

interest them. Student leaders have also set up projects to further help those in need from improving women's health to alleviating poverty in under-served areas.

To prepare them for all of these civic engagement opportunities, all second-year pharmacy students complete our point of care testing curriculum and APhA vaccination training certificate program.

6. Students influence change

WSU pharmacy students make an impact beyond Spokane's borders as well. Students have learned to be leaders and advocates for the profession, working to find ways to expand the opportunities for students such as themselves.

Recently, one WSU pharmacy student, Joanna Gourley, proposed the addition of a student to the American College of Veterinary Pharmacists (ACVP) national board, giving pharmacy students across the nation a voice in the organization. They took her proposal to heart, making Gourley herself the first AVCP student board member.

Another pharmacy student, Brandy Seignemartin, championed a bill, which in turn changed Washington state law, to allow pharmacy, nursing and medical students to be supervised by preceptors from any of those professions while volunteering. The new law gives students in health care easier access to experiential learning with mentorship and facilitates and makes it easier for them to participate in community health fairs and vaccination clinics.

7. Graduates go on to do great things

When our students finish their Doctor of Pharmacy degree, they follow a variety of paths. One class of 2017 graduate even returned to the college last winter to talk about his career in Medication Management. Another has been teaching the WSU Veterinary Pharmacy elective since her graduation in 2017 while working at the University of Wisconsin (UW) School of Veterinary Medicine as the residency director for the Clinical Veterinary Pharmacy Residency program and pharmacy manager at UW Veterinary Care. Others have gone on to a variety of fields, or instead chosen to pursue residencies and fellowships where they can further develop their leadership skills, improve patient care, refine skills, and advance their growth in clinical judgement. In recent years, the college has seen an ongoing increase in residency matches and 34 WSU Doctor of Pharmacy Spokane 2020 graduates went on to a residency.

A NOTE FROM LINDA GARRELTS MACLEAN

Dear Friends and Colleagues,

I hope that you all are well and enjoying your summer with a chance to spend time with loved ones and unwind with everything that is happening in the world today. Summer months give me a chance to catch up with friends of the college. In one particular exchange, a former colleague reached out to tell me that he had managed to reduce his usual expenditures due to stay-at-home orders and wanted to make a contribution with his extra savings to support our student pharmacists during this difficult time. This act alone really made me see that even in times of hardship, human kindness always prevails.

I am grateful to people like him and others who continue to keep our next generation of student pharmacists and scientists in their thoughts despite the financial challenges that many endure today. It is during these challenging times when generous donations are most critical and can make a significant impact on our students. Whether they are paying for groceries or reducing their financial burdens, these funds have helped our students get through these uncertain times.



As we head into the fall semester, I hope that you will keep our student pharmacists in your thoughts. We are proud of what our students and faculty are doing in the community to help battle the ongoing pandemic. Several have stepped up to help the less fortunate, or volunteer with COVID-19 testing in hot spots. I'm glad to see that in these moments of darkness, our students and faculty shine bright.

Thank you all again for your continued support and guidance.

With best regards and much respect,



Linda Garrelts MacLean, Vice Dean of External Relations
WSU College of Pharmacy and Pharmaceutical Sciences

Spotlight on Success

Embedded: Student pharmacist on the frontlines of COVID-19 testing in Yakima

In early June, Yakima county experienced a spike in COVID-19 cases, becoming a West Coast hot spot. According to the Yakima Herald, the reproductive number for the virus in early June stood at 2.0. In other words, for every person that is infected, that individual would infect another two people. By comparison, that number for eastern Washington stood at 1.20 for the same period.

Doctor of Pharmacy students from the College of Pharmacy and Pharmaceutical Sciences quickly stepped up to help with mitigation efforts. Working alongside the Yakima Health District and the US National Guard, WSU student pharmacists volunteered to help direct people in improvised testing centers set up in various parking lots. The college sat down with third-year pharmacy student, Brian Wu, from Lakewood, Washington, to hear about his experience volunteering at the test site.



Brian Wu (right), third-year student pharmacist, volunteering with a Yakima Health District worker at a Yakima COVID-19 testing center. Earlier this year, Yakima County was deemed a hot spot with one of the highest coronavirus cases per capita on the West Coast.

What made you want to volunteer?

I wanted to volunteer because I want to play a part in helping my community and in this public health crisis. Yakima is my home and it is seeing the worst of the pandemic on the West Coast. Since I have some free time, I'm happy to help Yakima get through this situation.

Can you describe the people who were going in to get tested?

There were many people of all ages and ethnicities. The population of Yakima is primarily white and Latino. Although I do not speak Spanish, I was fortunate to work with Cathy, a bilingual Health District employee. We saw people from older adults to young parents with small children. I saw many people driving with friends or family members. There were entire families coming to get tested. Just today I saw a woman who was discharged from the hospital for COVID-19 with an oxygen cannula driving her son to get tested. There were even several patients who were visibly very sick and feverish who I was surprised were able to drive to the site on their own.

Is there any advice you can give to future pharmacy students about getting into this profession during this pandemic?

I would tell pharmacy students that the profession of pharmacy is concerned with a lot more than just drugs. As health care professionals, we have the ability and responsibility to serve our communities and improve public

health. I expect that pharmacists and interns will play a vital role in providing coronavirus immunizations when the time comes.

Is there any advice you can give the general public on how to stay safe during this pandemic?

I can't give better advice than we have been receiving from health care workers and public health officials for the past few months. Wash your hands often, wear a face covering, limit your contact with those outside of your household, and maintain a 6-foot distance from those around you.

Can you describe the testing center?

I worked my third 4-hour volunteer shift this month at Eisenhower High School in Yakima. Yakima Health District was looking for volunteers to help screen patients coming for COVID-19 testing at various sites throughout Yakima county. Volunteers helped representatives from the Health District direct traffic, screen patients for symptoms, and provide information about health and hygiene. I previously worked at a site in the Valley Mall parking lot in Union Gap.

Who arranged the testing site and who are the people working there?

The testing site was being operated by the US National Guard in coordination with the Yakima Health District and the Yakima County Emergency Operations Center. Volunteers assisted representatives from Yakima Health District. I understand that volunteers were students in health care programs throughout the Yakima area. I had the pleasure of working with an osteopathic doctor student from PNWU and a master's student from Central Washington University who was working in a fellowship program with the Health District.

Was there anything from your day in volunteering that stood out to you the most?

I was struck by the wide range of opinions and emotions among people coming to get tested. There were people who were very kind and thanked me for helping. I had people exasperated about their friends and family who weren't taking masking and social distancing seriously. I had a person angry about what he considered infringements on his personal liberties and accused me of perpetuating government disinformation. People are reacting to the pandemic differently and opinions are divided. I think that health care workers have a critical role in helping others understand that this is not a political issue—it is a public health issue.

How did you feel when you went to volunteer?

I can't pretend I wasn't a little worried about getting sick, but I don't think that I'm endangering myself more than I otherwise am by working in a pharmacy. The Health District provides volunteers with gloves and N-95 masks and we talk to patients at a distance from outside their cars. I have limited my contact with other people outside of work and home in case I do become sick.

Do you plan to volunteer again?

Yes! This is my third time volunteering. The mobile testing sites are planned to continue through July and I will help whenever I am free until that time.

Keeping students and faculty connected while socially distanced

As COVID-19 swept through the nation, many institutes of higher education were faced with the prospect of suddenly moving instruction to a virtual setting. The WSU College of Pharmacy and Pharmaceutical Sciences (CPPS) was no exception. With only a few days' notice, the CPPS IT team had to spring to action to provide the IT infrastructure for nearly 700 students and 160 faculty and staff to work from home as the [Washington state governor issued a mandated stay-at-home order in March.](#)

On a normal day, the CPPS IT team could be doing multitude of tasks, from supporting video conferencing or helping with connectivity issues, to system maintenance, custom applications or finding ways to collect and move data in a

more streamlined manner. They serve CPPS students, faculty, and staff with any technological needs. As COVID-19 made its way across Washington state, these daily tasks turned to outfitting computers with cameras and virtual private networks (VPN) for teleworking.

“We’re very different than a lot of IT organization where everyone is specialized in one job,” said CPPS Director of Information & Instructional Technology Ryan Maynard; instead, he explained that every member of his three-person team is ready for any task the college throws at them.

Beyond ensuring that all faculty and staff had the equipment they needed, the IT team needed to ensure students could access all the systems and resources they would need on a daily basis. This meant mapping out places with free Wi-Fi access and helping students in rural communities get internet connection in order to take tests or go to class virtually.

“When you move a whole world online in a short amount of time there’s a lot of infrastructure that hasn’t been tested,” explained Maynard. “The biggest distinction is a faculty teaching 160 students — it affects all those people whereas for a student, just one person is being impacted. It’s stressful for faculty.”

Lately his team has been working to ensure faculty, students and staff stay connected in this time of social distancing. Working with individuals who are not physically on campus presents a whole new group of challenges for his team. Where all the infrastructure would normally be housed on campus and within the IT team’s control, now they are facing issues with home internet connectivity and working to solve problems from a distance.

Even so, “Just about everyone transitioned very quickly given what was thrown at them,” said Maynard.

The college’s progressive active-learning model helped make this transition a little smoother. With this model, known as the flipped classroom, WSU pharmacy students review materials ahead of time so class time can be used for self-guided learning and informed discussion with instructors and peers.

“Looking at the big picture, it absolutely made it easier to have the flipped classroom,” said Maynard. “Faculty were already used to a different way of teaching and were a little more prepared for moving that group instruction online.”

The IT team continues to work with students and faculty as the college prepares for the fall semester. With classes going virtual for the start of the academic year, the IT team says that they face fewer hiccups than when the stay-at-home order first began.

“I’m fortunate to have Kelly [Bronson] and Mike [Johnson]. They’re absolutely amazing. They’ve been able to solve all the problems, come up with solutions, and work to make sure everyone’s needs are met,” said Maynard of his CPPS IT team.

“I think the hardest transition [for the college] is the social and emotional piece of isolation.”

Treating the incurable: WSU researcher makes strides in prostate cancer research

Originally published in the College of Pharmacy and Pharmaceutical Sciences [2019 Annual Report](#)

In 2019 alone, there will be an estimated 174,650 new cases of prostate cancer. It is the second leading cause of cancer death in American men and approximately one man in 41 will die of prostate cancer.

Dr. Boyang (Jason) Wu, an assistant professor in the Department of Pharmaceutical Sciences, wants to change that. After researching prostate cancer for nearly a decade, Wu is devising new strategies to treat incurable forms of the disease.

“Although prostate cancer affects a large population of men, we still lack therapies that treat the most lethal forms of prostate cancer,” said Wu.



Left to right: IT team members Kelly Bronson and Michael Johnson, taken prior to the Washington state Stay Home, Stay Healthy order.

The current most common treatment for prostate cancer is hormone therapy, which mediates the effect of hormones linked to prostate cancer, such as testosterone, in the body. While these initial treatments are very effective, the cancer often progresses into the terminal stage of the disease known as castration resistance. Castration-resistant prostate cancer continues to grow despite very low levels of testosterone in the system. This form of the disease is extremely aggressive and leads to the death of over 30,000 men every year in the U.S.

The castration-resistant stage of the disease is treated with more aggressive hormone therapies but can rapidly develop a resistance to those therapies as well until it becomes neuroendocrine prostate cancer. According to Wu, neuroendocrine prostate cancer is when the disease progresses to the very lethal stage.

Currently, there is no effective treatment for neuroendocrine prostate cancer, and the life expectancy of patients suffering from this deadly disease is approximately seven months.

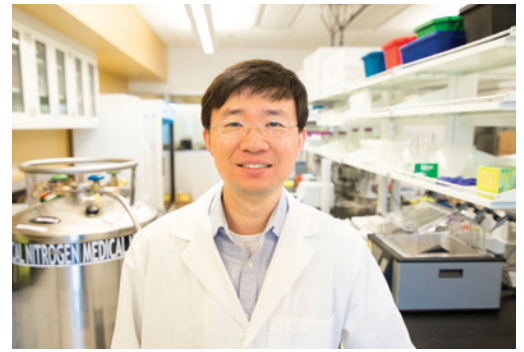
However, Wu's latest research has revealed that when prostate cancer develops to this point the cells begin to mimic nerve cells. Wu believes this phenomenon, called neuromimicry, allows the cancer cells to become more aggressive.

"Targeting neuromimicry means we have a new way to treat late stage prostate cancer—and at the moment, there are no options to treat late stage prostate cancer," said Wu.

By mimicking nerve cells, the cancer cells interact with true nerve cells, meaning the cancer can spread through nerves to other parts of the body. This mimicry also allows the cancer cells to survive treatment because they no longer express the biomarkers being targeted by treatment.

Now, with funding from a new three year \$500,000 grant from the US Department of Defense, Wu will further work to understand neuromimicry in the hopes of targeting neuronal genes and prolonging patient survival.

"Because neuromimicry is a novel concept, maybe we can develop new ways to treat late stage prostate cancer and other cancers such as pancreatic and gastric cancers which have similar neuromimicry patterns," Wu said.



Boyang (Jason) Wu

PHILANTHROPY FOCUS

This year marks 49 years of giving to the College of Pharmacy and Pharmaceutical Sciences for Arthur and Norma Griff, who are in their early 90s and enjoying good health during the pandemic. Arthur, a graduate of the class of 1951, owned Tallman Drugs in Walla Walla until his retirement, and was active in the Washington State Pharmacy Association. He explained his consistent giving with this simple explanation, "well, pharmacy has been very good to me." The couple, who will celebrate 70 years of marriage next June, made their most recent gift to the [Pharmacy Student Emergency Fund](#). Congratulations to Arthur and Norma, and thank you for your long time support of the college!

Alumni News

- **Cecilia Nakajima**, class of 1996, recently celebrated 14 years as a Manager with CVS Caremark in Alhambra, CA. Cecilia has been instrumental in recruiting students from Southern California for the college. Congratulations!

- **Stephanie Staniewski**, class of 1991, passed away in April after a valiant battle with brain cancer. She is survived by her loving husband, Dr. John Staniewski, of Sandpoint, Idaho, and three children. Our heartfelt condolences to the family on their tragic loss. [View obituary](#)

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

Other News

An update on the WHO and ACIP 2020-2021 influenza vaccine recommendations

Pharmacotherapy Associate Professor Kimberly McKeirnan provides an update on influenza vaccine recommendations and the role pharmacists can play in building public awareness of the importance of receiving the annual vaccine.

[Read more from Pharmacy Times](#)

PTCB collaborates with American Pharmacists Association to develop immunization credential program for pharmacy technicians

The Pharmacy Technician Certification Board (PTCB), the nation's leading certifying organization for pharmacy technicians, is collaborating with the American Pharmacists Association (APhA) to provide pharmacy technician credentialing in immunization delivery to those completing the APhA/Washington State University Pharmacy-Based Immunization Administration by Pharmacy Technicians program. Developed by APhA in partnership with the Washington State University College of Pharmacy and Pharmaceutical Sciences, the training program provides pharmacy technicians with the knowledge and skills they need to safely administer vaccinations to patients.

[Read more from PTCB](#)

Faculty Scholarship

PUBLICATIONS

Pharmaceutical Sciences Associate Professor **Bhagwat Prasad** and four co-authors published, "OATP-mediated hepatic uptake of glucuronide metabolites of androgens," in *Molecular Pharmacology* in June 2020. [View abstract](#)

Pharmaceutical Sciences Research Associate **Fan Zhang**, Pharmaceutical Sciences Associate Professor **Shuwen Wang**, and Pharmaceutical Sciences Professor **Jiyue Zhu** published, "ETS variant transcription factor 5 and c-Myc cooperate in derepressing the human telomerase gene promoter via composite ETS/E-box motifs," in the *Journal of Biological Chemistry* in July 2020. [View abstract](#)

Fan Zhang, Pharmaceutical Sciences Assistant Professor **De Cheng**, **Shuwen Wang**, and **Jiyue Zhu** published, "Crispr/Cas9-mediated cleavages facilitate homologous recombination during genetic engineering of a large chromosomal region," in *Biotechnology and Bioengineering* in May 2020. [Read article](#)

J. Roberts and Marcia Fosberg Distinguished Professor of Pharmacotherapy **Danial Baker** published, "Drug evaluation – isatuximab-irfc (Sarclisa)," in Wolters Kluwer Health's The Formulary Monograph Service (FMS) in July 2020. 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.

Danial Baker published, "Drug evaluation – osilodrostat (Isturisa)," in the FMS in July 2020.

Danial Baker published, "Drug evaluation – rimegepant (Nurtec ODT)," in the FMS in July 2020.

Danial Baker published, "Drug evaluation – eptinezumab (Vyepiti)," in the FMS in July 2020.

Danial Baker published, “Drug utilization evaluation – rimegepant (Nurtec ODT),” in the FMS in July 2020.

Pharmacotherapy Associate Professor (Yakima) **Rustin Crutchley** contributed his expertise to the “Human immunodeficiency virus” chapter for the second edition of the American College of Clinical Pharmacy’s publication, Pediatric Pharmacotherapy.

Pharmacotherapy Associate Professor **Kimberly McKeirnan** published, “An update on the WHO and ACIP 2020-2021 influenza vaccine recommendations,” in Pharmacy Times in July 2020. [Read article](#)

Pharmacotherapy Assistant Professor **Katie MacCamy** and one co-author published, “Dexmedetomidine for treatment of delayed peak symptoms of cannabis withdrawal syndrome: a case report,” in the peer-reviewed journal Hospital Pharmacy in May 2020. [View abstract](#)

Bhagwat Prasad, Pharmaceutical Sciences Assistant Professor **Abdul Basit Shaikh** and one co-author published the chapter, “Quantifying drug metabolizing enzymes and transporters by LC-MS/MS proteomics,” in the book *Identification and Quantification of Drugs, Metabolites, Drug Metabolizing Enzymes, and Transporters (Second Edition)*. [View abstract](#)

PRESENTATIONS

Pharmacotherapy Associate Professor **Julie Akers** and Pharmacotherapy Associate Professor **Jennifer Robinson** presented “Pharmacy leadership and management: building effective teams,” at the virtual Society of Veterinary Hospital Pharmacists Annual Meeting on June 29, 2020.

Julie Akers and co-speakers facilitated the live Q&A, “Developing a prescriber’s mindset for advanced pharmacist roles and interprofessional teaming,” at the 2020 virtual American Academy of Colleges of Pharmacy (AACP) Annual Meeting on July 21, 2020.

Pharmacotherapy Assistant Professor (Yakima) **Damianne Brand-Eubanks**, Pharmacotherapy Assistant Professor (Yakima) **Anne Kim**, **Jennifer Robinson**, and co-speakers presented, “Mental health first aid: increasing student pharmacist preparedness to respond through simulation,” at the virtual AACP Annual Meeting on July 22, 2020.

Rustin Crutchley and co-speakers presented, “Teach the teacher: a conversation with FDA about pharmacogenomics information in drug labeling,” at the virtual AACP Annual Meeting on July 27, 2020.

Jennifer Robinson and co-speakers presented, “Cultivating essential skills—situational judgement tests to develop professionalism,” at the virtual AACP Annual Meeting on July 23, 2020.

Pharmacotherapy Associate Professor (Yakima) **Angela Stewart** and co-speakers presented, “Moving IPE to the Next Level: Enhancing Collaborative Practice Through Legislative Change and Advocacy,” at the virtual AACP Annual Meeting on July 24, 2020.

Pharmacotherapy Assistant Professor **Nicole Perea** and co-speakers presented the pre-recorded session, “All generations work the same? Fake news!” at the 2020 virtual AACP Annual Meeting.

SERVICE

Danial Baker was selected to serve as a 2020-2025 member of the Healthcare Safety & Quality Expert Committee for the United States Pharmacopeial Convention (USP).

The WSU College of Pharmacy and Pharmaceutical Sciences named **Julie Akers** the Director of Health Outreach and External Residency Research in July 2020.

Julie Akers was appointed to the Board of Directors for BAVIHEALTH.

Pharmaceutical Sciences Professor **Salah-uddin Ahmed** was quoted in the article, “Rheumatoid arthritis treatment: drink this tea to preserve cartilage and bone,” published on July 15, 2020 in Express (UK). [Read article](#)

AWARDS

Danial Baker was awarded the 2020 Albert Nelson Marquis Lifetime Achievement Award from The Marquis Who’s Who Publications Board. [Read more](#)

Student Achievement

DOCTOR OF PHARMACY (PHARMD) STUDENTS

Vanessa Gutierrez with faculty co-authors **Brittany Craft**, **Terri Levien**, and **Danial Baker** published, “Drug evaluation – peanut (*Arachis hypogaea*) allergen powder (Palforzia),” in the FMS in July 2020.

Nicole Perea and the student group, Generation Rx took part in, “Opioids – Let’s Talk About It, A Community Connected Event,” on July 28, 2020. This event was meant to engage health professionals and the community in a conversation about the continued increase in substance use disorders due to the ongoing disruption of the pandemic.



College of

Pharmacy and Pharmaceutical Sciences

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