University at Buffalo

Health Impact

From the University at Buffalo School of Public Health and Health Professions

Fall 2022

Are We Healthy If Our Environment Isn't?

UB experts talk challenges, opportunities in environmental health research. *page 8*

IN THIS ISSUE

FROM THE DEAN

Welcome to the Fall 2022 edition of *Health Impact.*

As I write this message, Hurricane Ian has just devastated portions of Cuba and Florida, resulting in massive damage and tragic loss of life. Many of us realize that climate change is one of the forces driving storms of this magnitude, as well as a host of health, economic and societal issues.

That's why we've focused the cover story in this issue on the environmental health research taking place at the University at Buffalo. You'll see that, even though this field of inquiry is of long tenure here, our researchers are acutely aware of how their work has come more and more to address the effects of climate change. From the effects of environmental changes on maternal and child health, chronic disease and workplace health, to the very mechanisms underlying biological processes, UB researchers are working on their own and, increasingly, together to understand two things: first, how environmental issues affect health and, second, how they can generate better health outcomes through their work's influence on policy, practice and awareness.

Although we often think in negative terms of environmental health and climate change, the good news is that the trends our experts are seeing and the results they're achieving have real-world implications—positive implications. I invite you to find out more beginning on page 8.

In the meantime, enjoy the changing of the seasons and the rest of the semester.

Jean Wactawski-Wende, PhD
Dean, UB School of Public Health and Health Professions
SUNY Distinguished Professor

Flexibility, Convenience Are Earmarks of New Online Programs

The School of Public Health and Health Professions now has two more online options for students who want to advance their careers with convenient, flexible programs.

The online option for the Health Services Administration MPH program is designed to help working healthcare professionals grow their careers through remote healthcare administration training. It provides the same multidisciplinary training in core public health and healthcare administration as the on-campus program.

"If you're a professional who is already working full time but wants to boost your public health skills for career advancement with this area of specialized and in-demand knowledge, the online Health Services Administration MPH program is for you," said concentration direction Professor Katia Noyes, PhD, MPH.

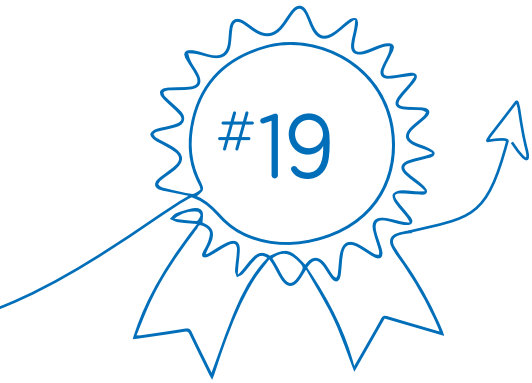
Students can fulfill additional requirements for the MPH program—field training, final project and an interprofessional immersion activity—where they live or work. Students can complete the program in four semesters of full-time study, up to eight semesters of part-time study or in three semesters in an accelerated schedule.

Graduates of the online Health Services Administration MPH program can work as program managers for healthcare systems and health insurance companies, develop and evaluate policies and interventions, and assure the effectiveness of programs and services targeted to different populations. The goal of professionals with these specialized skills and knowledge is to ensure that all patients have access to and benefit from high quality clinical and public health services—all while adapting to the ever-changing healthcare industry.

The new online Advanced Graduate Certificate in Assistive and Rehabilitative Technology (CART) program prepares professionals in occupational and physical therapy, special education and other fields to use assistive technology to help solve problems experienced by people with disabilities.

"CART focuses on helping people with disabilities live their best daily lives," said program director James Lenker, PhD, OTR/L, ATP, RESNA Fellow. Since CART is an online program, students can learn at their pace and convenience. The program is enriched with project-based learning; evidence-based approaches; mentoring opportunities; and other aspects of an engaging learning environment.

The online coursework combines technology-based interventions with educational, vocational and independent living environments for people with disabilities. Students will also work with clinics, practitioners, vendors and people with disabilities through interviews, observation, clinical improvement projects or training during field experiences in their own communities.



SPHHP Rises in U.S. News Rankings

More than a dozen professional schools and programs at UB rose in the latest rankings of America's Best Graduate Schools released by U.S. News & World Report.

Among them was the School of Public Health and Health Professions, which climbed 10 spots in the rankings for 2023 to No. 31. Among public universities included in the U.S. News rankings, UB is No. 19 in public health.

"The School of Public Health and Health Professions is pleased to be ranked so highly among the nation's best graduate programs in public health," said Dean Jean Wactawski-Wende, PhD. "This is a testament to the quality of our programs and the caliber of our faculty and students."

Other UB schools that bettered their rankings in this year's report are the School of Social Work, Graduate School of Education and the School of Law.

The rankings of America's Best Graduate Schools are based on expert opinions about program excellence and statistical indicators that measure the quality of a school's faculty, research and students.

SPHHP Experts Publish on Wide-ranging Topics

Katherine Balantekin, PhD, RD, assistant professor in the Department of Exercise and Nutrition Sciences, was an author of the article "A synthesis of early antecedents of eating behavior and weight status in girls: The legacy of girls' NEEDS project" in the journal *Appetite.*

Michael Brown, PT, PhD, DPT, OCS, clinical assistant professor; Jeanne Langan, PT, PhD, emeritus faculty; and Kirk Personius, PT, PhD, clinical associate professor, all of the Department of Rehabilitation Science, published "Participants with mildly-disabling chronic neck pain perform differently during explicit compared to implicit motor learning of a reaching task" in *PLOS ONE.*

Elizabeth Mietlicki-Baase, PhD, assistant professor in the Department of Exercise and Nutrition Sciences, is the author of the paper "The impact of binge-like palatable food intake on the endogenous glucagon-like peptide-1 system in female rats," published in the journal *Behavioral Brain Research.*

Lindsey Mattick, doctoral candidate in the Department of Epidemiology and Environmental Health, is an author on the paper "Serum follicle stimulating hormone and five-year change in adiposity in healthy postmenopausal women," published in the *Journal of Clinical Endocrinol Metabolism.*

Heather Orom, PhD, associate professor in the Department of Community Health and Health Behavior, published "A Community-University Run Conference as a Catalyst for Addressing Health Disparities in an Urban Community" in the *Journal of Clinical and Translational Science.*

Heather Ochs-Balcom poses with the Women's Health Initiative bison statue in Farber Hall on UB's South Campus. The statue features portraits of WHI study participants.

Homing in on the Hormone that May Drive Obesity in Postmenopausal Women

For women approaching menopause, a common change is an increase in obesity, which, in turn, raises the risk for breast cancer after menopause. That much is known. What science hasn't quite figured out is the bodily mechanism that causes this obesity, also known as adiposity, to develop during the menopause transition.

Researchers from UB and the University of Arizona have teamed up to find out. The project—funded through a five-year $3.8 million R01 grant from the National Cancer Institute—is homing in on the role follicle stimulating hormone (FSH) plays during menopause and how it contributes to the development of postmenopausal obesity and breast cancer. It is the largest study of its kind in older women.

"Our hypothesis is that follicle stimulating hormone is driving weight gain, and the weight gain increases the risk of breast cancer," says Heather Ochs-Balcom, PhD, associate professor of epidemiology and environmental health and a principal investigator on the study with Jennifer W. Bea, PhD, University of Arizona Cancer Center. Jean Wactawski-Wende, PhD, SUNY Distinguished Professor and dean of the School of Public Health and Health Professions, is a co-investigator.

A hormone released by the pituitary gland, FSH plays an important role in female development and reproduction by stimulating growth of the ovarian follicle before ovulation, Ochs-Balcom explains.

"Interestingly, later in life, in the years before menopause and before the drop in estrogen occurs, FSH levels start to rise," she said. "It is during this time that women notice changes in their body, such as abdominal obesity. Previously, the drop in estrogen has been blamed, but there may be an independent, or separate, role for FSH."

Ochs-Balcom and Bea became interested in investigating the role of FSH after seeing the results of a study that showed that blocking follicle stimulating hormone can reduce obesity in mice.

"We are excited to see how this work translates to humans and to extend it further to include breast cancer since we know that obesity increases postmenopausal breast cancer risk," said Ochs-Balcom, an expert on genetic and environmental risk factors for cancer.

The study will leverage the large amount of data compiled through the Women's Health Initiative, the long-term national health study for which UB is the Northeast Regional Center.

Researchers will study hormone levels from samples stored in a WHI biobank and detailed measures of abdominal obesity in the years before a breast cancer diagnosis.

The study also builds on preliminary work led by Ochs-Balcom and funded by the New York State Peter T. Rowley program. Epidemiology PhD student Lindsey Mattick received a fellowship from the National Institutes of Health to investigate FSH and bone mineral density.

"We hope that our work can help us understand why women develop abdominal obesity and then, in the longer term, how to prevent it," Ochs-Balcom said. "Preventing obesity is the ultimate goal and may in turn prevent cardiovascular disease, diabetes, and other obesity-related cancers."

Alumni and Friends: Make an Impact by Giving

What will your impact to the School of Public Health and Health Professions be? Be bold and visit SPHHP Giving Opportunities (bit.ly/GiveSPHHP) for opportunities to make a difference. If you can't find what you're looking for or would like additional information, please contact Aimee Pearson, associate director of advancement at (716) 829-4773 or aimeepea@buffalo.edu.

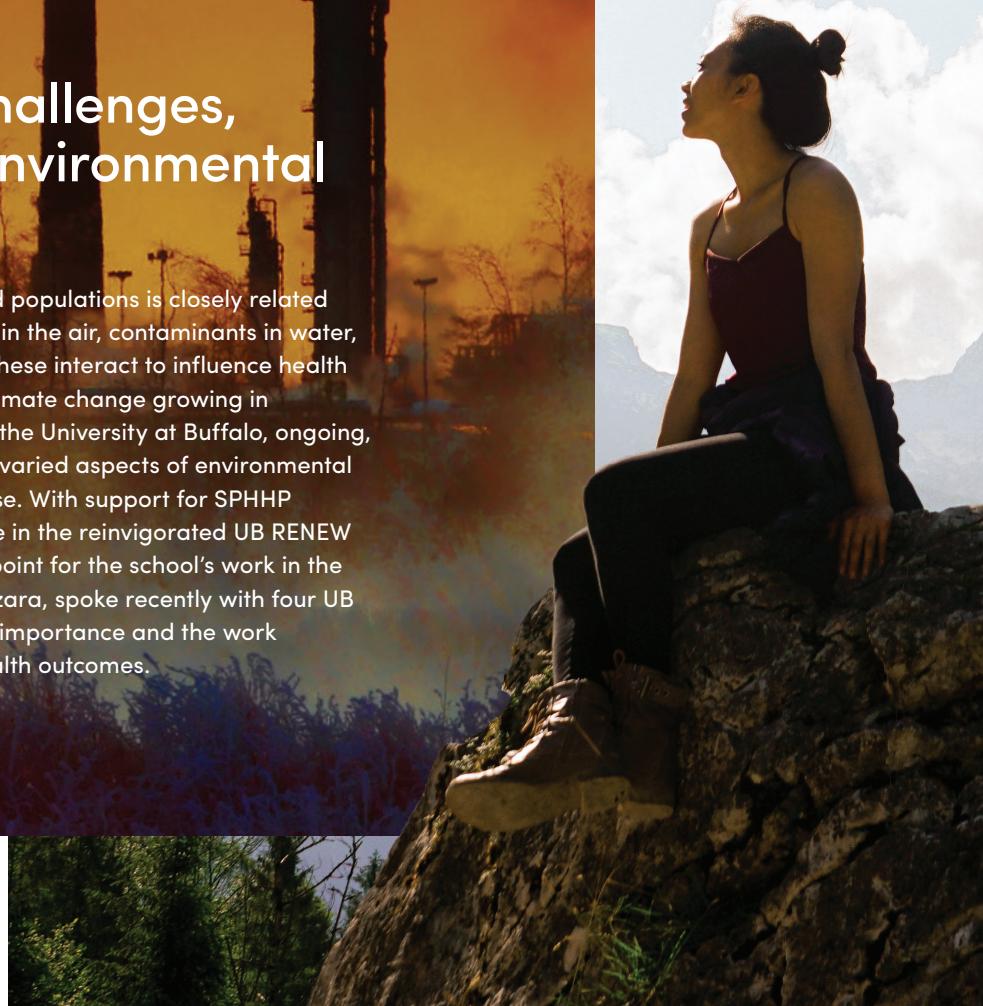
Do we have your email? Submit it today!

ub-alumni@buffalo.edu

Are We Healthy If Our Environment Isn't?

UB experts talk challenges, opportunities in environmental health research

It's no surprise: the health of people and populations is closely related to what's in their environment. Pollution in the air, contaminants in water, chemicals in food and products—all of these interact to influence health in complex and significant ways, with climate change growing in influence over environmental health. At the University at Buffalo, ongoing, interdisciplinary research is addressing varied aspects of environmental health and is a growing area of expertise. With support for SPHHP researchers' work and their integral role in the reinvigorated UB RENEW Institute (see page 13), now is a critical point for the school's work in the field. Health Impact's editor, Grace Lazzara, spoke recently with four UB experts about environmental health, its importance and the work they're doing to, ultimately, improve health outcomes.



MEET THE EXPERTS AT THE ROUNDTABLE:

Diana Aga, PhD

Henry M. Woodburn Professor, Department of Chemistry; director, UB RENEW Institute

Expertise: chemicals of emerging concern; industrial pollution; wastewater treatment; environmental impact of PFAS ("forever chemicals"), PCBs, PBDEs (flame retardants), pesticides, nanomaterials, antimicrobials, pharmaceuticals and personal care products; antibiotic resistance in the environment; target and non-target analysis; Great Lakes pollution

Pauline Mendola, PhD

Professor and chair, Department of Epidemiology and Environmental Health

Expertise: environmental factors impacting reproductive and pediatric health; health effects of air pollution and extreme temperatures; chronic diseases in pregnancy

Riana Pryor, PhD, ATC

Assistant professor, Department of Exercise and Nutrition Sciences

Expertise: heat and exercise; heat illness, including heat stroke; hydration; high school sports and athlete safety; occupational safety; exercise physiology

Meng Wang

Assistant professor, Department of Epidemiology and Environmental Health; director, MPH Concentration in Environmental Health

Expertise: Environmental exposure monitoring, air pollution modeling, health impacts of environmental exposures

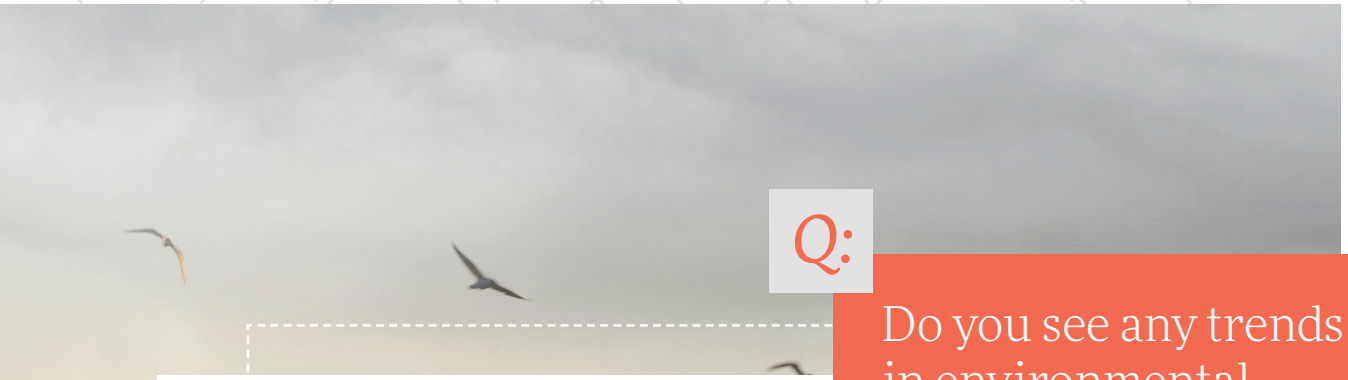
Q: Why did you decide to take on issues related to environmental health?

Riana Pryor: I've always liked the idea of helping the people who help you. I started off researching ways to improve the health and safety of firefighters, EMS and law enforcement officers. For example, firefighters run into a burning building, into a fire up to 1000 degrees, wearing fully encapsulating clothing that doesn't allow them to thermoregulate well and carrying 50 or 60 pounds of equipment. They have lots of heat illnesses on the job, but there's very little research out there specifically on them. I wanted to study the demand they're going through, and then find interventions to help them in extreme heat, which we know is only going to get worse with climate change.

Diana Aga: When I moved here to UB, so many people were doing really interesting work looking at pollutants in all kinds of matrices. I get ideas from other people's needs for analytical chemistry. For instance, at conferences people discuss environmental problems and say, "I wish I could analyze mineral samples for residues of antimicrobials." I start thinking, "We can do that."

Meng Wang: I'm involved in this field because I have a lot of traction in it and can really hope to improve it, especially with air pollution. People think about the level of air pollution, whether the air is safe or not, about the source of air pollution, and whether it can really affect human health. Then we think about whether other factors could have a co-effect. We have studied air pollution for a long time, but the questions go on and on, and it's exciting.

Pauline Mendola: We often think about risk factors for health and communicate those to people, but people often can't do a lot about them. If we can make changes on an environmental level, particularly a regulatory environment, or if we can minimize exposures that can be generally promoting positive health in the population, that's a good place to target efforts that could have a significant effect.



Q: Do you see any trends in environmental health research?

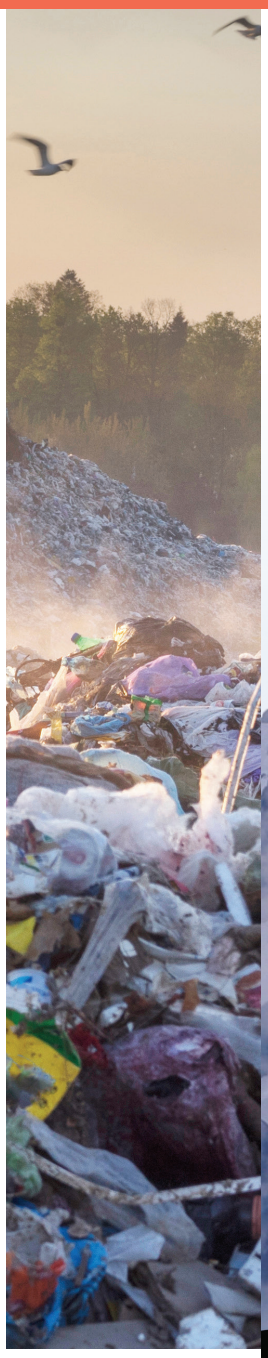
PM: There's always some tension when we think about environmental factors that influence health. Most of the time, what people might consider strong science on environmental factors are rodent studies, or they use other animal models or even in silico models. In fact, humans are exposed to complex environments, and not just chemicals, but also social factors or stressors. So, the idea of looking at mixtures in real-world exposures and populations has become more important, as has what we study in free-living populations.

DA: Exactly. For example, we're very interested in neurotoxins' effect on mental development, seeing a lot of increase in ADHD or things that are not easily measured, like behavioral effects. We're looking at that, but our model is so simple. Right now, we're using zebrafish, but how can we translate it to humans? We have a long way to go.

RP: In my field, heat physiology, participants in nearly every study are college-age men because they're available. I'm happy to say in recent years, there has been a lot more focus on a greater age range, on children and older adults. For instance, many kids are going back to school in a hot classroom, but can they learn when they're in a stressful physical environment? So, there's more research in those sorts of areas. We're also seeing a greater focus on females. Originally, all the U.S. Army models for predicting how well somebody will do in an extreme environment were based on data from men. They're finally starting to study females. I have two studies focusing on female warfighters, and, unsurprisingly, we're seeing differences.

MW: I agree with Pauline and Diana. People are thinking more about total exposure, trying to identify as many exposure factors as possible. I also observe in air pollution studies that the technology has been improving quite rapidly. Ten years ago, when I started to do exposure assessments, we would rely on local studies focusing on one or two cities' exposure. Many new technologies, like satellite remote sensing and high-resolution modeling, allow us to focus on a national or global level.

The population size of our studies has also increased. Previously, environmental health studies focused on a traditional cohort that usually included thousands or ten-thousands of people. But now, many data, like health digital data, are available, and it's possible to include millions of people in a study. Analyzing these data is challenging, but the results will be really reliable compared to previous years.



Q:

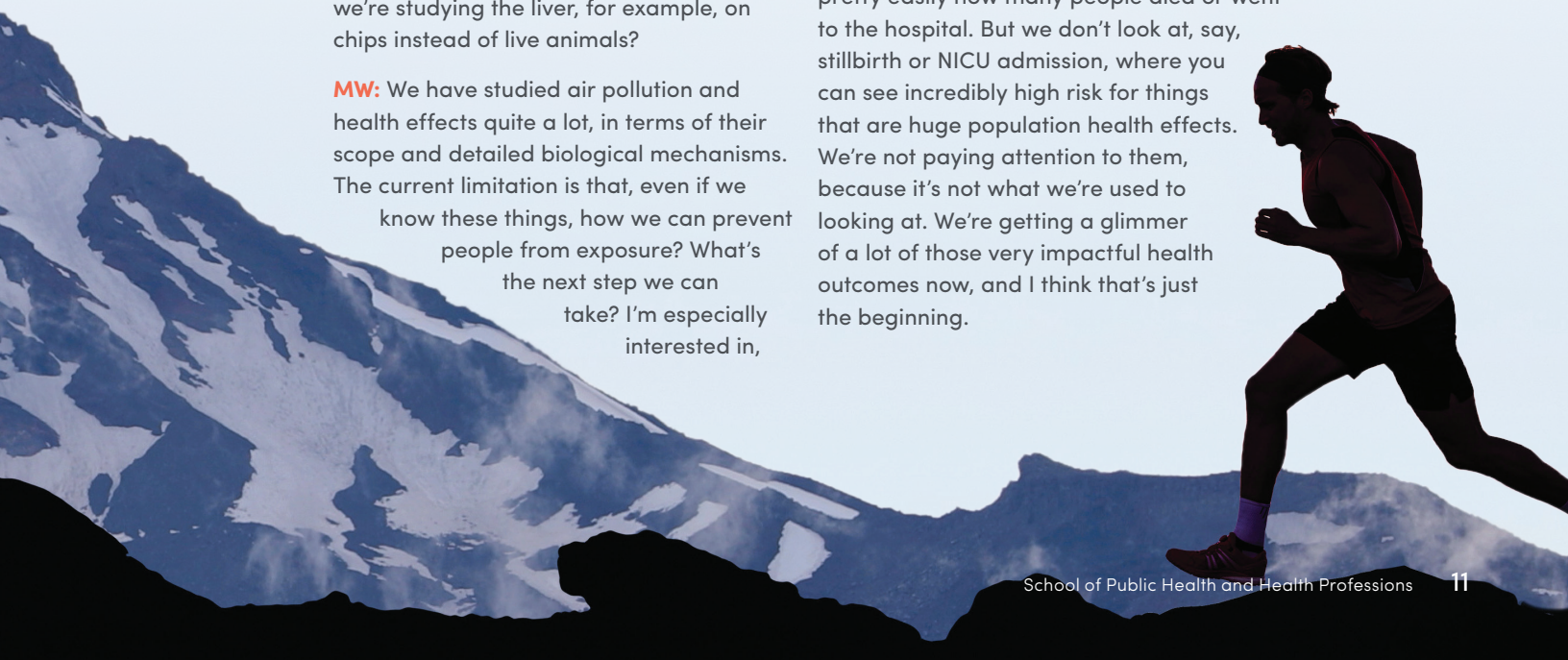
What's the single biggest challenge in your work?

RP: One of the big challenges is related to the growing number of heat waves occurring. They sometimes last longer than they used to and are more extreme than they used to be. We know that if you're going to be in the heat for, let's say, two weeks, your body is going to adapt. But if you're exposed to heat for just three or four or five days, or if it's too extreme too quickly, we're going to see maladaptations and difficulties, whether it's heat illnesses or, if there are too many extreme events, things like chronic kidney issues. We don't have much information on situations like that right now.

DA: Prioritization is so important. When we have so many clinical studies, which do we prioritize? Because we can only study so much. Also, our current methodologies are limited. When I mentioned that we want to know the effects of PFAS on neurodevelopmental effects, and our model is zebrafish—is that really the right model? In fact, the Food and Drug Administration is pushing toward not using animals. I've been to talks where they're using "organs on chips" [systems containing engineered or natural miniature tissues grown inside microfluidic chips] now, but will that really give us the right answer? If we're studying the liver, for example, on chips instead of live animals?

MW: We have studied air pollution and health effects quite a lot, in terms of their scope and detailed biological mechanisms. The current limitation is that, even if we know these things, how we can prevent people from exposure? What's the next step we can take? I'm especially interested in, for example, doing a climate change–related wildfire and dust storm study. We're thinking about how we can protect people's health, because climate change is rapidly heightening these disasters. What we need to do is provide strategies, not only in personal prevention—like using air purifiers for air pollution—but also, to leverage modeling techniques to encourage policymakers to understand the future challenges globally, and then develop ways to protect human health. One thing we do is use modeling technology to predict wildfire smoke and dust storms 100 years in the future. Then we can understand the places where these will frequently happen and propose landscape change and other techniques to reduce the threat. Thinking more about prevention will be really important in the future.

PM: We know that there are a lot of disparities in health in our populations driven by factors in social environments like structural racism. We also know marginalized communities tend to have higher levels of environmental exposures and fewer resources to mitigate the effects of extreme weather events. That's another feature of population health that we need to pay attention to, because often people who have the smallest carbon footprint will suffer the greatest impacts. We also have to think about expanding the range of what we look at in terms of population health. For a long time, we studied heat waves and mortality. After a heat wave, you can see pretty easily how many people died or went to the hospital. But we don't look at, say, stillbirth or NICU admission, where you can see incredibly high risk for things that are huge population health effects. We're not paying attention to them, because it's not what we're used to looking at. We're getting a glimmer of a lot of those very impactful health outcomes now, and I think that's just the beginning.



Q: What would be the best outcome of your work?

PM: I worked for 10 years at the EPA, which is probably where I get my regulatory bent. I also was at the National Institutes of Health for more than 10 years and the National Center for Health Statistics. I think about things in a large system level and have spent a lot of my career trying to influence policymakers. The things that drive policymakers are often economic, on a broad scale, but also personal stories. Data itself is not particularly compelling for policy unless it's also tied to those personal things. So, there's a balance of macroeconomics with a personal connection I can make, but those are complex messages. It's a bit of a challenge to know your audience. When we write papers, we need to try to write for a policy audience as well as other researchers.

DA: Going back to some of the PFAS products that are in our food packaging, in our pans—we could find which ones should be replaced and find good replacements. Sometimes a chemical is considered bad, and we ban it or remove it from the market, but we replace it with another chemical that is just as bad. Then we have to study all the health effects of this new chemical. We obviously need chemicals to control pests and for other good reasons. But a good outcome would be that chemists, health professionals and material scientists work together to predict if a new chemical is good or bad and find better substitutes.

RP: I want to echo what you said about health disparities. We're in Buffalo; it gets cold here, and having heating in the winter is considered a necessity. But air conditioning is sometimes considered a luxury. Think about all the schools that don't have air conditioning, or about the more rural or inner-city areas that are less likely to have air conditioning. You could have just as poor health outcomes if you're too hot all the time as if you're cold all the time. We need to rethink what is necessary and healthy, versus what is a luxury. Air conditioning and air filtration systems are considered luxuries that are not always available to us unless we're willing to go above and beyond to purchase them, but heating is automatically built into [structures]. That's something else we need to think about: how do we make these "luxuries" equitable among individuals who may not have the means to do so themselves?

MW: Many air pollution scientists are thinking about how low air pollution should be to protect human health. Trying to answer this question is also why many studies are attempting to combine population data and improve their technology. So far as I know, there is no clear answer. Studies do show an association between air pollution and health outcomes even below the Clean Air Act guidelines, so I think the challenge is how low it should be. We cannot just think about health science, but also about economics and other issues. The ideal outcome would be that we use an integrated method to reduce air pollution or increase air quality, not just simply reduce air pollution by closing factories or reducing the number of vehicles on the road but by thinking about a strategy related to climate change, like carbon neutralization, to get co-benefits.

Q:

How is UB advancing environmental research as a whole?

DA: I'm the director of the UB RENEW Institute at UB [see below], and I'm seeing that we have a lot of talent in UB. It's really exciting for me to be able to bring them together and work on this exact problem that you are asking us about today: How to remove chemicals from the environment, how to study the effects in humans, and how to better create new materials.

PM: I'll add that we recently were awarded a disciplinary excellence initiative by UB's provost to look at climate change, and it's a significant investment. Diana was involved in a lot of the preliminary planning for the initiative. We've been thinking about adding faculty in this area, including people and with expertise in environmental justice, trying to take advantage of what we have here at UB and build on it to make this a strong program for the university.

MW: I agree with Diana. I'm also a member of RENEW, which is a great strategy for allowing us to identify people who want to collaborate with us. Environmental health is really an interdisciplinary research field, and we can't do it all by ourselves. I always get benefits when I approach people from UB for help.

RP: Graduate students are seeking universities that have a lot of research opportunities and that can make a difference in the world. From the faculty perspective, I appreciate the support UB gives us when we mentor students, because we need to keep bringing people up who are passionate in this.

UB RENEW Brings Focus to University's Environmental Research

UB RENEW, which stands for "Research and Education in Energy, Environment and Water," is a university-wide, multidisciplinary research institute, and an intellectual hub for faculty engaged in those areas. Roundtable participants Pauline Mendola and Meng Wang are active members of RENEW, as is, of course, the institute's director since 2021, Diana Aga.

RENEW brings researchers with convergent interests together to develop programs and proposals with administrative and logistical support, focusing on four key areas:

- Sustainable water and engineered systems
- Climate change and socioeconomic impacts
- Renewable energy and sustainable communities
- Environmental pollution and human health implications

Other SPHHP faculty involved in RENEW are Matthew Bonner, PhD; Kasia Kordas, PhD; Lina Mu, PhD; James Olson, PhD; Xuefeng Ren, PhD; and Jean Wactawski-Wende, PhD.

Aga explains that RENEW's "focus areas were developed with the input of a transdisciplinary steering committee... They're based on identified strengths in the UB community and immediate societal needs.

"As UB progresses toward becoming one of the top 25 public universities in the country, I want RENEW's contributions to this ambition to be inclusive and engage stakeholders, particularly those in the local community," she adds. "Our research is highly relevant to persistent environmental and health inequities in this region and the world at large. As such, we aim to leverage our capabilities to address legacy challenges at home and abroad, and strive for a more just, equitable future."

Lectures, Symposium Answer Pressing Questions

The School of Public Health and Health Professions' annual lectures and symposium, led by noted experts, answered key questions about **COVID-19 and assistive technology.**

Why should we make the connection between COVID-19 and non-communicable disease epidemiology?

Taking place in person for the first time since 2019, the Annual Saxon Graham Lecture featured noted UB epidemiology alumnus Zuo-Feng Zhang, MD, PhD '91, distinguished professor and chair of the UCLA Fielding School of Public Health's Department of Epidemiology.

Zhang's talk, "Challenges and Opportunity of COVID-19 Pandemic on Non-communicable Disease Epidemiology," began with a review of COVID-19 pandemic statistics—infection rates and in the context of herd immunity—and compared the United States to other countries.

- Of 458.9 million cases worldwide resulting in 6 million deaths, the U.S. counted 81 million infections and 993,000 deaths as of the date of Zhang's lecture.
- Zhang estimates that 90% of the U.S. population has antibodies from either vaccines or infection.
- Case fatality in the U.S. is currently the highest worldwide at 2.3%.
- COVID-19 can be considered endemic when daily mortality drops to 0.3 per million (99 deaths per day). Annualized at 36,135 deaths, this would be similar to the number of influenza's annual deaths—34,157 in the 2018-19 flu season.

Zuo-Feng Zhang

"As higher proportions of people gain immunity protection from vaccines and natural infection, we will see less transmission, much less hospitalization and death, even as the virus continues to circulate at a stable level of infection," he said.

Stay-at-home policies and masking continue to be protective, Zhang said, citing his research on risk factors and his paper correlating smoking and air pollutant impacts on the SARS infection. The risks apply to COVID-19 as well, with non-communicable diseases (NCD) such as cancer, cardiovascular and chronic lung conditions, and diabetes presenting significant severity and mortality rates in those infected with COVID-19.

Zhang emphasized that while 80% of those who recover from COVID-19 will develop one or more long-term symptom, 10 to 15 years of observation would be required to better understand the more than 60 potential "long COVID" symptoms, including the most common: fatigue, headache, "brain fog," hair loss and shortness of breath.

The Saxon Graham Lectureship honors the life and legacy of a man known as one of the fathers of U.S. chronic disease epidemiology, L. Saxon Graham, PhD, a longtime SPHHP professor and chair of the Department of Epidemiology and Environmental Health from 1981 to 1991. Zhang completed his PhD on cancer epidemiology and experimental pathology under Graham's mentorship.

How can we help people find truly helpful assistive technology?

When matching a person with disabilities with the correct technology to improve their learning, working and daily living, getting to know the user is the key to achieving success.

Marcia J. Scherer, PhD, MPH, is a rehabilitation psychologist and founding president of the Institute for Matching Person & Technology. She is also professor of physical medicine and rehabilitation at the University of Rochester Medical Center and has received numerous awards for her groundbreaking work in assistive technology (AT).

In her Glen E. Gresham Visiting Professorship in Rehabilitation Science lecture, "Technology is the Answer, But That's Not the Question," Scherer focused on ways to achieve user buy-in to, as well as benefit from, AT use. The answer, she believes, lies in working as a provider-user team centered on the user and provider goal achievement, user well-being and provider satisfaction.

"The number one fundamental is to involve the consumer from the get-go," Scherer said. "Address functional needs but also personal factors and environmental factors, going beyond the built physical architectural space to the social space that person is living within."


Marcia J. Scherer

Scherer stressed that use-worthiness is vitally important for users to value AT and not abandon it. While clinic directors, PTs, OTs, engineers and others all emphasize giving users the means to accomplish, and perform, activities, "The user wants to be comfortable and gain function," Scherer said. "AT needs to result in functional gain and use-worthiness … as well as realizing benefit from use-enhanced well-being and quality of life," she said.

Assistive technology is now on the world stage for funding, impact and consideration of people with disabilities, Scherer said, thanks to the World Health Organization adopting a resolution to make assistive technology a priority. Current estimates are that globally more than one billion people need one or more assistive product.

The Glen E. Gresham Visiting Professorship in Rehabilitation Science lecture is held annually to honor the former UB faculty member. It is supported by an endowment made by the late Albert Rekate and his wife, Linda, to benefit students, faculty and the wider community.

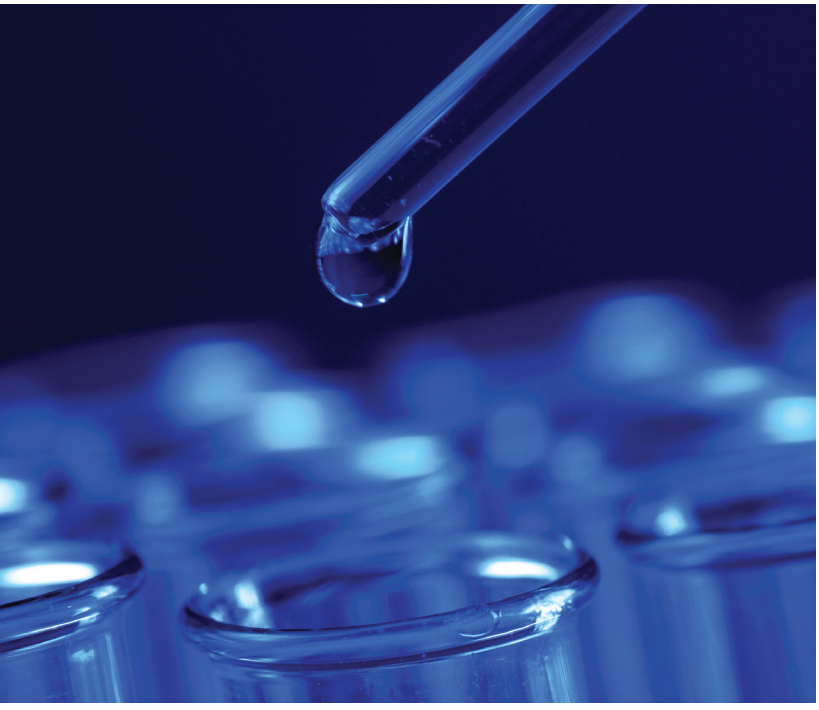
What Are the challenges, impact of COVID-19?

Janet Diaz

As year three of the COVID-19 pandemic begins, global health experts have obtained increasingly more data and are digging into it to better understand how the virus will continue to impact populations around the world.
UB's 11th Annual Global Health Day Symposium, held virtually this year, recently brought together experts from the World Health Organization (WHO), the National Institutes of Health, academia, medicine, public health and the Western New York community to share insights about the next stages of response to the pandemic.

Keynoter Janet Diaz, clinical head of the WHO program responsible for readiness and response to emerging infectious diseases, highlighted post-COVID conditions and patient advocacy. Even patients not hospitalized with COVID-19 have persistent, burdensome symptoms months following infection, she said.

"Post COVID-19 conditions remain under-recognized, and though awareness is increasing, it is not increasing fast enough," Diaz said. The good news is that governments are beginning to commit funds to ongoing studies, she said.



Each panelist shared their findings:

- Thomas Russo, chief of the Division of Infectious Diseases in UB's Jacobs School of Medicine and Biomedical Sciences, spoke optimistically about how vaccinations are decoupling cases with hospitalization and severe disease. He encouraged booster shots while cautioning that a significant minority of the unvaccinated exists.
- Avindra Nath, clinical director of the National Institute of Neurological Disorder of New York and National Institute of Health, discussed the long COVID symptom of "brain fog" (encompassing cognition and executive function), a complaint of nearly all patients with lingering symptoms. His findings, concluded from autopsies of brains from COVID patients, are that these long-term neurological complications will be akin to dementia.
- Lina Mu, associate professor, SPHHP's Department of Epidemiology and Environmental Health, reported a 25% increase in anxiety and depression worldwide since the start of the pandemic, with younger adults, women and underrepresented people identified as the most vulnerable groups.
- Yinyin Ye, assistant professor, UB Department of Civil, Structural and Environmental Engineering, discussed using wastewater-based epidemiology to provide estimates of cases, and prevailing COVID variants, in a population.
- Meng Wang, assistant professor, SPHHP Department of Epidemiology in Environmental Health, examined the correlations between air pollution and COVID risk groups, and how lockdowns reduced greenhouse gas emissions.

The Global Health Day Symposium is sponsored and produced annually by UB's Office of Global Health Initiatives.

Bridging the Personal and Professional:

Meet Akua Gyamerah, Scholar-Activist

Akua O. Gyamerah, DrPH, MPH, is a scholar-activist who wants to reveal the social inequalities that drive health disparities, and to use her research to fight for a better world. Research isn't the only way she takes on the issues that concern her; she's committed to understanding and addressing health disparities that emerge from structural inequities.

On the scholarly side of the equation, Gyamerah is a sociomedical scientist, someone who studies health and medicine from a social-science perspective. Her research broadly aims to understand the complex and intersectional causes of health disparities among racial, sexual and gender minorities. On the activist side, Gyamerah organizes on behalf of LGBTQ rights in United States and in Africa. Her activism has helped evolve her research interests and, one suspects, the reverse might also be true.

Gyamerah became greatly interested in LGBTQ issues when she went back to her home country, Ghana, before starting her doctoral training at Columbia University. While there, she heard negative media commentary on LGBTQ people and became curious about its impact on their health. She soon connected with LGBTQ rights organizations in Ghana to find out what kind of advocacy work they were doing.

At the time, she recalls, "There was international debate and uproar around laws in Africa to further criminalize homosexuality. Also, because the West was seeing progress in LGBTQ rights, [anti-LGBTQ] forces from the West started going to Africa to try to push their agenda there. This was the context where I started to look at these issues, HIV in particular."

Her dissertation used Ghana as a case study to examine the historic exclusion of gay, bisexual, and other men who have sex with men (GBMSM) in African HIV policies, factors that shaped the shift to include them in policies, and the programmatic and social impact of this shift. She later published an article about the debate and its impact on social conditions and HIV programming for GBMSM, "Moral Panic and Other Unintended Consequences in Ghana's Paradigm Shift to Address HIV Among Men Who Have Sex with Men."

Gyamerah's work has attracted support, including from the National Institutes of Health and the U.S. Fulbright Program. She also completed the National Institutes of Mental Health-funded Traineeships in AIDS Prevention Studies fellowship at the University of California, San Francisco's Center for AIDS Prevention Studies. She also recently received an NIH Mentored Research Scientist Development Award ("K01"), which

(Continued on p. 18)

(Akua Gyamerah, continued...)

provides her support and time to build on her research in Ghana and applies the Black feminist theory intersectionality to understand the impact of intersectional social stressors on mental health and HIV treatment outcomes of GBMSM living with HIV in Ghana.

"Intersectionality posits that multiple oppressed identities interlock to produce marginalization unique from that of the individual identities, producing a different lived reality. It offers incredible insights for understanding health disparities," she explains.

Stateside, some of Gyamerah's other work has examined factors that lead to gender disparities in health outcomes.

"I compared different racial groups of trans women, looking at experiences of hate crimes and the factors shaping hate crime experiences and reporting to police," she says. The findings help make sense of the disparities observed among trans women.

At its most basic level, Gyamerah's work shows how social conditions shape health outcomes, inarguably vital knowledge that surely has echoes in many spheres. In her work both in Ghana and San Francisco, she sees "very marginalized groups in contexts where things are slowly starting to improve but also lead to a polarization or backlash that makes progress harder. It's a historical process, and we need to surveil and monitor this, so that we can trace the health impact and inform policies."

Mendola Named Member-fellow of American Epidemiological Society

Pauline Mendola, PhD, professor and chair of SPHHP's Department of Epidemiology and Environmental Health (EEH), has been selected a member-fellow of the American Epidemiological Society (AES). The AES is a select honorary society dedicated to epidemiology and a scientific forum for senior epidemiologists. It is the oldest epidemiology organization in the United States.

Pauline Mendola

Mendola, who earned her PhD from UB in 1994, is a leading epidemiologist in the field of perinatal and reproductive epidemiology. Her work regarding the intersection of environmental and reproductive health has had lasting impact on health policy within the United States and internationally.

AES member-fellows are selected through a process of nomination and evaluation based on the quality and impact of their epidemiologic accomplishments and contributions; academic activities, such as teaching and mentoring; and other aspects of their professional work, including administrative leadership and community service.

Mendola's career has taken her from UB as an assistant professor to the Environmental Protection Agency as a health scientist in epidemiology. She became a branch chief in 2005 and in 2007, was named branch chief in the National Center for Health Statistics in the Center for Disease Control and Prevention's Infant, Child and Women's Health Statistics Branch.

In 2011, she moved to the Intramural Research Program of the Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD), Division of Intramural Population Health Research, Epidemiology Branch. In 2018, she was promoted to senior investigator there, a tenured position. She returned to UB in 2020 as professor and chair of EEH.

Collins Appointed SUNY Distinguished Professor

SPHHP Associate Dean for Research R. Lorraine Collins, PhD, been appointed to the rank of SUNY Distinguished Professor, the highest faculty achievement in the SUNY system. She is also a professor in the Department of Community Health and Health Behavior. The honor recognizes her innovative research, teaching and extraordinary community service. It also spotlights her international prominence in her field.

Collins is a nationally and internationally renowned expert in the study of addictive behaviors. Since the 1980s, she has contributed foundational research on cognitive and behavioral approaches to the conceptualization, prevention and treatment of addictive behaviors. She is particularly interested in alcohol and cannabis use, especially in emerging and young adults, as well as factors like gender and socioeconomic status in substance use. Collins also pioneered the use of technology for assessment and intervention.

Lorraine Collins

In 2016, Collins was named to a National Academies of Sciences, Engineering and Medicine ad hoc committee that reviewed the health effects of cannabis. In 2018, she was appointed to a working group created by then-Governor Andrew M. Cuomo that was tasked with drafting legislation to regulate the adult use of cannabis in New York State. The resulting legislation was signed into law in March 2021.

A fellow of the American Psychological Association's Society of Addictions Psychology (Division 50) and prolific scholar, Collins has received funding from the National Institutes of Health for nearly 30 years. She has published peer-reviewed articles in such respected journals as *Addiction,* the *Journal of Consulting and Clinical Psychology, Drug and Alcohol Dependence,* and *Experimental and Clinical Psychopharmacology.*

From 2000 to 2019, Collins served as co-director of the postdoctoral training program in UB's Clinical and Research Institute on Addictions—the longest-running T32 at UB. She was integral to securing the grant and its continued funding. In 2021, she received UB's Distinguished Postdoc Mentor Award.

Andee Wik's Walking the Public Health Path

For someone whose aim is so clear, master of public health student Andee Wik's path has been interestingly circuitous.

Obviously driven, she's working hard to learn how to build programs that improve community health. She also hopes to bridge gaps in healthcare settings for marginalized communities, in particular.

But back to her path...

Wik was always interested in the human body. She took biology and AP biology in high school, which segued into the Biomedical Science program at the University of Alabama at Birmingham. Her goal was to become a physician assistant. In fact, she did so well in her human anatomy class that she was a teaching assistant for several semesters.

Yet, when a friend who was a public health major explained the field to her, Wik "thought it sounded cool. So, I took a global health class." The next stage on her path was declaring public health as her minor, still with being a PA in mind.

After taking more public health classes, "I didn't even like my major anymore," she said. Wik still wanted to be PA, but when the pandemic hit, she decisively shifted her focus from provider care to preventive care and declared a public health major.

"I switched so I could work with communities rather than treat symptoms. I wanted to get to the root of problems," Wik said. She so loved her undergraduate public health experience that she wanted to expand her knowledge and came back to her hometown, Buffalo, to do so.

She chose SPHHP's Department of Community Health and Health Behavior (CHHB) for her MPH because its emphasis is most reflective of what she wants to get out of education. "I hope to work in health education to try to improve health literacy, to help people understand what doctors are telling them," she explained. "They know themselves better than anyone, and they are best to decide what they do next."

CHHB's program, she said, "totally delivers." Her desire to focus on marginalized communities led her to Assistant Professor Dean Seneca's Indigenous Health Disparities course, which opened her mind to an area of which she had been unaware. Next up are more courses in health disparities and in addictions.

Now that Wik's path is clear, her drive has led to some early successes. For instance, her MPH advisor, Associate Professor Heather Orom, thought Wik was a perfect candidate to take the exam to become a Certified Health Educator and suggested she apply to UB's Sanjit and Jharna Basak Student Assistance Fund to help pay the test fee.

Said Wik, "I received the award from the Basak Fund that allowed me to take the exam."

For Wik, her career choice is meaningful because public health professionals "look out for every aspect of your life. Your health keeps you going, and if we better your health, we better your life. The world would be a scary place without us."

Blue Robes and White Coats

The School of Public Health and Health Professions' annual commencement on May 21 was—perhaps more than usual after two years of the pandemic—a celebration of student success, family, friends and being together. More than 400 graduate and undergraduate students strode across the stage of UB's Alumni Arena, a large venue needed to hold the ever-growing number of SPHHP graduates. There, they found handshakes, smiles and hugs from the assembled faculty, administration and special guests, along with a piece of parchment naming them newly minted graduates of one of SUNY's flagship institutions.

Madeline Wnuk was part of the White Coat Ceremony and is this year's recipient of the Alfred T. Caffiero Scholarship

The Department of Rehabilitation Science White Coat Ceremony is another SPHHP annual rite of passage, this one for physical therapy students. There, they receive the white coat, which signifies their transition from the classroom and didactic learning to the clinic and experiential learning. Third-year doctor of physical therapy student Madeline Wnuk not only got her white coat but also the Alfred T. Caffiero Scholarship, which, she says, will help her reach her dream of joining the United States Air Force as a physical therapist. Alfred Caffiero, in whose honor the scholarship is named, was a clinical instructor whose first student was from UB's Physical Therapy program. He maintained exceptionally strong ties with UB from that point forward. This year, a gift from one of Caffiero's daughters, Elizabeth Smietana, has established the Alfred T. Caffiero White Coat Ceremony Fund, which will cover costs associated with this ceremony.

"There are only two U.S. Air Force bases that take student physical therapists for clinical placements, one in Northern California where the average cost of short-term housing runs $2,500 per month, and the other in Mississippi, which runs $1,500 per month. I plan to use my Caffiero Scholarship funds to help me afford housing and travel costs to get to either so I can gain the experience and learn first-hand from Air Force PTs while providing hands-on care to service men and women members."

–Madeline Wnuk

PT Grad's Detours Lead to Diverse Experiences

PT alumnus Louis Buchman (left) makes connections with students like Easton Jordan (right). Buchman worked with Jordan for 90 minutes a day during a six-week summer program immediately following pandemic closures of schools in 2020. Jordan's goals were to get more involved with sports like tennis. Said Buchman of this pic, "Easton thought it would be fun to wear matching pink shirts on the last day of school. I had the privilege of working with him daily."

Louis Buchman is a 2018 graduate of the Physical Therapy (PT) program. His career path thus far has taken some unexpected detours, but he's made a real difference in people's lives.

What have you been doing since you left UB?

My first year after graduation I worked across multiple PT settings. I took per diem work in an outpatient PT clinic to jump start my career. Realizing I needed to supplement my workload, I connected through an agency and found part-time work as a school PT at BOCES' Hewes Educational Center. That same year, I took additional work with schools and per diem work through Catholic Health Care. I was hired full time by BOCES in 2019.

What's your job like?

I carry out and document PT session treatments for students ages 5 to 21 while addressing their Individualized Education Program (IEP) goals. I conduct official PT evaluations upon request, attend student meetings and coordinate with vendors for students' adaptive equipment needs. I have 35 to 40 sessions weekly. Many of the students live with disabilities—from physical limitations to social-emotional disturbance. Diagnoses include autism, Down syndrome, spina bifida, paraplegia, cerebral palsy, and/or lingering deficits involving fetal alcohol syndrome, stroke at birth, seizure disorders or joint deformities.

The student education team (PT, OT, speech, nurse, teacher and lead supervisor) collaborate often. If PT needs are discussed, I conduct an evaluation and make recommendations. All formal decisions are inter-collaborative and include parent/guardian input.

Working in special education provides diverse experiences. I see five-year-olds with significant sensory needs, developing skills needed for play. I work with 20-year-olds on vocational skills as they near becoming functioning members of society. I work with medically complex students who require hands-on intervention for stretching, positioning and transfers.

Explain your continuing connection with UB.

I realized a need to address the lack of adaptive sport resources available for schools. A significant number of students are physically disabled and aren't receiving the benefit of inclusive peer play. I reached out to [Rehabilitation Science Assistant Professor] Jeanne Langan who connected me with leaders at Greater Buffalo Adaptive Sports. Together, we created an adaptive sports day event.

Students were fitted to wheelchairs. Younger students experienced stations for basketball shooting, passing and wheelchair navigation through obstacle courses. Older students experienced a wheelchair basketball clinic with scrimmage games. The positive feedback received in post-event surveys from students and staff was enlightening.

I'm continuing to work alongside UB OT/PT professors to help foster future training for therapists, with a goal of promoting inclusive sport opportunities across Western New York.

What is most meaningful to you about your career?

I enjoy patient interaction and making a positive impact in people's lives. Communication skills are key for success. In some settings, PTs are the lead. In school settings, therapists have a supporting role to the teacher. Having a support role allows more opportunity for collaboration and self-reflection. The flexibility of the profession is nice, having options to work across multiple settings.

Health Impact

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