EMMA WALLENS

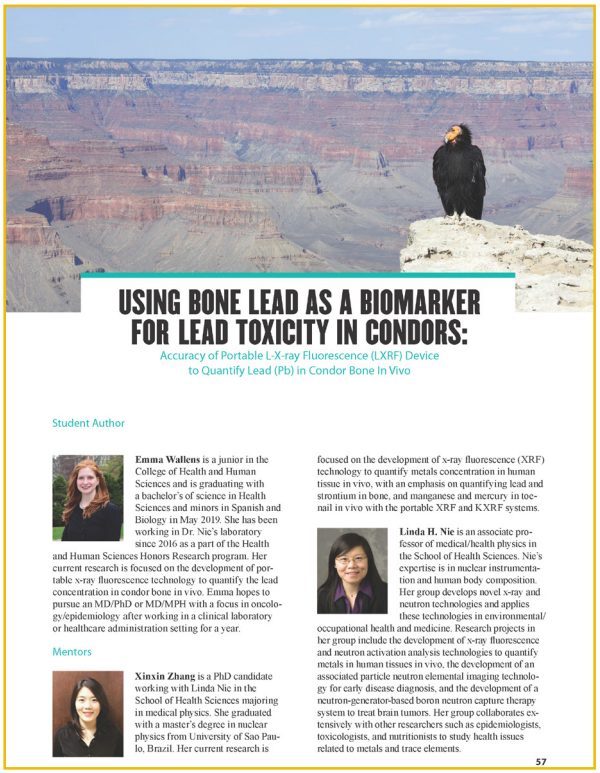
BS, Health Sciences, Purdue University (2019); MSSA and MPH, McGill University (2022)

What have you been doing since the publication of your article in JPUR, volume 8?

Since graduating from Purdue, I have completed a master's of science in Social Administration and a master's of Public Health at Case Western University, with my final capstone project focusing on psychosocial and comorbid factors affecting time from arrival to inpatient chemotherapy at the Louis Stokes Veterans Affairs hospital. I am currently a Cancer Epidemiology PhD student at McGill, studying the impacts of SAS-CoV-2 on cervical cancer incidence, survivorship, and treatment.

What are your career goals?

My general aspiration is to work in a large hospital system (preferably one specializing in oncology) as a cancer epidemiologist in research focused on survivorship and quality patient care. I pursued an MSSA in addition to an MPH to gain a more holistic approach to understanding issues that affect patients, survivors, and treatment overall.



USING BONE LEAD AS A BIOMARKER FOR LEAD TOXICITY IN CONDORS:

Accuracy of Portable L-X-ray Fluorescence (LXRF) Device to Quantify Lead (Pb) in Condor Bone In Vivo

Student Author

Emma Wallens is a junior in the College of Health and Human Sciences and is graduating with a bachelor's of science in Health Sciences and minors in Spanish and Biology in May 2019. She has been working in Dr. Nie's laboratory since 2016 as a part of the Health and Human Sciences Honors Research program. Her current research is focused on the development of portable x-ray fluorescence technology to quantify the lead concentration in condor bone in vivo. Emma hopes to pursue an MD/PhD or MD/MPH with a focus in oncology/epidemiology after working in a clinical laboratory or healthcare administration setting for a year.

Mentors

Xinxin Zhang is a PhD candidate working with Linda Nie in the School of Health Sciences majoring in medical physics. She graduated with a master's degree in nuclear physics from University of Sao Paulo, Brazil. Her current research is focused on the development of x-ray fluorescence (XRF) technology to quantify metals concentration in human tissue in vivo, with an emphasis on quantifying lead and strontium in bone, and manganese and mercury in toenail in vivo with the portable XRF and KXRF systems.

Linda H. Nie is an associate professor of medical/health physics in the School of Health Sciences. Nie's expertise is in nuclear instrumentation and human body composition. Her group develops novel x-ray and neutron technologies and applies these technologies in environmental/occupational health and medicine. Research projects in her group include the development of x-ray fluorescence and neutron activation analysis technologies to quantify metals in human tissues in vivo, the development of an associated particle neutron elemental imaging technology for early disease diagnosis, and the development of a neutron-generator-based boron neutron capture therapy system to treat brain tumors. Her group collaborates extensively with other researchers such as epidemiologists, toxicologists, and nutritionists to study health issues related to metals and trace elements.

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How did the research you did as an undergraduate at Purdue impact your current endeavors? What is the value of undergraduate research?

The research I did as an undergraduate provided invaluable guidance in critical thinking, collaboration, written and oral communication, as well as exposure to cross-disciplinary projects throughout the College of Health and Human Sciences through the Honors Research Program. Throughout my time at Purdue, I participated in lab meetings, presented findings in informal and formal settings, and networked with other students and faculty. This made navigating professional/extracurricular team endeavors in both social work and public health settings a more familiar process throughout my time during my master's. The research background that I had also made me more self-assured in professional spaces. I have been able to approach professors and supervisors with project or paper ideas with conviction; while some may not have been published or come to fruition yet, it still has provided an open dialogue that enhances my interprofessional skills and grants me the opportunity to learn from more knowledgeable professionals within my field.

How did the faculty mentor relationship impact you during your time at Purdue?

I am extremely grateful for Dr. Linda Nie—even though the research I performed was not directly in my intended area of focus (oncology), she always provided me with different enrichment opportunities throughout each semester that were public health oriented. My graduate mentors, Xinxin Zhang and Aaron Specht, also guided me through a lot of hands-on experiences in the laboratory in an area that I was originally unfamiliar with.

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Some of the mathematics/software that I was exposed to aided me in other graduate school courses and gave me the tenacity to use analytical software that I was not well-versed in for thesis work. Dr. Nie's mentorship went above and beyond my time at Purdue—she even wrote a letter of recommendation for my dream internship: St. Jude Children's Hospital's Pediatric Oncology Education Program (POE). I was accepted into the program and could apply my research and writing abilities from my time at Purdue to work on a project concerning adolescent cancer survivors and their electronic cigarette habits.

How did the experience of publishing an article in JPUR benefit you? What advice would you give to other undergraduates at Purdue who are interested in contributing to the journal?

Publishing an article in JPUR is a fantastic opportunity for students to enhance their communication and academic writing. The discipline and organization needed to write a clear, concise report by deadlines in collaboration with both faculty and graduate mentors is a skill that extends to multiple careers or ambitions. It has currently helped me tremendously when writing outlines for funding and gave me the confidence to pursue other writing opportunities in graduate school/internships. I would advise students that are interested in contributing to the journal to pursue the opportunity; the supportive review process provides a congenial introduction into the world of academic writing and publishing.

What advice would you give to other undergraduates at Purdue who are interested in doing research?

Don't be afraid to try something new! If there is a mentor that you click with or a project that is different from your major that you want to be a part of, find a way to make it work. Research itself provides so many translational skills for your career path, and you may find that you derivate from your original plan upon discovering a new interest throughout the course of your studies.

Wallens, E. (2018). Using bone lead as a biomarker for lead toxicity in condors: Accuracy of portable L-X-ray fluorescence (LXRF) device to quantify lead (Pb) in condor bone in vivo, *Journal of Purdue Undergraduate Research*, *8*. https://doi.org/https://doi.org/10.5703/1288284316740