Research Associate **Martin Šefl**, **Maia Avtandilashvili**, and **Sergei Tolmachev** published, “Inhalation of soluble plutonium: 53-year follow-up of Manhattan Project worker,” in the peer-reviewed journal Health Physics in June 2021.

Martin Šefl, **Maia Avtandilashvili**, USTUR Associate in Research **Stacey McComish**, and **Sergei Tolmachev** published, “Plutonium in Manhattan Project workers: using autopsy data to evaluate organ content and dose estimates based on urine bioassay with implications for radiation epidemiology,” in the peer-reviewed journal PLOS ONE in October 2021.

Maia Avtandilashvili and **Sergei Tolmachev** with three co-authors published, “Long-term retention of plutonium in the respiratory tracts of two acutely-exposed workers: estimation of bound fraction,” in the peer-reviewed journal Health Physics in March 2021.

Maia Avtandilashvili and **Sergei Tolmachev** with three co-authors published, “Modeling the long-term retention of plutonium in the human respiratory tract using scar-tissue compartments,” in the peer-reviewed journal Radiation Protection Dosimetry in November 2021.

Maia Avtandilashvili and **Sergei Tolmachev** with three co-authors published, “Modelling of long-term retention of high-fired plutonium oxide in the human respiratory tract: importance of scar-tissue compartments,” in the Journal of Radiological Protection.

Pharmaceutical Sciences Research Technologist **Katherine D. Lynch**, WSU Washington Animal Disease Diagnostic Lab Assistant Professor **Laura A. White**, and Pharmaceutical Sciences Assistant Professor **John Clarke** with three co-authors published, “MCLR-elicited hepatic fibrosis and carcinogenic gene expression changes persist in rats with diet-induced nonalcoholic steatohepatitis through a 4-week recovery period,” in *Toxicology*.

Pharmacotherapy Vice Chair and Allen I. White Distinguished Professor **Joshua Neumiller** and two co-authors published, “Overcoming barriers to implementing new therapies for diabetic kidney disease: lessons learned,” in *Advances in Chronic Kidney Disease*.

Josh Neumiller and two co-authors published, “[Management of chronic kidney disease in type 2 diabetes: screening, diagnosis and treatment goals and recommendations,](#)” in *Postgraduate Medicine* in November 2021.

Josh Neumiller and two co-authors published, “[Determining the right agent for the right patient with type 2 diabetes and compelling comorbidities,](#)” on PowerPak Online in November 2021.

Josh Neumiller and two co-authors published, “[Adjusting background therapy when initiating GLP-1 receptor agonists: what pharmacists need to know,](#)” on PowerPak Online in November 2021.

Josh Neumiller and two co-authors published, “[Interchanging GLP-1 RAs: A roadmap for pharmacists,](#)” on PowerPak Online in November 2021.

Josh Neumiller and two co-authors published, “[GLP-1 receptor agonist news: late breaking data and pharmacist implications,](#)” on PowerPak Online in November 2021.

Danial Baker published, “Drug evaluation – ruxolitinib cream (Opzelura),” in the FMS in December 2021.

Regan Smith and **Danial Baker** published, “Drug evaluation – atogepant (Qulipta),” in the FMS in December 2021.

Danial Baker published, “Drug evaluation – maralixibat (Livmarli),” in the FMS in December 2021.

Regan Smith, **Terri Levien** and **Danial Baker** published, “Drug evaluation – anifrolumab (Saphnelo),” in the FMS in December 2021.

Danial Baker published, “Drug utilization evaluation – atogepant (Qulipta),” in the FMS in December 2021.

Terri Levien and **Danial Baker** published, “Formulary drug review: belumosudil,” in *Hospital Pharmacy* in December 2021.

PRESENTATIONS

Josh Neumiller presented “[Clinical pearls about the use of SGLT2 inhibitors for patients with CKD,](#)” at the American Society of Nephrology (ASN) Kidney Week 2021 annual conference on November 4, 2021.

Josh Neumiller presented “[Optimal delivery of diabetes and CKD therapies by multidisciplinary care models,](#)” at the ASN Kidney Week 2021 annual conference on November 4, 2021.

Danial Baker presented “Critical appraisal of systematic reviews,” at the Gulf Medical University’s College of Pharmacy in Ajman, United Arab Emirates on November 2, 2021.

Pharmacotherapy Academic Resident **Lee Roy Esposito** presented, “[Legal shorts,](#)” at the Washington State Pharmacy Association 2021 Technician Day on October 2, 2021.

Martin Šefl presented, “Internal dosimetry of plutonium: from biokinetics to dose estimates,” at Dny radiační ochrany 2021 (Days of Radiation Protection 2021), a virtual conference organized by the Czech Society for Radiation Protection, November 8, 2021. Faculty co-authors included Maia Avtandilashvili and Sergei Tolmachev.

Stacey McComish, USTUR Medical Technologist **Florencio Martinez**, **Sergei Tolmachev** and two other co-authors created the presentation, “Over- and under-classification of underlying cause of death on death certificates from a small all-autopsied population of former nuclear workers,” which was presented virtually to the American Public Health Association Annual Meeting and Expo on October 22, 2021.

Josh Neumiller served as a panelist for the Pharmacy Times webcast, "[Pharmacists and the effective management of patients with diabetes](#)," in December 2021.

Pharmacotherapy Assistant Professor **Cheyenne Frazier** and one other presented, "[Caring for transgender people: insights and points of controversy in medication therapy](#)," at the American Society of Health-System Pharmacists Midyear Clinical Meeting on December 9, 2021.

SERVICE

Pharmaceutical Sciences Professor **Mary Paine** has been selected as secretary/treasurer-elect for the International Society for the Study of Xenobiotics (ISSX). Dr. Paine will begin her term beginning January of 2022. ISSX has members from over forty-five different countries from both industry and academia and consist of research scientists or future scientists in toxicology, pharmacology, and molecular biology.

Pharmaceutical Sciences Associate Professor **Sayed Daoud** was recently appointed on National Institutes of Health (NIH) DP2 Editorial Board Review Panel.

GRANTS AND AWARDS

Martin Šefl received an award from the Czech Society for Radiation Protection for the best work written by a young scientist in the field of radiation protection for his paper, "Inhalation of soluble plutonium: 53-year follow-up of Manhattan Project worker."

Student Achievement

PHARMACEUTICAL SCIENCES AND MOLECULAR MEDICINE STUDENTS

Shamema Nasrin (Lazarus lab) was selected as the [Drug Metabolism and Disposition Highlighted Trainee Author](#) for December 2021.

DOCTOR OF PHARMACY (PHARMD) STUDENTS

Bahar Adamzadeh (class of 2022) with faculty co-authors **Danial Baker** and **Terri Levien** published, "Drug utilization evaluation – plasminogen, human-tvmh (Ryplazim)," in the FMS in October 2021.

Lynn Luu (class of 2022) and **Bahar Adamzadeh** (class of 2022) with faculty co-author **Josh Neumiller** published, "[Update on the management of diabetic kidney disease](#)," in U.S. Pharmacist in November 2021.

Emily Hitt (class of 2022) published, "[Acquiring research experience during pharmacy school](#)," about through the American Pharmacists Association website in November 2021.

Roselyn Johnson (class of 2022) with faculty co-authors **Regan Smith**, **Terri Levien** and **Danial Baker** published, "Drug evaluation – tick-borne encephalitis vaccine (TICOVAC)," in the FMS in December 2021.



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