NAOHUN FIRST SCIENTIFIC MEETING

"SYNERGIZING THE IMPACT OF ONE HEALTH"



ONEHEALTH
CREATING INNOVATION TOGETHER

TTU HSC

TEXAS TECH™

SCHOOL OF VETERINARY MEDICINE
TEXAS TECH

Date

NOVEMBER 6-7, 2026

Location

TTU SCHOOL OF VETERINARY MEDICINE

AGENDA

Thursday November 5, 2026

6:00pm-9pm Evening Gathering & Networking, Hyatt Place lobby, 8985 W. Amarillo BLVD, Amarillo, TX

Friday November 6, 2026

10:30am Registration for those going on tour – Texas Tech University (TTU) School of Veterinary Medicine (SVM) Lobby (ASCO Hall), 7671 Evans Dr, Amarillo, TX

11:00am-12:00pm Optional Tour of SVM (**By sign up only**) – **Annelise Nguyen**, TTU SVM

12:00pm-1:00pm Optional Tour of SVM (**By sign up only**) - **Annelise Nguyen**

12:30pm- Registration for all attendees

1:00pm Lunch (Boxed Lunches) & Networking – SVM Lobby

1:00pm Concurrent NAOHUN Steering Committee meeting (**By Invitation only**) – SVM Room E294

2:00pm Welcome SVM E-106

- **Naima Moustaid-Moussa**, Institute for One Health innovation (IOHI), TTU & TTU Health Sciences Center (TTUHSC) & TTU SVM
- **Annelise Nguyen**, TTU SVM
- **Clint Krehbiel**, TTU Davis College of Agricultural Sciences & Natural Resources
- **Ron L. Cook**, TTUHSC School of Medicine & Office of the President
- **Kendra Rumbaugh**, TTUHSC School of Medicine & Graduate School of Biomedical Sciences

2:30pm Overview of Agenda and IOHI Presentation, **Naima Moustaid-Moussa**

2:50pm TTU One Health Sciences Graduate Program, **Annelise Nguyen**

3:05pm Plenary Speaker 1 - Chad Cross (TTU, SVM); **Moderator - Ron L. Cook**, TTUHSC

New World Screwworm: Viewing a Not-So-Existential Threat through a One Health Lens

3:30pm Q&A

3:45pm Break

4:00pm NAOHUN Executive & Steering Committee Report & Updates (presenters names are bolded)

Tracey Goldstein (Colorado State University), Michael D. Lairmore (University of California, Davis), Sid Thakur (North Carolina State University), Cate Dewey (University of Guelph)

Abbreviations: North America One Health University Network (NAOHUN), Institute for One Health innovation (IOHI), School of Veterinary medicine (SVM), Texas Tech University (TTU), TTU Health Sciences Center (TTUHSC), University of California (UC), Working Group (WG), National Academies of Sciences, Engineering & Medicine (NASEM)

AGENDA

4:30pm NAOHUN Working Groups (WG) Reports & Updates (presenters names are bolded)

- **Moderator: Sid Thakur** (North Carolina State University)
  - Policy, Advocacy & Community Outreach WG - Michael Lairmore, **Kristen Pogreba Brown** (University of Arizona), Liz VanWormer (University of Nebraska-Lincoln)
  - Education WG - **Amanda Berrian** (The Ohio State University), K Paige Carmichael (University of Georgia), Christopher Woods (Duke University), **Christopher Hall** (Berry College)
  - Research WG - **Michael E. Von Fricken**(University of Florida), Qijing Zhang(Iowa State University)
  - Service WG - Leaders: **Julianne Meisner** (University of Washington), Vickie E. Ramirez (University of Washington), Michael Zicardi (UC Davis)

5:30pm Discussion/Business meeting

6:00pm Dinner (Buffet catered by **Girasol**), Reception

Saturday November 7, 2026

8:30am Check in, Registration & Breakfast
9:00am Welcome, Lance R. McMahon, TTUHSC Office of Research & Innovation
9:05am Plenary Speaker 2 - Robin Schoen, NASEM; Moderator: **Michael D. Lairmore**, UC Davis *Food, Nutrition & Agriculture (FNA) and One Health at NASEM*
9:35am Q&A

9:45am 3 MNT Bernadette M. Dunham One Health Trainees Awards Presentations

Moderator: Tracey Goldstein, Colorado State University

- Abstract 14 **Augusto Baron Cruz, Graduate Student, University of Washington** *Expanding our Vision for Prevention-oriented Action in Health: Introducing a Framework for One Health Comprehensive Disease Action (FOCA)*
- Abstract 19 **Carrie McMullen, Postdoctoral Fellow, University of Guelph** *One Health knowledge change and outreach following a community training program in Rwanda*
- Abstract 32 **Kara Flaherty, Graduate Student, The Ohio State University** *Supporting One Health and Protecting Food Security Through Outreach to Local Farmers*

AGENDA

- Abstract 5 **Marissa Hall, Graduate Student, The Ohio State University** *Zoonoses Talks: Identifying and Filling Zoonotic Disease Knowledge Gaps in Ohio Local Health departments*
- Abstract 3 **Kianna Dean, Graduate Student, Texas Tech University** *Integrated Environmental Surveillance of Zoonotic Canine Gastrointestinal Parasites in Five Public Dog Parks: Identifying Texas Panhandle Research Gaps*
- Abstract 20 **Ava Smith, Undergraduate Student, North Carolina State University** *Assessing livestock farms as point sources for antimicrobial resistant Salmonella and E. coli in songbirds*
- Abstract 27 **Md Khademul Islam, Postdoctoral Fellow, University of Tennessee** *Plasmid-driven diversification shapes multidrug resistance on a clonal genomic background in Salmonella Infantis*
- Abstract 21 **Lincon Chandra Shil, Graduate Student, Texas Tech University** *From Farm "Environment to Food: A One Health Assessment of Heavy Metal Contamination Across Integrated Poultry–Aquaculture Systems and Associated Human Health Risks in Bangladesh*
- Abstract 18 **Zahid MD Khurshidul, Postdoctoral Fellow, Texas Tech University** *Sorghum: A sustainable One Health food system for human nutrition and metabolic health*
- Abstract 12 **Lakshitha Kamala Kannan, Undergraduate Student, University of Houston** *The Role of Volunteer & Family Support in Traumatic Brain Injury Rehabilitation: A Bronfenbrenner Ecological Systems Approach*
- Abstract 11 **Carlos Mazariegos, Graduate Student, Texas Tech University** *Using Daphnia magna in toxicity assessment of di(2-ethylhexyl) phthalate and di(2-ethylhexyl) adipate to understand potential human and environmental effects*

10:20 am Poster Session (and Sponsors exhibits)

11:30am Lunch (Boxed Lunches) & Networking

12:15pm Panel Discussion: *Microplastics and One Health: From Detection to Exposure and Impact*

- **Moderator: Debbie Clegg**, Texas Tech University Health Sciences Center at El Paso
  - **Sara Campbel**l, Rutgers University
  - **Balaji Rao**, TTU
  - **Diego Maldonado-Gomez**, TTU
  - **Karin Ardon-Dryer**, TTU
  - **Kembra Albracht-Schulte**, TTU
  - **Travis Thompson**, TTU
  - **Carlos Mazariegos**, TTU

AGENDA

1:15pm Working Group Sessions – **Moderator: Cate Dewey** (University of Guelph)

- **Policy, Advocacy & Community Outreach WG Session**
  - **Moderator: Kristen Pogreba-Brown**, University of Arizona
  - **Panel Discussion** *Advocating for the development and expansion of University One Health programs: the role of communication, campus and community involvement, and leadership development.*
  - **Michael Mahero**; University of Tennessee
  - **Jessica Schwind**; Georgia Southern University
  - **Karen Gruszynski**; Midwestern University
  - **Nicole Ashpole**; Mississippi State University

2:30pm Education WG Session - Moderator: K. Paige Carmichael, University of Georgia

Panel discussion: *"Beyond the Framework: Approaches to One Health Education and Training Program Evaluation".*

- **Benjamin Anderson** - University of Florida
- **Kristen Sullivan** – North Carolina State University
- **Karen Gruszynski** (Abstract #13) - Midwestern University Integrating One Health into Interprofessional Education Activities
- **Carrie McMullen** (Abstract #17) University of Guelph A framework for the evaluation of One Health training programs

3:45pm Break

4:00pm Service WG Session - Panel presentations and discussions:

- **Presentations** on labs as service - **Moderator: Michael Zicardi**
  - **Tracey Goldstein**, Colorado State University One Health Laboratories: Diagnostics and Partnerships
  - **Woutrina A Smith,** University of California at Davis – Online Veterinary and diagnostic testing services provided by the UC Davis One Health Institute
  - **Cynthia Reinoso**, Texas Tech University (Abstract #31) – Online Highly Pathogenic Avian Influenza A(H5N1) detection & related One Health work
- **One Health Clinic (OHC) - Moderator: Vickie E. Ramirez**, University of Washington
  - **OHC Experiences by students** from SVM (DVM and One Health Sciences PhD), TTUHSC Nursing, TTUHSC Pharmacy & TTUHSC Medicine

AGENDA

5:15pm Research WG Session

Presentations: Moderator: Michael E von Fricken, University of Florida

- **Charlie Rioux**, Texas Tech University (Abstract #10). Environmental sensitivity and One Health: Insights from personality theory and developmental science.
- **Carrie McMullen**, University of Guelph (Abstract# 25). Training Community One Health Teams to Prevent Taenia solium in Rural Rwanda
- **Angela Walla**, Texas Tech University (Abstract 36) From System Failure to Shared Exposure: A One Health Framework for Beef Food Defense
- **Michael W. Mahero**, University of Tennessee (Abstract 34 Integrated One Health surveillance of neuroinvasive West Nile virus in Tennessee: mosquito early-warning signals and emergence-to-endemic dynamics
- **Mostafa Abdelrahman**, Texas Tech University (Abstract #16) From Rhizosphere Signaling to the Built-Environment Aerobiome Across a One Health Continuum

6:30pm Closing ceremony and awards, dinner buffet (catered by **Girasol**) and reception/live entertainment

Saturday November 7, 2026 (Concurrent Community Event)

1:00pm - 5:00pm Community Event: One Health Clinic (OHC), Transformation Park, Amarillo, TX

One Health Clinics offer an integrative approach to healthcare that recognizes people and their companion animals as interconnected members of a family unit. At a One Health Clinic, health care professionals and veterinarians work together to diagnose and treat both people and companion animals addressing the health and well-being of both. Importantly, health care professionals and veterinarians share information that allows them to better identify and address shared environmental exposures, overlapping health risks and interconnected health needs.

Planning Committee:

Todd Bell (TTUHSC Medicine), Elpida Artemiou (TTU SVM), Tasha Likavec (TTU SVM), Louise Rice (TTUHSC Nursing), Ron L. Cook (TTUHSC, Medicine), Naima Moustaid-Moussa (TTU/TTUHSC, IOHI, SVM), Stephanie Myers (TTU SVM), Leah Lee, (TTU SVM); Lauren Barnett, (TTUHSC, Nursing), Lindsay Breland (TTUHSC, Pharmacy), Liz Matos (TTUHSC, Nursing), Nicole Hines (TTUHSC Nursing), and **expert consultants: Vickie E. Ramirez (University of Washington), Julianne Meisner (University of Washington), Kimberli Phillips (TTU).**

Special Acknowledgment: Pennye Fitch (Development Director, Transformation Park)

Volunteer students:

TTU SVM (DVM and One Health Sciences PhD students), TTUHSC Nursing, TTUHSC Pharmacy, TTUHSC Medicine

FRIDAY

NOVEMBER 6,2026

WELCOME & OPENING REMARKS



Naïma Moustaïd-Moussa, Ph.D., DFASN, FTOS, FAHA, FNAI

Texas Tech University & Texas Tech University Health Sciences Center
Institute for One Health Innovation and School of Veterinary Medicine

Naïma Moustaïd-Moussa, Ph.D., DFASN, FTOS, FAHA, FNAI is the Inaugural Executive Director for the Institute for One Health Innovation (IOHI) jointly established by Texas Tech University & Texas Tech health Sciences Center. She is the Founding Director of the Obesity Research Institute, a Paul W. Horn Distinguished Professor of Nutrition and One Health at the TTU School of Veterinary Medicine, and Professor of Cell Biology and Biochemistry at the TTUHSC School of Medicine. She directs Nutrigenomics, Inflammation and One Health Research (NIOR) Lab conducting basic and translational nutrition and obesity research, with emphasis on nutrient-gene interactions, and the role of the adipose endocrine function in metabolic diseases and most recently, effects of environmental factors (microplastics, contaminants) on inflammation, oxidative stress, metabolic and brain health and mitigation of these effects using dietary anti-inflammatory and antioxidant bioactive compounds. She is a Distinguished Fellow of the American Society for Nutrition (DFASN), Fellow of the AHA (FAHA), a Fellow of The Obesity Society (FTOS), and a Fellow of the National Academy of Inventors (FNAI) and has won several institutional, national and international awards for scholarship and mentoring. She provided significant outreach and professional services to her discipline, including as a member of several NIH, USDA and AHA study sections. From 2022 to 2026, she served as a member of the National Academies' Board on Agriculture & Natural Resources (BANR) and was recently appointed to Strategic Advisory Committee of the National Academies Food, Nutrition and Agriculture (FNA) Program. She currently serves on the ASN Board of Directors of is Immediate Past President of ASN.



Annelise Nguyen, PhD, MBA, DABT, ATS, SMNAI

School of Veterinary Medicine, Texas Tech University

Dr. Annelise Nguyen currently serves as associate dean for research and professor at Texas Tech University's School of Veterinary with board certification by the American Board of Toxicology. She received a Bachelor of Science in Molecular and Cellular Biology and a PhD in Toxicology from Texas A&M University. She completed a postdoctoral fellowship from the National Eye Institute. Dr. Nguyen joined the Toxicology group at Kansas State University, College of Veterinary Medicine where her research interests continued in the field of cancer biology, focusing on the role of gap junctional intercellular communication (GJIC). Her work extended to the field of spheroid/organoid development, utilizing new technology of PGMatrix to recapitulate 3D human tumor-like spheroids and species-specific organoids. She joined Texas Tech University in 2020 with the effort to establish comparative models such as canine mammary cancer and feline kidney cancer. She is an inventor of US patents, entitled "Compounds affecting gap junction activity" and "Peptide-albumin hydrogel properties and its applications." Her research programs have been funded by NIH, NSF, USDA, and cancer-related foundations. She was the recipient of 2009 K-INBRE-Kansas Technology Enterprise Corporation Scholar, 2011 University Distinguished Faculty Award for the Mentoring Undergraduate Students in Research, 2012 Kansas State University Women of Distinction, 2017 Inspiring Leader in STEM Award of the INSIGHT Into Diversity, 2019 John Doull Award for distinguished contribution to the field of toxicology, 2021 Fellow of the Academy of Toxicological Sciences, and 2024 Member of the National Academy of Inventors. She teaches graduate and veterinary classes, including Veterinary Toxicology, Environmental Toxicology, Environmental Health, Ecotoxicology, and Cancer Pathogenesis.

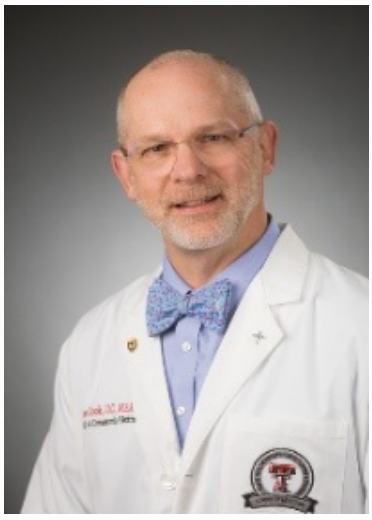
WELCOME & OPENING REMARKS



Clint Krehbiel, Ph.D.

Texas Tech University Davis College of Agricultural Sciences & Natural Resources

Clint Krehbiel joined the Davis College of Agricultural Sciences & Natural Resources at Texas Tech University as Dean in January 2023. He arrived in Lubbock after serving as the Marvel L. Baker Department Head and Professor of Animal Sciences at the University of Nebraska in Lincoln since 2017. Krehbiel earned his bachelor's (1988) and master's (1990) degrees in animal science and industry from Kansas State University and his doctorate in animal science with a concentration in ruminant nutrition from the University of Nebraska in 1994. Before joining the University of Nebraska, Krehbiel served on the faculty at Oklahoma State University for 17 years, leaving as Regents Professor and Dennis and Marta White Endowed Chair of Ruminant Nutrition and Health and the assistant head of the Department of Animal Science. Before Oklahoma State, Krehbiel served four years as an assistant professor of ruminant nutrition at New Mexico State University. He also was a postdoctoral research associate at the Roman L. Hruska U.S. Meat Animal Research Center in Clay Center, Neb. He is a member of the American Society of Animal Science (ASAS), the American Dairy Science Association, the American Registry of Professional Animal Scientists, and the Plains Nutrition Council. Krehbiel has received the ASAS Southern Section Outstanding Young Animal Scientist Award for Research, the Oklahoma State Department of Animal Science Tyler Award, the James A. Whatley Award for Meritorious Research in Agricultural Science, the Gamma Sigma Delta Research Scientist Award of Merit, the Sarkey's Distinguished Professor Award, the OSU University Service Award, and the American Feed Industry Association ASAS Ruminant Nutrition Award. Clint and his wife Shelly have three grown daughters.



Ronald L. Cook, DO, MBA, FAAP

Texas Tech University Health Sciences Center

Ronald L. Cook, DO, MBA, FAAP is a Professor in Family Medicine and serves as the Chief Health Officer at Texas Tech University Health Sciences Center. He earned his undergraduate degree in Microbiology (1985) and a Master's in Zoology (1989) from Texas Tech University, followed by his medical degree from Texas College of Osteopathic Medicine in 1993. Dr. Cook completed his residency in Family Medicine in 1996 and an MBA from Rawls College of Business in 2005. He served as the Braddock Chair of Family Medicine from 2011 to 2023.

Recognized for his leadership and service, Dr. Cook has been the City of Lubbock Health Authority since 2009 and was named the 2023 Family Physician of the Year by the Texas Academy of Family Physicians. His distinguished career includes numerous awards, including the Paul Harris Fellow Award, and impactful contributions during the COVID-19 pandemic, where he delivered over 80 press conferences to guide

WELCOME & OPENING REMARKS



Kendra Rumbaugh, PhD

Graduate School of Biomedical Sciences,Texas Tech University Health Sciences Center

Kendra Rumbaugh, Ph.D., is Professor of Surgery, Vice Dean of the Graduate School of Biomedical Sciences, and Director of the Burn Center of Research Excellence at Texas Tech University Health Sciences Center. She holds joint appointments in Cell Biology and Biochemistry and Immunology and Molecular Microbiology. Her research explores how bacteria communicate and interact within biofilms, with a particular focus on polymicrobial wound infections and novel therapeutic strategies. Dr. Rumbaugh earned her Ph.D. in Medical Microbiology at TTUHSC and completed postdoctoral training in bacterial pathogenesis at the University of California, San Francisco. She has authored approximately 120 publications and book chapters and edited four books. A Fellow of the American Association for the Advancement of Science and the American Academy of Microbiology, she has served in many international research review and editorial leadership roles. She is committed to graduate education, faculty development, and mentoring the next generation of biomedical scientists.

PLENARY SPEAKER

MODERATOR **Ronald L. Cook, DO, MBA, FAAP**



Chad L. Cross, PhD, MFT, BCE, CPH, PStat®

Professor of One Health

Texas Tech University School of Veterinary Medicine

New World Screwworm: Viewing a Not-So-Existential Threat through a One Health Lens

Dr. Cross is Professor of One Health at the Texas Tech University School of Veterinary Medicine and is an Emmeritus Professor of Public Health at the University of Nevada, Las Vegas. He is trained as a multidisciplinary scientist and has advanced degrees in life sciences, mathematical sciences, and social sciences. He has expert knowledge, skills, and abilities in research, complex quantitative analysis, leadership, grantsmanship, and policy development. As a professional scientist, he has worked in academia, in the federal government, in private industry, and as a professional consultant. His research consistently involves working with multidisciplinary research teams to address novel and complex research questions in public health, biology, and medicine. He applies his work broadly in both a dry-lab setting providing quantitative expertise and advanced analytics, and in a wet-lab setting providing expertise in parasitology and vector biology. His research agenda spans the areas of quantitative ecology, applied biostatistics and epidemiology, medical and veterinary entomology, disease ecology, zoonotic diseases, and the ecology and epidemiology of parasites and vector-borne diseases.

NAOHUN Executive and Steering Committee



Tracey Goldstein, PhD

Dr. Tracey Goldstein is the director of the Colorado State University One Health Institute and Professor in the Department of Microbiology, Immunology and Pathology. Tracey has over 25 years of experience leading One Health, marine mammal, infectious disease and conservation work and global programs. Before joining CSU, she was the Division Chief for the Emerging Threats Division, Bureau for Global Health at USAID. In her previous position, she was a Professor in the Department of Pathology, Immunology, and Microbiology and Associate Director of the One Health Institute at the University of California, Davis



Michael D. Lairmore, DVM, PhD

Michael D. Lairmore, DVM, PhD is immediate past dean of the School of Veterinary Medicine at the University of California, Davis (UC Davis). At UC Davis, he oversaw all the school's teaching, research and service activities, personnel, facilities, and funding resources. He presided over six academic departments, the William R. Pritchard Veterinary Medical Teaching Hospital, the California Animal Health and Food Safety Laboratory System, the Veterinary Medicine Teaching and Research Center in Tulare, Veterinary Medicine Extension, and numerous centers of excellence. As dean, he helped create new programs to expand clinical trials, global and one health programs, and innovation and entrepreneurship. Dean Lairmore led a strategic planning process that enhanced current units, added new programs in faculty, staff, and student leadership, expanded student services including mental health support, expanded research and clinical infrastructure, community outreach, external stakeholder engagement, created new diversity, equity, and inclusion programs, extended communication, marketing, and development activities. He is one of the few veterinarians elected as a member of the National Academy of Medicine. He is also a Fellow in the American Academy of Microbiology and the American Association for the Advancement of Sciences and has received numerous teaching and research awards throughout his career. He served in numerous national leadership positions including President of the American Association of Veterinary Medical Colleges and the American College of Veterinary Pathologists and served as a member of the National Institutes of Health Council of Councils. His research has provided significant breakthroughs in the biology of human retroviruses and the understanding of viral-associated carcinogenesis. He has authored or co-authored over 190 scientific publications and given numerous lectures and invited presentations throughout the world. His recent activities include academic consulting, volunteer work to enhance veterinary medicine, and service in creation of the North American One Health University Network. He has recently published a book entitled, "Belonging to Earth: One Health Stories to Save our Planet and Ourselves" to highlight the impact of One Health story telling based on evidence-based science.

NAOHUN Executive and Steering Committee



Sid Thakur,PhD, MPH

Dr. Siddhartha "Sid" Thakur is the Executive Director of Global One Health Academy and Professor of Molecular Epidemiology at the College of Veterinary Medicine, NC State. In his current role, Dr. Thakur is responsible for expanding NC State's One Health research and education efforts, as well as increasing opportunities for undergraduate and graduate students, with a focus on interdisciplinary project-based experiences, and the development of evidence-based recommendations for tackling current and future global threats. He is an NC State Chancellor faculty scholar. He received his Degree in Veterinary Medicine and Master of Veterinary Public Health from India, Ph.D. from NC State, and postdoc (Oakridge Research Fellow) at the Center for Veterinary Medicine, FDA.



Cate Dewey, DVM, MSc, PhD

Cate Dewey, DVM, MSc, PhD is an Assistant Dean and Professor of epidemiology and swine health medicine in the Department of Population Medicine, Ontario Veterinary College, University of Guelph, Canada. Her current research focuses on empowering community One Health Teams to prevent zoonotic diseases in vulnerable populations. She was the Director of the One Health Institute from 2018 to 2025 and developed the Mobilizing One Health micro-credential. She is currently developing an Executive Master of One Health Leadership program.

POLICY, ADVOCACY & COMMUNITY OUTREACH WORKING GROUP (WG)

MODERATOR **Sid Thakur, PhD, MPH**



PRESENTER

Kristen Pogreba-Brown, DVM, PhD, MS

Dr. Pogreba-Brown is an associate professor of epidemiology at the Julie Ann Wigmore Personalized Medicine Program College of Public Health and the School of Animal and Comparative Biomedical Sciences at the College of Veterinary Medicine, University of Arizona. She is the director of the One Health Epidemiology Response, a nationally recognized surveillance team that collaborates with local, state, and federal entities and departments to investigate a variety of diseases to save our planet and ourselves to promote the impact of one health story telling based on evidence-based science. She is an expert in foodborne diseases, specifically the epidemiology and microbiology of campylobacter, and outbreak investigation methodologies although her work has also been largely focused on COVID-19 and long COVID since 2020. She is the faculty lead of One Health degree programs in CoPH and C-lead of the Veterinary Public Health Residency Program (CVM/COPH) and has helped to design a multidisciplinary approach to the curriculum from programs across campus and bridging the gap between clinical human medicine and agricultural practices, animal health, and rodztitir. She teaches an advanced graduate level course in One Health applications and practice. She is a steering committee member of the National One Health University Network (NAOHUN) and a co-lead of the policy, avoccy and community outreach working group. Her one health to cities and educatof for one health activities and education both within and outside of universities by leveraging real-world examples and accessible science communication. Her most recent research activities are focused on the post-infectious sequel of infectious diseases, including bacterial foodborne infections and the SARS-CoV-2 virus. Her one health research is focused on source attribution in food safety and working with amal shelters to improve outcomes for PFS pets and people. She is a proud alumni of the University of Arizona and a BIOS Institute scientist.

POLICY, ADVOCACY & COMMUNITY OUTREACH WG



Elizabeth (Liz) VanWormer, DVM, PhD

Dr. Elizabeth (Liz) VanWormer Program Director, Nebraska One Health and Associate Professor School of Veterinary Medicine & Biomedical Sciences, School of Natural Resources at the University of Nebraska, Lincoln. She focuses on diverse health issues at the interface of humans, animals (both domestic and wild), and the environment in the U.S. and East Africa. As an epidemiologist, she integrates animal and human disease surveillance, molecular epidemiology, and spatial methods to investigate environmental change and zoonotic disease transmission. Using a One Health approach, she works with students, interdisciplinary researchers, and local stakeholders, linking diverse tools and perspectives to address complex health challenges. In Tanzania and Rwanda, Liz has collaborated on One Health projects ranging from studies of viral transmission from wildlife to people to community-based research on connections among livestock herd health, human nutrition, and household livelihoods of rural communities.



Michael D. Lairmore, DVM, PhD

EDUCATION WG



PRESENTER

Amanda Berrian, DVM, PhD, MPH, DACVPM

Dr. Amanda Berrian, DVM, PhD, MPH, DACVPM, is an Associate Professor in the Department of Veterinary Preventive Medicine and the Dr. Tom Mack Endowed Chair in Global One Health at The Ohio State University College of Veterinary Medicine. She is a board-certified veterinary epidemiologist who applies One Health approaches to prevent and control diseases among animal and human populations. She works to strengthen training capacity globally through her projects in Africa and Southeast Asia supported by the Gates Foundation and the World Organization for Animal Health. At OSU, she leads courses in zoonotic diseases, biosecurity, and environmental health at the graduate and professional student levels.

EDUCATION WG



K. Paige Carmichael, DVM, PhD

Dr. K. Paige Carmichael is a UGA Distinguished Professor and Josiah Meigs Professor of Veterinary Pathology at the University of Georgia College of Veterinary Medicine. A board-certified veterinary pathologist, she directs the UGA One Health Undergraduate Certificate and co-directs the UGA Teaching Academy's Early Career Fellows program. She teaches at the undergraduate, graduate, and professional veterinary levels and has received both the CVM's and the university's highest teaching honors. Her research focuses on neurological and ocular diseases shared by humans and animals, as well as innovative approaches to student learning and engagement.



Christopher W. Woods, MD,MPH, FASTMH, FIDSA

Dr. Christopher W. Woods is the Executive Director of the Hubert-Yeargan Center for Global Health; Director of the Center for Infectious Disease Diagnostic Innovation (CIDDI); professor in the Departments of Medicine and Pathology at Duke University; and an adjunct professor in the Emerging Infections Program at the Duke-National University of Singapore Graduate Medical School. Clinically, he serves as Chief of Infectious Diseases Durham VA Health System. Dr. Woods is a co-founder of Predigen, Inc., and currently serving as Acting Chief Medical Officer for Biomeme, Inc. Dr. Woods is board-certified in internal medicine, infectious diseases, and medical microbiology.

He attended Yale University and pursued his medical education and training at Duke University, and public health training at University of North Carolina - Chapel Hill. He developed his interest in global health at Tenwek Hospital in Bomet, Kenya during his internal medicine residency. He is a graduate of the Epidemic Intelligence Service (EIS) of the Centers for Disease Control and Prevention (CDC), where he served in the Meningitis and Special Pathogens Branch of the National Center for Infectious Diseases. While at the CDC, Dr. Woods performed programmatic work and outbreak investigations throughout the U.S. and the developing world.

He has published over 300 peer-reviewed articles, and has a particular interest in the diagnostic capacity in the developing world and the epidemiology of emerging and re-emerging infectious diseases. His research focuses on development of novel diagnostic approaches to infectious disease and the potential for interspecies transmission of pathogens. As an infectious diseases clinician and medical microbiologist, his approach to host genomic response has been called a paradigm shift in the field of infectious disease diagnostics.



PRESENTER

Christopher A. Hall, PhD, MS, BA

Christopher A. Hall, B.A., M.S., Ph.D., is Director of the One Health Sciences minor and Associate Professor of Biology at Berry College in Mount Berry, Georgia. In 2014, he established Berry's One Health Sciences minor, the first dedicated undergraduate One Health program in North America. From 2000 to 2010, Dr. Hall served on a Veterinary Medical Assistance Team within the National Disaster Medical System, advising on zoonotic disease transmission and serving as a communications officer. His teaching emphasizes transdisciplinary approaches to One Health, capacity building, and the development of professional networks that bring together diverse expertise. He has developed several courses specifically focused on One Health, including study abroad programs in Costa Rica and Cuba. His research is primarily in parasitic zoonotic diseases, with a special love for the endemic cycles of Chagas disease. His wife wishes he'd stop storing field specimens in the home freezer.

RESEARCH WG

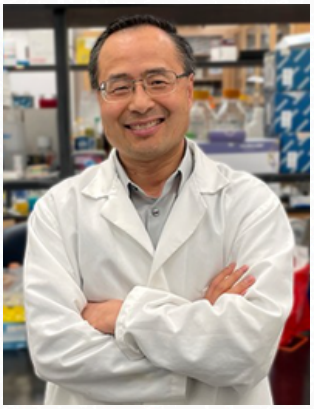


PRESENTER

Michael E. von Fricken, PhD, MPH

Dr. Von Fricken is a globally recognized epidemiologist and public health scientist specializing in vector-borne diseases and One Health approaches. He currently serves as Associate Professor and Director of the One Health Center of Excellence at the University of Florida, where he leads interdisciplinary research and training initiatives aimed at addressing complex health challenges at the human-animal-environment interface. He earned his PhD and MPH in Public Health from the University of Florida, following a BS in Health Sciences from James Madison University. He completed a postdoctoral fellowship at Duke University, where he focused on zoonotic diseases in Mongolia.

Dr. von Fricken's research portfolio spans over 100 peer-reviewed publications and more than $15 million in funded projects from agencies including the NIH, DoD, USDA, and Gates Foundation. His work has taken him to Haiti, Kenya, Mongolia, Pakistan, and Equatorial Guinea, collaborating with institutions such as the Smithsonian, USAMRIID, and the Navy Entomology Center of Excellence. He is a PI or Co-PI on multiple international surveillance and diagnostic studies targeting malaria, tick-borne diseases, and emerging arboviruses.



Qijing Zhang, PhD, BVSc, MS

Dr. Qijing Zhang, is a Clarence Hartley Covault Distinguished Professor in Veterinary Medicine and the Dr. Roger and Marilyn Mahr Chair in One Health. Dr. Zhang is a member of the National Academy of Sciences and is a renowned researcher with expertise and global impact in microbiology, food safety and especially the control of antibiotic-resistance pathogens in animals and humans.

Dr. Zhang has pioneered efforts to dissect mechanisms involved in the emergence, persistence and fitness of antibiotic-resistant Campylobacter, a major zoonotic pathogen worldwide. His lab was among the first to document the impact of antibiotic resistance on bacterial fitness. Importantly, his work has served as the basis for science-based policy making by regulatory agencies on the use of antimicrobials in animal production. He has published nearly 200 peer-viewed papers and over 15 books/book chapters, with over 12,000 citations from work supported through competitive federal grants ($25M) from various NIH, USDA, NSF, and FDA.

Dr. Zhang joined the department of Veterinary Microbiology and Preventive Medicine in 2003 where he held the Frank K. Ramsey Endowed Chair in Veterinary Medicine from 2003-2012 and again from 2017-2019. He is a Fellow of the American Association for the Advancement of Science and the American Academy of Microbiology as well as an Honorary Diplomate of the American College of Veterinary Microbiologists. In 2024, he was awarded the American Association of Veterinary Medical Colleges (AAVMC) Excellence in Research Award. Most recently, he was selected to be a Fellow of the Conference of Research Workers in Animal Diseases (CRWAD).

SERVICE WG



PRESENTER

Julianne Meisner, PhD, BVSc, MS

Dr. Julianne Meisner is a veterinarian and epidemiologist and the director of the Center for One Health Research at the University of Washington. Her research and teaching focus on pastoralist health, epidemiologic methods for One Health, and suitable theory for more-than-biomedical approaches to One Health. In particular, her work applies causal inference methods, spatial and mechanistic models, and network analyses to characterize the influence of political and social forces on health at the human–animal–environment nexus.



Vickie Ramirez, MA

Vickie Ramirez is the Senior Research Coordinator and Center Manager for the University of Washington Center for One Health Research, where she supports research, training, and clinical activities at the human-animal-environment interface. Trained as a medical anthropologist, she works to improve health access and outcomes for communities facing persistent structural barriers to care through outreach, evaluation, and applied qualitative and mixed-methods research. Her work includes local and global research on zoonotic disease transmission and surveillance, as well as coordination of projects such as the occupational health of those working in animal agriculture and antimicrobial resistance research. She is also Co-Director of the One Health Clinic, an integrated human and veterinary care clinic that serves people experiencing homelessness and their animal companions while training future health professionals in holistic, trauma-informed care.



Michael Ziccardi, DVM, MPVM, PhD ,Hon ACZM

Dr. Nichael Ziccardi is currently the Director of the Karen C. Drayer Wildlife Health Center, Director of the California Veterinary Emergency Team, Co-Director of the California Raptor Center, Associate Director of Global Programs for the Oiled Wildlife Care Network (OWCN), Chair of the Global Oiled Wildlife Response System (GOWRS), Associate Director of the UC Davis One Health Institute, and Health Science Clinical Professor for the School of Veterinary Medicine, UC Davis. He received his DVM, MPVM, and PhD in epidemiology from UC Davis, emphasizing free-ranging wildlife health and the effects of petroleum exposure in wildlife. He has also worked as a wildlife epidemiologist at Lincoln Park Zoo in Chicago, Director of the OWCN, Executive Director of the One Health Institute, and Chair of NOAA's Working Group on Marine Mammal Unusual Mortality Events.

SATURDAY

NOVEMBER 7,2026

WELCOME



Lance R. McMahon, PhD

Lance R. McMahon, Ph.D., serves as executive vice president for research and innovation and chief research officer at Texas Tech University Health Sciences Center (TTUHSC). He also serves as dean of the Graduate School of Biomedical Sciences and holds faculty appointments in the Jerry H. Hodge School of Pharmacy and School of Medicine.

A nationally recognized leader in central nervous system (CNS) drug discovery, Dr. McMahon has secured $45.4 million in National Institutes of Health (NIH) funding and authored more than 149 peer-reviewed publications. His service to national research priorities includes service on grant review panels for agencies including the NIH and Department of Defense.

Dr. McMahon is committed to advancing interdisciplinary research, fostering collaboration and accelerating innovation across cancer, neuroscience, infectious disease and cardiometabolic health. Through strategic partnerships and a focus on scientific excellence, he advances TTUHSC's research enterprise and its mission to improve health through discovery, innovation and collaboration.

PLENARY SPEAKER

MODERATOR **MICHAEL D. LAIRMORE, DVM, PHD**



Robin Schoen, MS

National Academies of Sciences, Engineering, and Medicine (NASEM)
Food, Nutrition, and Agriculture (FNA) Program

FNA AND ONE HEALTH AT NASEM

Robin Schoen is Sr. Program Director for Food, Nutrition, and Agriculture (FNA), a new position created at the National Academies of Sciences, Engineering, and Medicine in late 2025. She oversees standing activities such as the Food Forum and the Roundtable on Obesity Solutions, as well as consensus studies such as the new update to the Dietary Reference Intakes (DRIs) for Macronutrients, and a forthcoming 12th revised edition of the Nutrient Requirements of Swine. Prior to her current role, she was Director of the Board on Agriculture and Natural Resources, which focused on issues such as PFAS contamination of farmland; Chronic Wasting Disease in deer; and the shortage of native plant seeds for post-wildfire landscape restoration. Robin has held several positions in her 37 years at the National Academies, including in the National Research Council Executive Office, Board on Life Sciences and Office of International Affairs. She came to the National Academies as a biologist from the National Institutes of Health. A native Washingtonian, Robin received a B.S. in biology and chemistry from Frostburg State College, Maryland, and an M.A. in Science and Technology Policy from George Washington University

In Memory of Dr. Bernadette M. Dunham, Public Servant and One Health Champion



Dr. Bernadette M. Dunham passed away on December 23, 2025, at the age of 75. She was visiting professor at the Milken Institute School of Public Health at George Washington University, focusing on One Health issues. She also concurrently served as the senior science adviser to the FDA's Office of Foods and Veterinary Medicine.
Bernadette previously served as assistant director for the American veterinary Medical Association (AVMA) in its Federal Government Relations Division in Washington, D.C. At AVMA, she led the development of policies, and programs related to federal laws, and identifying regulatory issues impacting the veterinary profession, and developing strategies to respond to these issues. Bernadette served in several leadership positions at the U.S. Food and Drug Administration's Center for Veterinary Medicine (FDA CVM) for over 8 years.She was deputy director of the Office of New Animal Drug Evaluation, then director of the Office of Minor Use and Minor Species.
She later served as deputy director then director of the FDA CVM, where she oversaw medical devices, drugs, and food additives for animals and ensured that food from treated animals is safe to eat. In addition to compliance oversight, she also coordinated agency outreach to consumers, as well as research to support FDA CVM activities.

“Bernadette was a huge champion of One Health and supporting the next generation of One Health leaders. Her leadership, collaboration and friendship is hugely missed”, said Tracey Goldstein from Colorado State University. “Bernadette was an eternal optimist about the future of One Health and a cheerleader for those who sought to collaborate across veterinary and human medicine, human, animal, and ecosystem health. She saw the bigger picture and never let us lose sight of it,” said Robin Schoen, from the National Academies of Sciences, Engineering, and Medicine. “I was very honored and fortunate to have worked with Bernadette for 3 years on the National Academies Board on Agriculture & Natural Resources. Bernadette was an amazing leader and communicator, highly knowledgeable and a passionate advocate for One Health, sustainable food systems, and policy development. She was always very thoughtful, inspiring and kind and loved by all who worked with her. She was highly respected and admired by our board members. She was the one who connected me with the North America One Health University Network, NAOHUN and its leaders, namely Tracey Goldstein,” said Naima Moustaid-Moussa from Texas Tech University and Texas Tech Health Sciences Center.

Bernadette was from Canada and completed her training at the University of Guelph Veterinary College and practiced for a few years in Ontario. She later moved to Boston University and completed her Ph.D. in cardiovascular disease, then completed a postdoctoral residency program in Pathology at Cornell University College of Veterinary Medicine.
Bernadette also worked for the State University of New York Health Science Center as director of laboratory animal medicine and as adjunct professor of pharmacology. She also served as adjunct professor in biomedical sciences and pathobiology at the Virginia-Maryland College of Veterinary Medicine.

Bernadette is survived by her husband, Dr. Ray Petryshyn, her brother Duncan Dunham; and several nieces and nephews. Her husband, Dr. Petryshyn, established a travel award in memory of Dr. Bernadette M. Dunham to support trainees’ travel to present their work at conferences organized by the NAOHUN. He conveyed “I can only add that Bernadette was deeply dedicated to supporting students and early career scientists, she would have loved and been honored to be part of such an event”.
Adapted in part from JAVMA (March 2026)

Dr. Bernadette M Dunham Trainee Travel Award Presentations

Moderator: **Tracey Goldstein**

1. Abstract 14 **Augusto Baron Cruz, Graduate Student, University of Washington**
Expanding our Vision for Prevention-oriented Action in Health: Introducing a Framework for One Health Comprehensive Disease Action (FOCA)

2. Abstract 19 **Carrie McMullen, Postdoctoral Fellow, University of Guelph**
One Health knowledge change and outreach following a community training program in Rwanda

3. Abstract 32 **Kara Flaherty, Graduate Student, The Ohio State University**
Supporting One Health and Protecting Food Security Through Outreach to Local Farmers

4. Abstract 5 **Marissa Hall, Graduate Student, The Ohio State University**
Zoonoses Talks: Identifying and Filling Zoonotic Disease Knowledge Gaps in Ohio Local Health departments

5. Abstract 3 **Kianna Dean, Graduate Student, Texas Tech University**
Integrated Environmental Surveillance of Zoonotic Canine Gastrointestinal Parasites in Five Public Dog Parks: Identifying Texas Panhandle Research Gaps

6. Abstract 20 **Ava Smith, Undergraduate Student, North Carolina State University**
Assessing livestock farms as point sources for antimicrobial resistant Salmonella and E. coli in songbirds

7. Abstract 27 **Md Khademul Islam, Postdoctoral Fellow, University of Tennessee**
Plasmid-driven diversification shapes multidrug resistance on a clonal genomic background in Salmonella Infantis

8. Abstract 21 **Lincon Chandra Shil, Graduate Student, Texas Tech University**
From Farm "Environment to Food: A One Health Assessment of Heavy Metal Contamination Across Integrated Poultry–Aquaculture Systems and Associated Human Health Risks in Bangladesh

9. Abstract 18 **Zahid MD Khurshidul, Postdoctoral Fellow, Texas Tech University**
Sorghum: A sustainable One Health food system for human nutrition and metabolic health

10. Abstract 12 **Lakshitha Kamala Kannan, Undergraduate Student, University of Houston**
The Role of Volunteer & Family Support in Traumatic Brain Injury Rehabilitation: A Bronfenbrenner Ecological Systems Approach

11. Abstract 11 **Carlos Mazariegos, Graduate student, Texas Tech University**
Using Daphnia magna in toxicity assessment of di(2-ethylhexyl) phthalate and di(2-ethylhexyl) adipate to understand potential human and environmental effects

PANEL SESSION

Microplastics and One Health: From Detection to Exposure and Impact

Moderator



Deborah Clegg, PhD

Dr. Deborah Clegg is a known expert in the field of metabolism with a specific interest in nutrition and how it interacts with physiology. She has authored over 170 articles in impactful journals such as The New England Journal of Medicine, JAMA, American Journal of Physiology, and the National Kidney Foundation. She started her career as a clinical dietitian in the US Army and in this role, she has advocated for personalized nutritional approaches and liberalization of diets to enhance patient compliance and satisfaction. Dr. Clegg is the Vice President for Research at the Paul Foster School of Medicine/Texas Tech Medical School in El Paso, Texas. Dr. Clegg and her research has been featured in many forms of media, to include the television program The View, and HBO series entitled 'Weight of the Nation', as well as in the popular press to include magazines such as Vogue, Mademoiselle, Ladies Home Journal, and Nature. She is invited to present and review grants nationally and internationally on this topic of metabolism, and therefore is considered a leading expert on this subject matter. Dr. Clegg is passionate about research, passionate about advancing science and medicine with a personalized approach, passionate about advocating for women in science, and passionate about helping others obtain their research interests and potential.

Panelists



Sara C. Campbell, PhD, FACSM

Dr. Sara Campbell is an Associate Professor in the Department of Kinesiology and Health. She received her BS and MS from Bloomsburg University of Pennsylvania and PhD from Florida State University. Following her PhD, she completed a three-year postdoctoral fellowship supported by the USDA investigating the ability of flaxseed to reverse atherosclerotic lesions that have already formed as well as flaxseed's ability to alter the cholesterol profile and modulate inflammatory markers. During her doctoral tenure at FSU, she researched the acute effects of isocaloric energy expenditure on lipids, lipoproteins, and enzymes related to lipid transport including cholesterol ester transfer protein and lecithin cholesterol acyl transferase.

Upon arriving at Rutgers, the primary focus of the Campbell lab is to understand the mechanisms responsible for the bidirectional link between exercise and the gut microbiota, how this may be different between the sexes, as well as if diet plays an independent or interdependent role in modulating gut microbial community structure. Her lab also has investigated links between environmental toxicants and gut health including, mustards, ozone and micro- and nanoplastics. Her laboratory uses biochemical, biophysical, cell biological, genetic, and molecular biology techniques to better these relationships in various experimental systems from human clinical trials to animal models.

She has publications in several journals including Atherosclerosis, Preventive Medicine, Exercise and Sports Science Reviews, Medicine and Science in Sports and Exercise, PLoS ONE, Nature Scientific Reports, Aging Cell and Journal of Applied Physiology. She is a Fellow of the American College of Sports Medicine, and Associate Editor for Journal of Nutrition. In 2022, she was awarded the Scott H. Kieffer MARC ACSM Service Award.

PANEL SESSION

Microplastics and One Health: From Detection to Exposure and Impact



Balaji Rao, PhD

Dr. Balaji Rao is an Assistant Professor in the Department of Civil, Environmental and Construction Engineering at Texas Tech University. His research focuses on evaluating and managing risks associated with emerging contaminants, particularly microplastics, PFAS, and pharmaceuticals in water and wastewater systems. Dr. Rao holds an MS and PhD in Environmental Engineering from Texas Tech and a bachelor's degree in chemical engineering from Madras University. Prior to joining faculty, he was a post-doctoral research associate at Oak Ridge National Laboratory, specializing in aquatic contaminant monitoring and remediation. His broader engineering work addresses vital environmental challenges within sustainable resource management and the food-energy-water nexus.



Diego Gomez-Maldonado, PhD

Dr. Diego Gomez-Maldonado is an Assistant Professor of Biopolymers for Biomedical Applications at Texas Tech University and the Fiber and Biopolymer Research Institute, where he leads the Bio-Nano Advanced Health Materials (BioNAHM) Lab. His research examines how the structure, surface chemistry, processing, and interfacial behavior of renewable biopolymers influence their performance and interactions with biological and environmental systems. His group has a particular interest in cellulose and cellulose nanomaterials as platforms for developing sustainable alternatives to conventional materials and for understanding their broader implications within a One Health framework.



Kembra Albracht-Schulte, PhD

Dr. Kembra Albracht-Schulte is an Assistant Professor in the Department of Kinesiology & Sport Management at Texas Tech University, where she directs the Nutrition, Exercise, & Translational (NExT) Medicine Laboratory and the Center of Excellence in Obesity & Cardiometabolic Research (COCR). She earned her B.S. in Exercise Science from Lubbock Christian University and her M.S. in Exercise Science and Ph.D. in Nutritional Sciences from Texas Tech University.

Her research focuses on the interactions between exercise, nutrition, and metabolic health, integrating multiomics, microbiome analysis, and biomarker discovery to advance precision lifestyle interventions for obesity and metabolic disease. Her work includes a USDA-funded clinical trial investigating omega-3 fatty acids and exercise, studies of dietary bioactives and inflammation, and research examining the effects of microplastics on the gut microbiome and metabolic health.

PANEL SESSION

Microplastics and One Health: From Detection to Exposure and Impac



Karin Ardon-Dryer, Ph.D

Karin Ardon-Dryer, Ph.D., is an Associate Professor in the Department of Geosciences at the Atmospheric Science Group at Texas Tech University. Before joining TTU, she was a Postdoctoral Associate in the Department of Earth, Atmosphere, and Planetary Sciences (EAPS) at the Massachusetts Institute of Technology (MIT); and later a Postdoctoral Fellow in the Department of Systems Biology at Harvard Medical School at Harvard University. Dr. Ardon-Dryer received her Ph.D. in Atmospheric Science from the Department of Geophysics, Atmospheric and Planetary Science, and the Porter School of Environmental Studies at Tel Aviv University in Israel. She received her master's in the Department of Geography and Environmental Development at Ben Gurion University with a focus on Geomorphology and Remote Sensing.

Dr. Ardon-Dryer studies the effect that aerosols (mainly dust particles) have on climate, the environment, and our health. In particular, she takes an interdisciplinary approach and combines field and laboratory work to investigate the interaction between humans and climate, exploring the human effects on climate, and vice versa, namely, how climate may affect our lives (e.g., health) in the short and long term. She is also running the measurement station AEROS (Aerosol Observation Station), which helps to study the characteristics of atmospheric particles during dust events, to understand the different meteorological conditions that generate dust events, and their impact on air quality and climate. She also investigates the effects that aerosol particles have on human health, using an interdisciplinary approach that she developed, which observes the effect of air pollution particles on health at a single-cell level.

Dr. Ardon-Dryer is a PI on several NSF grants, a Co-PI on a NASA grant, and the lead scientist on an EPA community organization grant. She is also the director of the NSF-funded Air across Texas project for high school students and the U.S. She Space International project, which is an international project with 10 different countries from around the world, focusing on introducing 14-16 high school girls to STEM via remote sensing.



Travis Thompson, PhD

Dr. Thompson is an Assistant Professor of Applied Mathematics at Texas Tech University. Dr. Thompson joined Texas Tech in Fall 2022; before this, he completed a PhD in Mathematics at Texas A&M University and held several postdoctoral positions across the United States and Europe. His research develops mathematical theories that further our understanding of human biology and techniques that couple biological response data to theory. The biological focus of his current work is the study of the central nervous system and its associated pathologies.



Carlos Mazariegos Ortiz

Carlos Mazariegos is a Ph.D. student in Environmental Toxicology whose research focuses on investigating the toxicological effects of micro- and nanoplastics and their associated chemical additives on aquatic organisms, particularly fish and crustacean models. Their work aims to better understand the potential ecological risks of plastic pollution and its implications for aquatic ecosystems and human health

WORKING GROUP (WG) SESSIONS

Moderator **Cate Dewey, DVM, MSc, PhD**

POLICY, ADVOCACY & COMMUNITY OUTREACH WG

Advocating for the developement and expansion of UOH programs

Moderator **Kristen Pogreba-Brown, PhD, MPH**

Panelists



Michael Mahero, DVM, PhD, DACVPM, MS MPH

Dr. Michael Mahero is a board-certified public health and preventive medicine veterinarian and infectious disease epidemiologist. He is currently a tenure-track faculty member at the University of Tennessee College of Veterinary Medicine (UTCVM). His core expertise includes epidemiological modeling, combining quantitative and qualitative tools to assess the drivers of risk behaviors and their influence on the micro-epidemiology of multi-host infections. Additionally, he applies a One Health approach to leading multidisciplinary teams and translating research into policy using systems mapping and collaborative tools. Dr. Mahero previously worked as a technical advisor for the USAID-funded Emerging Pandemic Threats program, building capacity for emerging infectious disease control in the US and across 15 countries in Africa and Southeast Asia. He serves on the public policy committee of the American Public Health Association's One Health Section.



Jessica Schwind , PhD, MPH, BS

Dr. Jessica Schwind is an epidemiologist and director of the Institute for Health Logistics & Analytics at Georgia Southern University. Her work centers on the human-animal-environment interface, with research and service rooted in disease surveillance, capacity building, and risk communication for preventing and responding to emerging health threats. As institute director, she leads the IHLA in optimizing community health and well-being through evidence-based practices and technology integration guided by a One Health approach. Through partnerships with local, national, and global organizations, the IHLA provides essential services on topics ranging from zoonotic disease prevention to opioid harm reduction. She holds a BS in Applied Biology from Georgia Tech, an MPH from New York Medical College, and a PhD in Infectious Disease Epidemiology from the University of California, Davis.



Karen Gruszynski , DVM, PhD, MPH

Dr. Karen Gruszynski attended UW-Madison for veterinary school and attended LSU for concurrent MPH and PhD. During Hurricane Katrina she collaborated with Louisiana Department of Health to collect information and provide outreach at animal shelters. She has worked for agriculture, public health, and wildlife health agencies at state and federal levels. During her stint with the Virginia Department of Health, she was part of numerous work groups that focused on emergency preparedness and response, provided guidance on rabies exposures, and teamed up with various state and federal partners to conduct public health investigations. She started her academic career at Lincoln Memorial University where she led a project partnering with World Organisation for Animal to collect data related to COVID-19 and animal health. She is currently an Assistant Professor in the MPH program at Midwestern University and serves as the University's One Health Co-Coordinator and the One Health club's faculty advisor.

POLICY, ADVOCACY & COMMUNITY OUTREACH WG

Advocating for the developement and expansion of UOH programs



Nicole Ashpole, PhD

Dr. Nicole Ashpole serves as Director of One Health Graduate Studies at Mississippi State University, where she leads interdisciplinary graduate programs that prepare students to address challenges at the interfaces of animal, human, and environmental health. Although trained as a neuroscientist and pharmacologist, her career has centered on understanding how biological, environmental, and behavioral factors influence health outcomes. Her NIH-funded research on neuroinflammation, cannabinoids, aging, and environmental exposures reflects many of the same systems-level concepts that underpin One Health approaches. At Mississippi State University, she led the recent establishment of the M.S. in One Health and Graduate Certificate in One Health programs and works to create experiential learning opportunities that connect students with researchers, clinicians, industry partners, public health professionals, and community stakeholders. Her interests include interdisciplinary education, workforce development, and preparing the next generation of professionals to address complex health challenges through collaborative, cross-sector approaches.

EDUCATION WG

Beyond framework: Approaches to One Health Education and Training

Moderator **K. Paige Carmichael, DVM, PhD**

Panelists



Benjamin Anderson, PhD, MPH, CPH

Dr. Benjamin Anderson is an Assistant Professor in the Department of Environmental and Global Health, PhD Program Director, and Associate Director of the UF One Health Center of Excellence at the University of Florida. He teaches and mentors graduate and professional students in One Health, epidemiology, and environmental health, emphasizing interdisciplinary learning and systems-based approaches to addressing complex health challenges. His research focuses on emerging infectious diseases, zoonotic diseases, antimicrobial resistance, and environmental health risks at the human-animal-environment interface.



Kristen Sullivan, PhD, MBA

Dr. Kristen Sullivan is an Associate Teaching Professor at NC State University and Director of Undergraduate Programs for the Global One Health Academy. She established and leads the undergraduate Global One Health minor and Global One Health Scholars program and teaches at both the undergraduate and graduate levels. Her work emphasizes interdisciplinary and experiential learning, helping students from diverse academic backgrounds apply One Health approaches to complex, real-world challenges. She brings a background in global health, social and behavioral science, infectious disease research, and community engagement to her teaching and program development.

EDUCATION WG

Beyond framework: Approaches to One Health Education and Training



Karen Gruszynski , DVM, PhD, MPH



Carrie McMullen, PhD, MSc

Dr. Carrie McMullen (she/her/hers) is a Postdoctoral Fellow in Population Medicine and One Health at the University of Guelph. She completed her PhD in Population Medicine with the Collaborative Specialization in One Health in 2024 where, in combination with her strong ties to the agricultural community in Southwestern Ontario, she developed a strong passion for transdisciplinary community-based projects. Currently, she is assessing a community training program in Rwanda that aims to improve the lives of women and girls through lessons on zoonotic, waterborne, and foodborne diseases and gender-transformative principles.

Using both qualitative and quantitative research methods, Dr. McMullen is passionate about learning from people with lived and living experience through collaborative discussions. She deeply understands the value of challenging assumptions and integrating diverse perspectives as a path toward better addressing complex health challenges.

Dr. Carrie McMullen (she/her/hers) is a Postdoctoral Fellow in Population Medicine and One Health at the University of Guelph. She completed her PhD in Population Medicine with the Collaborative Specialization in One Health in 2024 where, in combination with her strong ties to the agricultural community in Southwestern Ontario, she developed a strong passion for transdisciplinary community-based projects. Currently, she is assessing a community training program in Rwanda that aims to improve the lives of women and girls through lessons on zoonotic, waterborne, and foodborne diseases and gender-transformative principles.

Using both qualitative and quantitative research methods, Dr. McMullen is passionate about learning from people with lived and living experience through collaborative discussions. She deeply understands the value of challenging assumptions and integrating diverse perspectives as a path toward better addressing complex health challenges.

SERVICE WG

Presentations on Labs as Service

Moderator **Michael Ziccardi DVM MPVM PhD Hon ACZM**



Tracey Goldstein, PhD

SERVICE WG

Presentations on Labs as Service



Woutrina A. Smith,DVM, MPVM, PhD

Dr. Woutrina Smith is the Associate Dean for Global Programs and a Professor of Infectious Disease Epidemiology in the School of Veterinary Medicine at the University of California, Davis. She is Executive Director of the UC Davis One Health Institute and also leads the UCGHI Center for Planetary Health that works across all 10 University of California campuses. She has worked on One Health research and training projects across Africa, Asia, and in the Americas, where multidisciplinary teams innovate together to solve complex health problems. She led the $60M USAID One Health Workforce – Next Generation Project which worked with over 100 universities in 17 countries across Africa and Southeast Asia to train over 60,000 people on how the collaborative One Health approach can help combat infectious diseases as we promote global health security. Dr. Smith has taught epidemiology and population health at UC Davis in the professional, graduate, and undergraduate programs over the past 20 years.



Reinoso Webb, PhD, M(ASCP)CM

Dr. Reinoso Webb is interested in infectious diseases including vector-borne and zoonoses, with a focus on ensuring biosafety and biosecurity in high containment facilities. As the Biological Threat Coordinator for the Bioterrorism Response Laboratory, Dr. Reinoso Webb has led the laboratory response on the zika outbreak, COVID-19 pandemic, Mpox outbreak, Highly Pathogenic Avian Influenza (HPAI; H5N1) human diagnostics and more recently the measles outbreak in West Texas. Dr. Reinoso Webb is the Assistant Vice President of High Containment Biological Laboratories in the Office of Research and Innovation.

One Health Clinic (OHC)

Moderator **Vickie Ramirez, MA**

OHC Experiences by students from SVM (DVM and One Health Sciences PhD), TTUHSC Nursing, TTUHSC Pharmacy & TTUHSC Medicine

RESEARCH WG

Research Presentations

Moderator **Michael E. von Fricken, PhD, MPH**



Charlie Rioux, PhD

Dr. Rioux is an assistant professor in the Department of Interdisciplinary Human Sciences at Texas Tech University. She is also affiliate faculty in Women's and Gender Studies as well as Human Development & Family Sciences and director of the PEANUTs Lab. Dr. Rioux completed her Ph.D. in Psychology in 2018 at the University of Montreal and completed postdoctoral fellowships in clinical psychology, developmental psychology, and biostatistics. Her research has been funded by the Canadian Institutes of Health Research, the Quebec Health Research Fund, and Research Manitoba.



Carrie McMullen, PhD, MSc

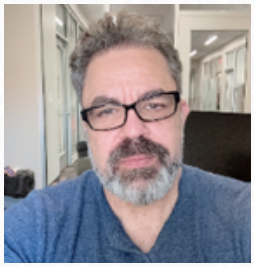


Angela Walla, PhD

Dr. Angela Walla is a Professor in the Department of Animal and Food Sciences at Texas Tech University and Interim Director of the International Center for Food Industry Excellence. A food scientist and microbiologist, her work focuses on food safety, food security, and food defense across the food system, from farm to table. She collaborates with industry, government, and academic partners to develop practical solutions that reduce foodborne illness risks and strengthen food system resilience. Dr. Walla has authored more than 110 peer-reviewed and extension publications and has secured over $27 million in grant funding.



Michael Mahero, DVM, PhD, DACVPM, MS MPH



Mostafa Abdelrahman, PhD

Dr. Mostafa Abdelrahman is a Research Associate Professor at the Institute for One Health & Innovation at Texas Tech University. A plant–microbe interaction scientist and bioinformatician, his work focuses on how plants, their associated microbiomes, and the environment interact to shape crop resilience, food security, and One Health outcomes. He integrates genomics, transcriptomics, metabolomics, and shotgun metagenomics with machine learning to study plant stress adaptation, rhizosphere microbiome recruitment, and airborne and environmental microbial communities. Dr. Abdelrahman earned his PhD in Crop Bioproduction and Plant–Microbe Interactions from Tottori University, Japan, and collaborates with academic, federal, and international partners. He has authored more than 120 peer-reviewed publications.

ABSTRACTS

Abstract #2 Research

Environmental AMR Implementation Across 184 Countries: Status and Predictors

Godwin Pius Ohemu, Babafela Awosile
Texas Tech University

Objective:
This study aims to quantify environmental antimicrobial resistance (AMR) implementation status across 184 countries, compare implementation scores across income groups and WHO regions, and identify independent predictors.

Methods
We conducted an ecological analysis of the 2025 Tracking AMR Country Self-Assessment Survey (TrACSS) across 184 countries. An Environmental AMR Implementation Index (EAII) integrating capacity, policy, and sectoral coverage domains was developed and internally validated. Group comparisons used Kruskal-Wallis tests with Dunn-Holm post-hoc analyses. Multivariable linear regression with HC3 robust standard errors identified independent predictors of environmental AMR implementation.

Results
The mean EAII was 2.14 (SD = 0.70); 50.0% of countries were Nascent; 1.1% Advanced. Capacity was the weakest domain (1.74), followed by policy (2.20) and coverage (2.50). Over 50% of countries remained at the lowest response level (Level 1): environmental training (52.2%) and environmental surveillance (50.3%). Healthcare facilities showed the highest sector coverage (60.9%). A non-linear income gradient was observed, with low-income countries outperforming both middle-income groups. Thirteen countries (7.5%) were positive deviants; 35 countries (19.0%) showed high governance but low environmental AMR implementation. Three independent predictors were significant: World Bank income group (upper-middle $\beta = -0.399$, $p = 0.005$; lower-middle $\beta = -0.416$, $p = 0.002$ vs high income), use of AMR data ($\beta = 0.417$, $p = 0.004$), and coordination mechanism ($\beta = 0.111$, $p = 0.020$).

Conclusion
Environmental AMR implementation remains substantially underdeveloped globally. Strengthening environmental AMR capacity, promoting multisectoral coordination, and embedding AMR data use into environmental policy cycles are essential priorities for global AMR response.

Abstract #3 Research

Integrated Environmental Surveillance of Zoonotic Canine Gastrointestinal Parasites in Five Public Dog Parks: Identifying Texas Panhandle Research Gaps

Kianna Dean, Chad Cross
Texas Tech University

Regional prevalence of zoonotic canine gastrointestinal parasites in the Texas Panhandle remains poorly characterized despite urbanization and the rising use of public dog parks. Parasite contamination within communal canine spaces may facilitate transmission among dogs and present potential public health risks. Epidemiological surveillance in these settings is essential for providing baseline data on environmental contamination and associated risk factors. This study evaluated the prevalence of zoonotic canine gastrointestinal parasites in environmental soil samples collected from five public dog parks within a growing city in the Texas Panhandle. Each park was spatially mapped, and soil sampling density was proportionally determined based on total park area to ensure representative environmental coverage. Soil samples were analyzed using salt and sugar flotation techniques and microbiological staining to detect protozoal and helminthic parasites. Of 99 soil samples collected, 85.85% were positive for at least one gastrointestinal parasite. The most frequently identified parasites were Cryptosporidium spp. and Ancylostoma spp. Environmental contamination illustrated strong spatial heterogeneity both within and between parks. To our knowledge, this represents one of the first systematic environmental surveys of zoonotic canine gastrointestinal parasites in public dog parks within the Texas Panhandle. Ongoing analyses of spatial distribution, paired host-associated fecal samples, and PCR characterization will further evaluate the concordance between soil contamination and parasite occurrence in dogs. These findings may inform veterinary practice, public health awareness, and community hygiene standards by integrating environmental and host surveillance within shared canine environments using a One Health context.

ABSTRACTS

Abstract # 5 Education

Zoonoses Talks: Identifying and Filling Zoonotic Disease Knowledge Gaps in Ohio Local Health Departments

Marissa Hall, Jacqueline Nolting
The Ohio State University

Although over half of Ohio's reportable diseases are zoonotic, many local health department professionals lack formal veterinary epidemiology training, consistently fail to assess animal contact during outbreak responses, and underutilize agricultural resources like extension educators.
To address gaps, regional and online workshops focused on zoonoses, Ohio commodities, extension partnerships and Highly Pathogenic Avian Influenza were hosted for 182 local health department staff. Additionally, a statewide survey assessed baseline zoonotic disease knowledge, academic background, and past animal experience across local health departments regardless of workshop attendance.
The 76 survey respondents included primarily epidemiologists (n = 27, 35.5%) and environmental health staff (n = 20, 26.3%). While most correctly identified zoonotic pathogens, 60.5% of respondents incorrectly categorized anthrax as non-zoonotic. Most respondents indicated that their degree program included zoonoses topics 'a little' (42.1%) or 'none at all' (22.4%). When seeking zoonotic disease information, 27.6% of participants prioritized internal resources at their health department over asking state authorities (Ohio Department of Health and Ohio Department of Agriculture). While international and national organizations (WHO, CDC, FAO) were the least prioritized for obtaining zoonoses information.
One health principles and models are critical for effective disease intervention for zoonoses. Because local health departments rely heavily on internal capacity despite limited formal training, targeted educational programing across all health department divisions is vital. Future
programming must
deliver educational resources directly to local health departments and foster inter-agency collaborations, especially those within the agriculture sector, to ensure a robust One Health approach to zoonotic disease preparedness and response.

Abstract #6 Education

Connecting Human, Animal, and Environmental Health: A Mixed-Methods Study to Strengthen One Health Interdisciplinary

Elizabeth Abraham, Lilliana Frost (presenter), Eva Ronshaugen
St. Olaf College

The interconnected impacts of climate change, emerging infectious diseases, biodiversity loss, and environmental degradation underscore the need for interdisciplinary educational approaches that integrate human, animal, and environmental health. The One Health framework offers a promising foundation for preparing students to understand and address these complex challenges; however, limited empirical research has examined how One Health and related interdisciplinary concepts are currently taught across U.S. higher education institutions. This mixed-methods study examines how colleges and universities design and deliver courses related to One Health, Ecosystem Health, and
Environmental Health, with particular attention to the use of systems thinking and qualitative systems mapping to support interdisciplinary learning. The study combines institutional mapping, a review of curricular offerings, and faculty interview, to characterize current pedagogical practices and explore student learning outcomes. The project also incorporates undergraduate student researchers, who receive training in ethical research practices, qualitative and quantitative methods, data analysis, and scholarly communication. By examining both curricular structures and instructional practices, this study seeks to identify common approaches, innovative pedagogical strategies, and opportunities for strengthening One Health education across institutions. Findings will contribute to the growing North America One Health University Network (NAOHUN) by providing evidence-based insights that can support collaboration and curriculum development across One Health programs. Ultimately, the study aims to inform integrative educational models that prepare students to understand interconnected health challenges and develop systems-oriented solutions for a rapidly changing world.

ABSTRACTS

Abstract #7 Research

Pet dogs as One Health sentinels of shared-environment exposure risks across housing conditions: A Florida pilot study

Jennifer Applebaum, Tracie R. Baker, Roselyn Delase Davour, Kaylinn Escobar, Emma A. VanderMeulen, Caroline J. Waddell*, Sarah Wingfield* (* co-senior authors)
University of Florida

Environmental toxicants, infectious agents, and adverse psychosocial conditions (i.e., multiple stressors) co-occur in U.S. communities yet are typically studied in isolation, and scalable methods to capture them across housing environments are limited. Most U.S. households own
pets, and dogs have been proposed as sentinels of these stressors. Using a One Health approach, we investigated whether dog-owner dyads shared environmental conditions and behaviors indicative of potential exposure to multiple stressors across a gradient of housing environments. We conducted a cross-sectional pilot survey of 30 adults and their pet dogs (18 housed, 12 unhoused) recruited at community veterinary events in Florida. Structured surveys captured PFAS-related exposures (proximity to contamination sources, occupation, diet, tap water, consumer products), arbovirus-related risk (outdoor time, repellent use, sleeping location), shared-environment factors (co-sleeping, shared water), and perceived stress. We used bivariate analyses to compare exposures by housing status. Dyads showed high frequencies of co-sleeping and shared drinking water (90%), regardless of housing. Unhoused participants reported more conditions indicative of potential exposure: more often spending >4 hours outside daily (58% vs. 11%; p=0.006), living near historical PFAS point sources such as airports, industrial sites, agriculture, and military bases (83% vs. 28%; p=0.003), and higher perceived stress (M=24 vs. 17; p=0.023). Most unhoused participants (58%) rarely or never used mosquito repellent. Human-dog dyads inhabit shared environments carrying co-occurring, unequally distributed exposures that single-stressor studies may miss. Our findings support pet dogs as plausible sentinels of cumulative exposure and offer an equity-centered pathway to include hard-to-reach communities in environmental health surveillance.

Abstract #8 Research

Molecular Diagnostics for New World Screwworm Surveillance: A Scoping Review and One Health Perspective

Ibrahim Idris, Howard Mori, Chad Cross
Texas Tech University

Background: New World screwworm (Cochliomyia hominivorax), an obligate parasitic fly causing myiasis in warm-blooded hosts, has expanded northward through Central America and Mexico and recently re-emerged in the United States, with confirmed detections in Texas as of June 2026. This transboundary threat affects livestock, wildlife, companion animals, and humans, while environmental and ecological conditions influence its distribution and spread. Despite advances in molecular detection, evidence on available diagnostic approaches, their performance, surveillance applications, and field deployability remains limited and fragmented. This review aimed to systematically map existing diagnostic approaches for C. hominivorax, characterize their applications and limitations, and identify opportunities for field deployable One Health surveillance.
Methods: PubMed, Scopus, and Web of Science were systematically searched. Eligible studies were characterized by diagnostic approach, biological target, sample type, performance, surveillance application, and limitations.
Results: Seven studies met the inclusion criteria. Diagnostic approaches evolved from PCR-RFLP and monoclonal antibody-based detection to RAPD-PCR, SCAR-PCR, and real-time PCR. Contemporary real-time PCR demonstrated high diagnostic performance and improved compatibility with surveillance workflows; however, existing approaches remain largely dependent on laboratory infrastructure and specialized equipment.
Conclusion: The re-emergence of NWS in the United States highlights the urgency of bridging laboratory diagnostics and field surveillance. Validation of portable approaches, including isothermal amplification, CRISPR-based detection, and portable sequencing, could strengthen early detection and coordinated responses across human, animal, and ecosystem health.

ABSTRACTS

Abstract #9 Research

Detection and Characterization of Microplastics in Human Fecal Samples Using Optical FTIR Microscopy

Mark Dominguez, Jaclyn E. Cañas-Carrell
Texas Tech University

Microplastics are widespread environmental contaminants that have been detected in food, drinking water, and human tissues, yet the extent of human exposure remains poorly characterized. Human fecal samples provide a useful biological matrix for examining dietary microplastic exposure. This study aims to characterize and quantify microplastics present in human fecal samples using optical Fourier-transform infrared (FTIR) microscopy. Samples will be processed using digestion and filtration procedures designed to remove interfering biological material while preserving plastic particles for analysis.
Recovered particles will be chemically identified and characterized according to abundance, polymer type, size, and morphology. Procedural controls will be incorporated to minimize and assess background contamination. By generating detailed data on the types and quantities of microplastics present in human fecal samples, this study will contribute to a better understanding of human microplastic exposure and provide a foundation for future investigations into particle fate, biological interactions, and potential health relevance.

Abstract #10 Research

Environmental sensitivity and One Health: Insights from personality theory and developmental science

Charlie Rioux (Faculty)
Texas Tech University

Environmental sensitivity theory, sometimes referred to as differential susceptibility, was developed in social/personality psychology and developmental science to explain individual differences in sensitivity to the environment. Specifically, environmental sensitivity refers to the idea that individuals, populations, or species, differ in how strongly they respond to environmental conditions or exposures. Some may be more biologically or behaviorally sensitive to their environments (e.g., social environments, resource changes, climate stress, pollution), while some are more resilient.
Over the last 15 years, my research program has demonstrated the role of this environmental sensitivity in predicting fetal, child, and adult health through systematic reviews, cross-sectional studies, and longitudinal studies of person-environment interactions. In this presentation, after covering the key concepts of these theories, I will provide an overview of my research that has identified environmental sensitivity across the human lifespan, along with theory and research from other groups that suggest the importance of environmental sensitivity in other health contexts. Then, I will discuss the implications of environmental sensitivity theory for One Health.
From a One Health perspective, the concept of environmental sensitivity helps explain why the same environmental change can produce different outcomes humans, animals, and ecosystems. Recognizing variation in susceptibility is important for a broader understanding of One Health as it can help identify vulnerable groups, understand how environmental exposures affect health across interconnected systems, and develop more targeted prevention and intervention strategies.

ABSTRACTS

Abstract # 11 Research

Using Daphnia magna in toxicity assessment of di(2-ethylhexyl) phthalate and di(2-ethylhexyl) adipate to understand potential human and environmental effects

Carlos Mazariegos, Jaclyn E. Cañas-Carrell
Texas Tech University

Emerging contaminants such as di(2-ethylhexyl) phthalate (DEHP) and its alternative di(2-ethylhexyl) adipate (DEHA) enter aquatic ecosystems via runoff, plastic leaching, and industrial discharge, posing risks that extend beyond the environment to animal and human health under a One Health framework. While DEHP is a well-characterized legacy plasticizer, the sublethal and reproductive effects of its replacement, DEHA, on aquatic invertebrates remain poorly understood. This study assessed the sublethal toxicity of DEHP and DEHA on Daphnia magna at single environmentally relevant concentrations (DEHP: 67 µg/L; DEHA: 570 µg/L). Sublethal endpoints included reproduction, swimming behavior, embryonic development, and expression of genes linked to these endpoints. Both compounds significantly reduced offspring production relative to controls, with effects intensifying in later broods, and both impaired swimming behavior, though impairment was more severe under DEHP exposure. Embryonic development was altered in opposite directions: DEHP prolonged development by approximately 15% relative to controls, while DEHA slightly accelerated it. At the molecular level, both compounds significantly upregulated the ecdysone receptor (EcR), whereas vitellogenin (vtg2) was upregulated only under DEHP exposure; hsp70, dnmt1a, and dnmt3a1 showed only modest, non-significant changes. These findings provide a preliminary picture of the comparative toxicity of a legacy phthalate and its structural alternative in a key aquatic invertebrate. From a One Health perspective, these results highlight the need to evaluate emerging plasticizer alternatives for ecological and downstream human health risks before they become entrenched in widespread use.

Abstract # 12 Research

The Role of Volunteer and Family Support in Traumatic Brain Injury Rehabilitation: A Bronfenbrenner Ecological Systems Approach

Lakshitha Kamala Kannan
University of Houston

Identification of Problem and Significance
TBI rehabilitation outcomes are shaped not only by clinical treatment but by the patient's surrounding social environment. Inpatient programs often emphasize therapy intensity while giving less attention to family engagement, volunteer involvement, and institutional support. This
study applies Bronfenbrenner's Ecological Systems Theory to examine how layered social interactions contribute to recovery.
Methods
This mixed-methods study explored recovery processes at TIRR Memorial Hermann, an inpatient neurorehabilitation facility in Houston, Texas. Bronfenbrenner's framework guided analysis across four levels: the microsystem (patient interactions with family, volunteers, and clinicians), mesosystem (coordination among families, volunteers, and care teams), exosystem (hospital policy and volunteer program structure), and chronosystem (long-term post-discharge adjustment). Quantitative measures included therapy compliance, functional mobility, and length of hospitalization; qualitative data captured patient motivation and engagement.
Results
Supportive microsystem interactions were associated with increased motivation, emotional well-being, and therapy participation. Mesosystem coordination appeared to strengthen continuity of care. Exosystem factors shaped access to support services, and sustained chronosystem support contributed to smoother reintegration after discharge.
Conclusion
TBI rehabilitation is a social and ecological process, not solely a medical one. Recovery is strengthened when families, volunteers, care teams, and institutions work together — findings that support family-centered care, structured volunteer programs, and interdisciplinary collaboration in rehabilitation settings

ABSTRACTS

Abstract # 13 Education

Integrating One Health into Interprofessional Education Activities

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Interprofessional Education (IPE) is an accreditation requirement for many healthcare programs. It involves learners from multiple professions engaging with each other to enhance collaboration and improve the quality of patient care and services and overall health outcomes. Similarly, One Health is an interdisciplinary approach that emphasizes teamwork and critical thinking to tackle complex, multifaceted issues. However, One Health specifically includes the interconnectedness and interdependence of human, animal, and environmental health. Despite their inherent differences, IPE activities provide an opportunity to introduce One Health principles and applications to students going into healthcare. Student surveys conducted by several of the authors indicated an increase in One Health knowledge scores pre- and post- One Health themed IPE activities. In this presentation, the authors share their experiences working with large groups of IPE students (500-1000 per activity) to 1) outline challenges at the student, faculty, and institutional levels that may impact the successful implementation of One Health IPE activities, and 2) advocate for comprehensive logistical planning, faculty modeling of cross-disciplinary collaboration, coordinated institutional support and the suggestion of small-scale applications for students contemplating clinical practice. We believe these steps will increase the likelihood of future healthcare professionals adopting a One Health mindset.

Abstract # 14 Advocacy and Outreach

Expanding our Vision for Prevention-oriented Action in Health: Introducing a Framework for One Health Comprehensive Disease Action (FOCA)

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Background: One Health recognizes that human, animal, plant and environmental health are interconnected, yet existing prevention frameworks remain largely human-centric and lack a shared vocabulary for multisectoral action. We propose the Framework for One Health Comprehensive Disease Action (FOCA), bridging prevention models, renewing accountability, and expanding our understanding of prevention.
Methods: FOCA's development was accompanied by a systematic review employing the PRISMA 2020 guidelines across PubMed, Web of Science, EMBASE and the Virtual Health Library. 3918 elegible records were assessed for peer-reviewed frameworks or models of health promotion and/or disease prevention incorporating One Health, published since 1990 in English, Spanish or French. Covidence was used for screening with dual independent review. Risk of bias was assessed with CASP checklists.
Results: FOCA organizes disease actions along three axes. Scope (Integrative, Semi-Integrative, Focused, Semi-Focused) reflects how much of the One Health spectrum an action engages. Level of action adapts the Socio-Ecological Model from planetary to individual strata. Purpose breaksdown prevention into Anticipation, Prevention and Mitigation. Mitigation includes Advancement and Spread, Complications and Beneclades, a newly introduced term for harm from well-intentioned care for harm from well-intentioned care, including overmedicalization and iatrogenesis.
Conclusions: FOCA offers a structured One Health-orienter vocabulary that reimagines prevention beyond human-centric limits and embeds cross-compartment action. By naming scope, level and purpose, it can strengthen One Health operationalization and multisectoral coordination across prevention, preparedness and surveillance.

ABSTRACTS

Abstract # 15 Research

Transcriptomic Signatures of Disease Progression and Treatment Response in the Diabetic Feline

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Feline diabetes mellitus (FDM) closely parallels human type 2 diabetes (T2DM), yet the two conditions diverge in outcomes: FDM often results in remission, whereas T2DM remission is rare. This unique feature makes FDM a valuable comparative model for uncovering mechanisms that can be targeted to treat human diabetes. In this study, we focus specifically on the molecular signatures of FDM disease progression and treatment response in the pancreas. We recruited lean (BCS ≤ 5, n=6) and overweight (BCS ≥ 7, n=6) cats, as well as diabetic client-owned cats (untreated n=4, unresponsive to treatment n=4, responsive to treatment n=4). After euthanasia, we collected samples and performed bulk RNA sequencing. We identified 3 differentially expressed genes (DEGs) uniquely associated with
overweight, 233 DEGs associated with FDM status, and 7 DEGs shared between overweight and FDM. We also found 18 DEGs associated with responsiveness to treatment and 1 DEG representing treatment failure. 85 genes were differentially expressed between responsive and unresponsive groups. Most importantly, we found 10 genes that were persistently altered by FDM and irreversible even after treatment, representing core FDM genes. These findings demonstrate the cat pancreas's potential resilience to obesity-driven changes, FDM-associated remodeling of pancreatic gene expression, distinct gene signatures associated with successful treatment, and genes that remain persistently altered by FDM even after glycemic control. Future studies will generate a multi-tissue gene expression map of insulin-sensitive tissues to characterize inter-organ communication and comparative cat-human genomics to nominate previously unrecognized therapeutic targets for T2DM

Abstract # 16 Research

From Rhizosphere Signaling to the Built-Environment Aerobiome Across a One Health Continuum

Mostafa Abdelrahman
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The microbiome is an ecological and functional nexus linking host genetics, soil, plants, and environment. We present two complementary lines of evidence for how host signaling and anthropogenic activity shape microbial community assembly, from the rhizosphere to aerobiome communities.
First, karrikin/KAI2 signaling, a smoke-derived hormone pathway required for plant stress adaptation to drought, heat, and salinity, shapes rhizosphere microbiome assembly under drought. Wild-type Arabidopsis selectively recruited a beneficial Streptomyces sp. under drought stress, while kai2 mutants instead enriched a Rhodanobacter sp. Reinoculation confirmed WT-associated Streptomyces restored drought tolerance in both genotypes, whereas kai2-enriched Rhodanobacter did not improve resilience in either. Root-metabolite profiling linked this divergence to flavonoid/alkaloid exudation, and the Rhodanobacter-associated metabolite daidzin bound KAI2 directly, promoting seed germination and hypocotyl responses in a KAI2-dependent manner, identifying a metabolite-receptor link underlying microbiome-mediated stress resilience.
Second, shotgun metagenomics of airborne microbiomes across an anthropogenic gradient (forest, home, chicken farm, hospital, confined-animal air; n = 702) revealed a significant, depth-adjusted decline in Shannon diversity along this gradient, with increasing beta-dispersion and deterministic assembly (elevated nestedness, reduced stochastic turnover) in more human-impacted environments. Taxonomic composition shifted concordantly, with skin- and gut-associated taxa (Cutibacterium, Pseudomonas, Staphylococcus) enriched in built settings relative to natural air.
Together, these findings show that host genetic signaling and human activity are strong, quantifiable drivers of microbiome structure across ecological scales, from a root's rhizosphere to the shared airborne exposome, with direct relevance to plant stress resilience and environmental/public health under a One Health framework.

ABSTRACTS

Abstract # 17 Education

A framework for the evaluation of One Health training programs

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Introduction: As One Health (OH) training programs become increasingly common, there is a growing need to evaluate their effectiveness. While program evaluation and quality assurance processes are well-established in many disciplines, the uniqueness of OH training warrants a tailored approach.
This study aimed to develop a OH program logic model and a One Health Program Evaluation Framework (OHEF).
Methods: A literature review, focus group discussions, and author expertise informed the development of the logic model and OHEF. The literature review characterized original research describing program assessment methods (n=196) and evaluation frameworks (n=114). Focus group discussions with 13 representatives of Canadian OH university programs were analyzed thematically. Discussions explored three areas: the goals of OH program evaluation, key components of a OH program evaluation framework, and barriers and opportunities for OH education.
Results: Two complementary logic models were developed to illustrate the inputs, activities, outputs, and outcomes of OH programs and their host institutions. The institutional level was included to capture the broader context, constraints, and opportunities influencing program success. Positioned between the logic models, the OHEF comprises five evaluation levels: vision and mission (level 1); network and knowledge coverage (level 2); sustainability and knowledge production (level 3); capacity building (level 4); and contribution to a better world (level 5).
Conclusion: This research presents a novel framework for evaluating OH training programs. Ongoing support for OH training delivery requires assessing not only OH competency gained by trainees but also the extent to which host institutions support and advance broader OH goal

Abstract # 18 Research

Sorghum: A sustainable One Health food system for human nutrition and metabolic health

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Texas Tech University & Texas Tech Health Sciences Center

Background or Objectives
Sorghum (Sorghum bicolor) is a gluten-free whole grain that is rich in antioxidants and nutrients. Despite these benefits, sorghum is underutilized as human food and is mainly used for animal feed. Moreover, systematic studies comparing phytochemical/metabolite profiles across sorghum varieties or their corresponding health effects are lacking. Given the global epidemic of obesity, a complex disease characterized by chronic low-grade inflammation, we determined (1) phytochemicals/ metabolites composition of sorghum and (2) whether sorghum-derived bioactive compounds exert anti-inflammatory effects in adipocytes.
Methods
We used six sorghum genotypes sourced from the Sorghum Association Panel (SAP), spanning light to dark colors, and used ultra-high-performance liquid chromatography–mass spectrometry (UHPLC-MS) to determine their phytochemical profiles. Moreover, we used different doses of polar and non-polar sorghum extracts to test their effects on 3T3-L1 cell viability (MTT assays) and determine whether the sorghum extracts reduced lipid accumulation (Oil Red O staining) and/or adipocyte inflammation (ELISA, qRT-PCR) induced by lipopolysaccharide (LPS). Data were analyzed using GraphPad Prism10.2.1.
Results
Sorghum analyses revealed a diverse range of chemical compounds including vitamins, flavonoids, and polyphenols. Neither polar nor non-polar extracts were toxic to cells. Moreover, several of these extracts (especially non-polar ones) significantly reduced LPS-induced IL-6 secretion and mRNA levels ($p \leq 0.01$) and reduced lipid content in adipocytes to varying extents.
Significance and conclusions:
Sorghum is an important source of nutrients and bioactives with anti-inflammatory properties in adipocytes, potentially improving metabolic health in obesity, which merits further investigations in animal models and humans.
Funding organizations: United Sorghum Checkoff.

ABSTRACTS

Abstract # 19 Research

One Health knowledge change and outreach following a community training program in Rwanda

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Introduction: One Health Team (OHT) members serve as a resource for rural, remote communities in some low-income countries. This study evaluated changes in OHT members' understanding of One Health (OH) and knowledge sharing with their communities in Nyamagabe District, Rwanda.
Methods: Volunteer community health workers, animal health workers, and hygiene officers in 85 villages served as OHT members who participated in 12 training sessions from 2024 to 2026. Trainings included OH principles, zoonotic disease prevention, pig management, and shared leadership. Trainees completed pre- and post-training surveys to assess knowledge gains and report collaborative outreach since the previous training. Trainees' descriptions of OH were assessed using McNemar's chi-squared test. Correct responses incorporated the concepts: collaboration, integrated approach, and combined human, animal, and environmental health.
OHT outreach was analyzed descriptively.
Results: A range of 247-256 OHT members participated; on average 49% were female. The ability to correctly describe OH significantly improved from the first (n=0, 0%) to the second (n=67, 26%) and third (n=230, 91%) assessments. Across 16 months, OHT members conducted community trainings 2511 times, implemented community activities 151 times, and did both 71 times. Most OHT members reported outreach that involved community audiences (n=2185, 80%), followed by unspecified audiences (n=275, 10%), and then individual audiences (n=273, 10%).
Conclusion: OHT members required three training sessions to consistently describe OH. Many trainees actively shared knowledge and engaged community members, demonstrating the potential of a Train-the-Trainer model and of community-based OHTs to promote OH, zoonotic disease prevention, and shared leadership.

Abstract # 20 Research

Assessing livestock farms as point sources for antimicrobial resistant Salmonella and E. coli in songbirds

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North Carolina State University, Michigan State University, North Carolina Museum of Natural Sciences

Antimicrobial resistance, a global health issue, is becoming increasingly prevalent in natural environments. Livestock farms are considered potential point sources for antimicrobial resistance (AMR), with wildlife potentially facilitating pathogen dispersal across landscapes. Bird feeding concentrates wildlife activity near people and could be a transmission pathway where pathogenic AMR bacteria spread between songbirds and to humans. To test the importance of farms as point sources, and feeders as microbial transmission pathways, we established bird feeders at 15 sites across livestock farms, suburban yards, and natural areas. We sampled feeders, songbirds, and the environment to compare Salmonella sp. and Escherichia coli prevalence and AMR patterns across these habitat types. We collected 324 samples and found an overall E. coli prevalence of 28% and Salmonella prevalence of 3.4%. Both farms (29.8%) and suburban yards (30.6%) showed similar and elevated E. coli prevalence compared to natural areas (22.9%). Soil directly beneath feeders harbored the highest bacterial loads (56.7% E. coli), while feeder surfaces showed minimal contamination (5% E. coli). Spring sampling yielded significantly higher E. coli prevalence than in winter, with warmer temperatures as a crucial environmental factor. Antimicrobial resistance was generally low, with all Salmonella isolates susceptible and only 16.7% of E. coli isolates showing resistance. However, we detected one extended-spectrum beta-lactamase producing E. coli isolate from a farm site. Our findings reveal that suburban environments may serve as underappreciated bacterial reservoirs, highlighting the need to further consider suburban environments in One Health surveillance.

ABSTRACTS

Abstract # 21 Research

From Farm Environment to Food: A One Health Assessment of Heavy Metal Contamination Across Integrated Poultry–Aquaculture Systems and Associated Human Health Risks in Bangladesh

Lincon Chandra Shill, Rabeta Israt, Oak-Hee Park, Lincon Chandra Shill
Texas Tech University

This study assessed heavy metal contamination across poultry and aquaculture components of the same integrated farms using a One Health framework.
We collected samples of poultry tissues, eggs, poultry feed, and droppings, along with fish tissues, fish feed, surface water, and sediments, from three integrated farms in Noakhali, Bangladesh, to determine concentrations of Pb, Cd, As, Ni, Cu, Mn, and Fe using atomic absorption spectroscopy (AAS). We assessed bioaccumulation and potential human health risks using the bioaccumulation factor (BAF), estimated daily intake (EDI), target hazard quotient (THQ), total target hazard quotient (TTHQ), hazard index (HI), and target cancer risk (TCR).
Poultry feed contained Pb and As at concentrations up to 5.348 and 4.348 mg/kg, respectively, while layer eggs contained Pb up to 1.967 mg/kg. Several poultry tissues showed arsenic THQ and combined TTHQ values above 1, with the highest observed in layer bone (THQ = 2.709; TTHQ = 3.006). In the aquaculture component, mean heavy metal concentrations in fish followed: Fe > Cu > Mn > Pb > Ni > As > Cd. Bioaccumulation from surface water was observed for all analyzed metals (mean BAF > 1): Cd (3.220), Mn (2.228), Ni (2.095), Pb (1.840), As (1.689).
Heavy metal contamination across interconnected environmental, poultry, and aquaculture components of the same integrated farms indicates potential pathways for contaminant movement through the farm-to-food continuum. Findings highlight the value of a One Health approach that encourages environmental monitoring, animal-source food safety, and human health risk assessment to support safer, more sustainable farming systems.

Abstract # 22 Research

Peer environments and adolescent delinquency: A systematic review of moderators across bioecological systems

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Adolescent delinquency is a behavioral health concern shaped by interconnected social, environmental, and community systems. Peer environments represent an important pathway through which these broader contexts may influence adolescent behavior, yet factors that amplify or buffer peer-related risk have yet to be synthesized. This systematic review examines possible moderators (e.g., human, animal, and ecological factors) of the relationship between peer environments and adolescent delinquency to identify multilevel conditions associated with adolescent delinquent outcomes.
This systematic review was registered on the Open Science Framework following PRISMA-P guidelines Quantitative studies examining adolescent delinquency (ages 10–19; WHO, 2026), peer environments, and moderating variables were identified across five databases: Web of Science, PsycINFO, PubMed, ERIC, and socINDEX. Two independent reviewers screened and extracted studies, with conflicts resolved by consensus.
Of 10,408 records identified after duplicate removal, 1,035 full texts were reviewed, resulting in 120 included studies. Preliminary findings indicate that peer environments consistently predict adolescent delinquency, with effects moderated by factors spanning individual, family, school, community, and broader environmental contexts. However, no included studies examined moderators beyond human health.
Human behavioral health is embedded within interconnected systems, as evidenced by this review's findings; however, no included studies examined moderators beyond human health. Previous research has shown that ecological conditions (e.g., pollution and climate change) and human–animal interactions can shape delinquency outcomes. As such, future research should examine additional moderators of the peer–delinquency pathway, including factors related to animal, plant, and ecosystem health.

ABSTRACTS

Abstract # 23 Research

Segment-specific evolutionary histories and host-associated selection in bat influenza A viruses.

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Influenza A virus (IAV) infects a broad range of avian and mammalian hosts, yet bat-associated IAVs remain rare and evolutionarily unusual. New World bat IAVs encode non-canonical hemagglutinin and neuraminidase subtypes that difer from typical sialic-acid-binding IAVs, but their divergence times, host histories, and selective pressures remain poorly resolved. Here, we analyzed each IAV genome segment independently to test whether non-canonical bat IAVs are consistent with recent spillover followed by rapid adaptation or with deeper, under-sampled evolutionary diversity. We combined least-squares molecular dating, Bayesian discrete-trait ancestral host reconstruction, codon-usage analyses, and branch- and site-level selection tests. Molecular dating placed bat-associated lineages hundreds of years before their sampling dates, arguing against a strictly recent spillover model. However, divergence times, selection signals, codon-usage profiles, and inferred ancestral host states varied among segments, indicating that bat IAV does not have a single uniform evolutionary history. RELAX provided little evidence for genome-wide intensification of selection, whereas branch- and site-level methods identified episodic selection concentrated in specific genes, branches, or residues.
Ancestral host reconstruction supported avian-associated host states upstream of most bat-associated segments, with exceptions among polymerase and nucleoprotein genes. Together, these results support a model in which New World bat IAVs represent deeply divergent, under-sampled IAV diversity shaped by segment-specific evolutionary histories.

Abstract # 24 Research

Targeting Fatty Acid Metabolism in Glioblastoma: Synergistic Effects of Inhibiting Fatty Acid Synthesis and Oxidation

Nowreen Islam Chowdhury
Texas Tech University

Glioblastoma (GBM) is the most common primary brain cancer in adults, defined by its infiltrative nature and resistance to traditional therapies, including surgery, radiation therapy, and chemotherapy. GBM exhibits metabolic plasticity, allowing tumor cells to adapt to nutrient-limited and hypoxic conditions and sustain growth and survival. Fatty acid metabolism (FAM) provides energy and biosynthetic substrates to support tumor growth, representing a potential therapeutic vulnerability.
We investigated whether targeting key components of FAM could reduce glioma cell viability. We have evaluated fatty acid synthase (FASN), a major regulator of de novo fatty acid synthesis; CPT1-mediated fatty acid oxidation (FAO); and malonyl-CoA decarboxylase (MLYCD), which regulates FAO through the malonyl-CoA/CPT1 axis. Pharmacological inhibition of FASN with cerulenin and FAO with etomoxir produced dose-dependent reductions in SW1088 glioma cell viability. Combined treatment reduced viability, with ZIP analysis showing strong synergy (mean synergy score = 35.31). Seahorse XF Mito Stress analysis was performed at early treatment time points to examine whether combined FASN and FAO inhibition altered mitochondrial respiration before changes in cell viability occurred.
MLYCD was investigated using the small-molecule inhibitor STA-18, which produced a dose-dependent reduction in cell viability. MLYCD and FASN were also inhibited individually and in combination using siRNA. Knockdown was confirmed by RT-qPCR, western blotting, and immunofluorescence. Ongoing studies are evaluating how individual and combined genetic inhibition affects cell viability and survival.
Together, these findings demonstrate that targeting fatty acid synthesis and oxidation reduces glioma cell viability and that simultaneous inhibition of these pathways can produce synergistic effects.

ABSTRACTS

Abstract # 25 Research

Training Community One Health Teams to Prevent Taenia solium in Rural Rwanda

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Introduction
Small-scale pig farming is an important form of livelihood and economic advancement for many families in LMIC. In areas with poor hygiene, where pigs roam freely, neurocysticercosis due to Taenia solium is a leading cause of epilepsy. Epilepsy is a consequence of humans consuming tapeworm eggs, whereas the adult tapeworm is the result of people consuming undercooked, infected pork. The objective was to measure One Health Team (OHT) members' knowledge acquisition after training about preventing T. solium.
Materials and Methods
In this cohort study, 12 monthly workshops were delivered to 255 people who formed OHTs in 85 villages in rural Rwanda. Each OHT included a community health worker, animal health worker and hygiene officer. OHT members were surveyed before and after each training.
Results and Discussion
The proportion of OHT members who correctly described the transmission to pigs increased after the first training, from 36% to 91%. However, few participants correctly described preventing the tapeworm (24%) or epilepsy (34%) after the first training. Therefore, we developed additional graphics that were used in additional trainings, booklets and a poster. Ultimately, 75% and 59% of OHT members correctly described how to prevent tapeworm and epilepsy respectively.
Conclusion
The T. solium lifecycle and the development of neurocysticercosis are complex. After three trainings, most OHT members knew how to prevent tapeworm and epilepsy in people due to T. solium. OHT members are responsible for disseminating information to their community members, therefore an accurate understanding is essential.

Abstract # 26 Research

Complement Regulation in Neonatal Porcine Sertoli Cells: A Bridge to Clinical Xenotransplantation

Alexis Rodriguez, Rachel Babcock, Jannette Dufour, Gurvinder Kaur, Joao Pedro Torres Guimaraes, Rachel Washburn.
Texas Tech University Health Sciences Center

To overcome the shortage of transplantable tissues, experimental xenotransplants have recently been performed using organs from genetically modified pig donors, reflecting a one health approach recognizing the interconnectedness of human and animal health. Although initially successful, the xenotransplanted organs eventually fail, with biopsies revealing complement deposition several weeks post-transplantation. The complement system protects the body from foreign pathogens by activating inflammatory processes, opsonizing pathogens, and lysing target cells. As Sertoli cells (SC) have been shown to evade destruction via complement, our goal is to determine how SC regulate complement and create an immune-protective environment to facilitate their survival in a xenograft model. Neonatal porcine SC (NPSC) were transplanted into the kidney of rats. NPSC survival after long-term exposure to complement in vivo was confirmed via positive Wilm's tumor 1 staining 100 days post-transplantation. NPSC and porcine aortic endothelial cells (PAEC; control cells) were exposed to human serum containing complement (HS) in vitro. The survival of NPSC and killing of PAEC was confirmed after 48-hours exposure to HS. RNA sequencing revealed NPSC expression of 21 complement regulatory genes, 19 of which were upregulated compared to PAEC. qPCR analysis found NPSC express genes for complement inhibitors after long-term exposure to HS. These findings suggest that SC expression of complement regulatory factors may facilitate their survival against complement activation. As complement-mediated rejection remains an obstacle in the long-term survival of xenotransplanted tissues, understanding how NPSC regulate the complement system to survive as xenografts may elucidate mechanisms to improve the survival of xenotransplanted tissues.

ABSTRACTS

Abstract # 27 Research

Plasmid-driven diversification shapes multidrug resistance on a clonal genomic background in Salmonella Infantis

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University of Tennessee at Knoxville

Background: Multidrug-resistant (MDR) Salmonella enterica represents an increasing public health and food safety concern in U.S. poultry production. Salmonella infantis, especially sequence type 32 (ST32), has emerged as a globally disseminated poultry-associated lineage, widely distributed in U.S. poultry products, and associated with resistance to multiple antimicrobial classes. However, whether a single highly resistant clone has spread through the U.S. poultry production systems or diversified into many resistance profiles remains incompletely understood.
Methods: To address that gap, we obtained 221 S. enterica genome assemblies and metadata from NCBI. We analyzed the data using integrated comparative genomics, including multilocus sequence typing, serovar prediction, antimicrobial-resistance profiling, plasmid reconstruction, pangenome analysis, phylogenetic inference, and pairwise core-genome SNP comparisons. Genotypic MDR was defined as resistance to three or more antimicrobial classes.
Results: The dataset was dominated by ST32 (93.2%) and S. infantis (93.7%). All isolates were genotypically MDR, with a median resistance burden of 13 antimicrobial classes. Despite this uniformly high resistance burden, 91 distinct AMR profiles were identified. Core resistance determinants, including tet(A), sul1, blaCTX-M-65, and aadA1, were highly prevalent. Pangenome analysis identified substantial accessory-genome diversity, with cloud genes comprising 40.2% of gene clusters. Within ST32, pairwise distances were low (median 50 SNPs), supporting strong chromosomal clonality.
Conclusions: MDR S. infantis exhibits a stable clonal chromosomal backbone and varied resistance architectures. Suggesting clonal expansion of this highly-resistance type can persist across poultry-associated environments while generating diverse resistance profiles, highlighting the importance of integrated genomic surveillance beyond conventional serotyping and sequence typing.

Abstract # 28 Research

Strongylid Community Composition and Detection of the Benzimidazole-Resistance Mutation F200Y in Horses in USA

MD Asief Hossain Zihadi, Oluwatodimu Adekoya, Olufemi Akinkuotu, Moyinoluwa Oladoye
Texas Tech University

Strongylid nematodes, particularly cyathostomins, are the most prevalent gastrointestinal parasites of horses and the group in which anthelmintic resistance is most widespread. Species-level data on these parasite communities are needed to guide antiparasitic stewardship, yet such data remain scarce for US horse populations. This study characterized strongylid community composition and screened for benzimidazole resistance in horses in Texas. Fecal samples from 129 clinically healthy horses at five sites (a ranch-show operation, a feedlot, a university farm, and two veterinary clinics) were examined, and strongyle eggs were detected in 31.0% (40/129). The genomic DNA was extracted from pooled positive samples by site, and the internal transcribed spacer 2 (ITS-2) rDNA region was amplified with NC1/NC2 primers, sequenced, and analyzed in QIIME 2. Nine strongylid species were identified: eight cyathostomins, dominated by Cylicocyclus nassatus, Cylicostephanus longibursatus, Cys. minutus, and Cys. calicatus, and the large strongyle Strongylus edentatus, which was detected at one veterinary clinic. Shannon diversity ranged from 1.86 (university farm) to 2.73, with the highest values at the feedlot and one veterinary clinic. Bray–Curtis principal coordinates analysis separated the five site communities, with the first two axes explaining 58.2% of the variation. Allele-specific PCR targeting codon 200 of the β-tubulin isotype-1 gene detected the resistance-associated F200Y (TTC→TAC) allele in the ranch-show population. These findings provide baseline data on strongylid diversity and benzimidazole-resistance alleles in Texas horses. They support routine resistance monitoring and species-informed deworming within a One Health framework that also reduces unnecessary anthelmintic release into the environment.

ABSTRACTS

Abstract # 29 Research

Tick Species Composition and Pyrethroid Resistance–Associated Sodium Channel Mutations in Ticks from Shelter Dogs in Amarillo, Texas

Oluwatodimu Adekoya, Moyinoluwa Oladoye, Md Asief Hossien, Olufemi Akinkuotu
Texas Tech University

Acaricide resistance threatens tick control programs and the prevention of tick-borne diseases in animals and people. Pyrethroid resistance is well documented in livestock ticks, but data on ticks infesting companion animals in the southern United States are scarce. The brown dog tick, Rhipicephalus sanguineus sensu lato, is of public health concern because it transmits Rickettsia rickettsii, the agent of Rocky Mountain spotted fever, in the southwestern United States. Ticks infesting dogs at a municipal animal shelter in Amarillo, Texas, was collected and screened for pyrethroid resistance–associated mutations. A total of 350 ticks were collected from 73 dogs and identified morphologically using standard taxonomic keys. Genomic DNA was extracted from tick pools (n = 73, pooled by host), and allele-specific PCR (AS-PCR) was used to detect resistance-associated single-nucleotide polymorphisms in domains II and III of the voltage-gated sodium channel gene. Rhipicephalus sanguineus s.l. accounted for 99.0% of ticks and Haemaphysalis longicornis for 1.0%. At domain II, 83.6% of pools carried only the susceptible allele, 15.1% carried both alleles, and 1.4% carried only the resistant allele. Resistance alleles were more frequent at domain III: 23.3% of pools carried only the susceptible allele, 46.6% carried both alleles, and 21.9% carried only the resistant allele; 8.2% did not amplify. These findings show R. sanguineus on shelter dogs in the Texas Panhandle already carry pyrethroid resistance–associated mutations, most prominently at domain III. These findings support routine resistance monitoring and evidence-based acaricide selection for dogs, particularly in shelters where tick exposure and animal turnover are high.

Abstract # 30 Research

Molecular detection of Cryptosporidium spp. and Giardia duodenalis in asymptomatic horses in the United States.

Moyinoluwa Oladoye, Oluwatodimu Adekoya, MD Asief Hossain Zihadi, Olufemi Akinkuotu
Texas Tech University

Zoonotic enteric protozoa are increasingly reported in equids, yet molecular data from United States horse populations remain limited. Cryptosporidium spp. and Giardia duodenalis spread by the fecal–oral route and persist as environmentally resistant (oo)cysts that contaminate shared water and pasture, linking animal, human, and ecosystem health. As part of a broader One Health survey at the animal–human interface, feces were collected from 123 apparently healthy horses spanning 14 states across the United States and screened for both parasites by conventional PCR. Cryptosporidium spp. was detected at the small subunit ribosomal RNA (SSU rRNA) locus in 3 horses (2.4%; 95% CI 0.8–6.9%) and Giardia duodenalis at the glutamate dehydrogenase (gdh) locus in 15 horses (12.2%; 95% CI 7.5–19.1%). No co-infections were observed. Giardia-positive horses were identified in half of the states sampled (7 of 14) and across six breeds. Detection of both parasites in apparently healthy horses indicates subclinical carriage and reservoir status. To assess zoonotic potential, multilocus genotyping of all positive samples is underway, which will inform the development of field-deployable, point-of-care assays for enteric protozoa at the animal–human interface. As part of a larger study evaluating the epidemiology of protozoan infections in the United States, these data extend the sparse molecular record of enteric protozoa in horses and establish a basis for characterizing circulating genotypes. Our findings will determine whether zoonotic assemblages occur, with direct implications for equine health and for people in close occupational and recreational contact with horses.

ABSTRACTS

Abstract # 31 Service

Highly Pathogenic Avian Influenza A(H5N1) detection and related One Health work.

Cynthia Reinoso Webb
Texas Tech University

The TIEHH Bioterrorism Response Laboratory (CDC Laboratory Response Network-Biological) detected the first case of Highly Pathogenic Avian Influenza A(H5N1) transmitted from a cow to a dairy farm worker in 2024. Ever since then, our laboratory implemented an Enhanced Flu Surveillance Program for the 67-county region of the Panhandle that we serve to help detect more cases, during the regular flu season where seasonal flu subtypes are circulating. I will also discuss the changes that we instituted in our Milk and Dairy Regulatory laboratory due to the raw milk testing and Influenza A(H5) presence in the milk. Influenza A(H5) has become a One Health concern in our laboratory group and one that we are tackling from different sides.

Abstract # 32 Advocacy and Outreach

Supporting One Health and Protecting Food Security Through Outreach to Local Farmers' Markets

Kara Flaherty,Andreia G. Arruda
The Ohio State University

Small-scale livestock producers are an important cornerstone of the agricultural industry. Despite this, they may be missed through traditional outreach and education efforts designed for large-scale commercial or conventional farming systems. With a growing popularity for direct-to-consumer products, small-scale production is on the rise, and with it, an increasing number of farmers' markets, a potentially valuable resource for connecting with producers and the public. Regardless of their importance, knowledge regarding characteristics, practices, and needs surrounding foreign animal diseases (FADs) in this population is lacking. Furthermore, this group may play an important role in community education through close contact with members. This project featured collaboration with farmers' market managers across the state of Ohio to engage with livestock producers who vend products directly to consumers. Outreach to approximately 45 farmers' markets, the Ohio Farmers Market Network, and the Ohio Ecological Food and Farm Association facilitated the distribution of a research survey to vendors. This survey gathered information on the baseline level of FAD awareness, knowledge of biosecurity practices, and motivations for vending at farmers' markets for use in future development of targeted education and resources. By connecting with producers through directed outreach, this project gathered information crucial for supporting the development of health and production strategies necessary for protecting herds from consequential diseases. This work is foundational for supporting the intersection of agricultural animal, human, and One Health. Ensuring small-scale livestock producers have herds free of disease safeguards the robust direct-to-consumer food supply and assists in the prevention of zoonotic diseases.

ABSTRACTS

Abstract # 33 Research

Micro- and nanoplastic-induced Metabolic and Inflammatory Alterations: Evidence from the literature and Preliminary Findings in Preadipocytes.

Muyiwa Fatola, Howard Rodriguez-Mori, Josimar Dornelas-Moreira, Naima Moustaid-Moussa
Texas Tech University

Micro- and nanoplastics (MNPs) have been consistently recognized as environmental stressors capable of disrupting metabolic processes and triggering inflammatory responses. However, evidence regarding potential nutritional strategies to mitigate their effects remains limited. Here, we combined evidence from the literature and experimental data to investigate the potential of cherry-derived anthocyanins as a nutritional intervention against MNP-induced metabolic and inflammatory alterations in preadipocytes. A literature review was conducted to gather evidence on the reported metabolic health effects of MNP exposure across experimental models. Scientific data document systemic accumulation and biodistribution of MNPs in humans. In animal models, alterations leading to metabolic disruption, organ damage, neurobehavioral and reproductive toxicity have been reported. In model organisms, metabolic disruptions, oxidative stress, reproductive, developmental and transgenerational effects have been reported. In vitro, mechanistic data demonstrated apoptosis, oxidative stress, and metabolic reprogramming. In our studies, we used murine 3T3-L1 preadipocytes and exposed them to different MNP particle sizes, with lipopolysaccharide (LPS) used to induce inflammation and/or tart cherry juice used as an anti-inflammatory agent. Cell viability and inflammatory levels were evaluated. Tart cherry significantly reduced ($P < 0.05$) the pro-inflammatory cytokine interleukin-6 (IL-6) after 24 - 72 h of exposure to MNPs, compared to MNP treatments only. These findings provide preliminary evidence of the tart cherry effect in reversing MNP-induced inflammation.
Further, we will determine, in differentiated adipocytes, the mechanisms and pathways involved in MNP effects on lipid accumulation, oxidative stress, and inflammation, and the mitigation of these effects by tart cherry and other dietary bioactive compounds

Abstract # 34 Research

Integrated One Health surveillance of neuroinvasive West Nile virus in Tennessee: mosquito early-warning signals and emergence-to-endemic dynamics

Michael Mahero, Benti Gelalcha, Michael Mahero
University of Tennessee

Background: West Nile virus (WNV) remains the most common arboviral disease in the United States. Yet, state-level One Health early-warning frameworks and long-term temporal dynamics of neuroinvasive WNV in Tennessee remain poorly characterized.
Methods: We conducted a retrospective ecological monthly time-series analysis of human neuroinvasive WNV (NIWNV) cases and mosquito, dead-bird, equine, and climate surveillance data in Tennessee during 2002–2022, using calendar-based 1- and 2-month lags. Associations between monthly NIWNV cases and surveillance indicators were evaluated using Spearman correlations and negative binomial regression. Secondary analyses evaluated avian and equine indicators, while annual analyses characterized long-term NIWNV temporal dynamics.
Results: Tennessee reported 249 NIWNV cases (2002–2022); 79.9% occurred in August–September. WNV activity across all surveillance components was highly seasonal, peaking in mid-to-late summer. Human cases correlated strongly with WNV-positive mosquito detections in the same month ($\rho=0.675$) and at 1-month lag ($\rho=0.593$; $p<0.001$). In adjusted models, each additional 10 mosquito detections were associated with human NIWNV incidence in the same month (IRR=1.026, 95% CI 1.007–1.044; $p=0.006$) and at a 1-month lag (IRR=1.026, 95% CI 1.007–1.044; $p=0.006$).
Dead-bird associations were sensitive to early emergence years, whereas equine cases were contemporaneously associated. Overall Tennessee annual incidence declined (IRR/year=0.911:$p<0.001$) and was characterized by an early structural decrease followed by lower, variable endemic incidence.
Conclusions: Reported WNV-positive mosquito detections were the most robust surveillance indicator of NIWNV in Tennessee. Persistence of the association at a 1-month lead supports prospective early-warning utility. Avian, equine, and climate indicators provided complementary ecological information.

ABSTRACTS

Abstract # 35 Research

State-level cannabis legality and punishment severity: Implications for young adult use and One Health.

William Jamison, Jon Webb, Charlie Rioux
Texas Tech University

Cannabis is a growing agribusiness whose legal status shapes both individual use patterns and cultivation practices, with implications for human, animal, and environmental health. Laws and policies around cannabis are constantly evolving, and reviews show that recreational, but not medical, legalization is linked to increased prevalence in cannabis use. Beyond legality, there are also diverse laws on cannabis, and more research is needed as to whether young adults' cannabis use correlates with local laws or punishment severity. This project examined whether (1) prevalence of cannabis use, (2) frequency of cannabis use, and (3) prevalence of cannabis use disorders in young adults significantly differ based on (a) state cannabis legislation, and (b) punishment severity for cannabis possession.

The sample for this study consists of 1000 young adults (age 18-25) from the United States. Participants answered questions about their psychoactive cannabis use. Cannabis legislation and severity of punishment in every state (at the time of data collection) was obtained from government websites and classified into illegal, legal medical, and legal recreational use, with severity of punishment classified as infraction or misdemeanor based on first-offense charges.

Results show increased punishment severity was correlated with abuse risk while legalization was associated with increased use but not abuse risk. Because unregulated illicit cultivation is linked to pesticide runoff and wildlife poisoning, while regulated markets allow governable cultivation practices, further understanding how legislation relates to human use can inform policy that balances public health concerns with the animal and environmental consequences of cannabis cultivation

Abstract # 36 Education

Breaking Campus Boundaries: Expanding One Health Experiential Education

Chris Hall, Faith Owens
Berry College

One Health recognizes the interconnectedness of human, animal, and environmental health, making experiential learning an important component of One Health education. Study abroad allows students to explore these connections through hands-on experiences while examining how culture, resources, and environmental conditions influence health. One challenge students face is the lack of One Health related study abroad programs due to institutional limitations, especially at the smaller colleges. A roadblock to utilizing outside institutions study abroad programs the complexities of transferring credit and the cost of seeking admissions to the host institutions. We propose the development of a network of regional trans-institutional One Health study abroad programs to allow students from participating colleges and universities to access unique international experiences while streamlining the transfer of credit between institutions. This would serve to encourage inter-institutional cooperation and provide a network for collaboration through intellectual exchange and resource sharing. It is intended that these regional networks would leverage faculty expertise and institutional partnerships to expand opportunities and promote development of novel interdisciplinary One Health study abroad programs.

ABSTRACTS

Abstract # 36W Research

From System Failure to Shared Exposure: A One Health Framework for Beef Food Defense

Angela Walla
Texas Tech University

Beef production depends on interconnected animal, environmental, human, physical, and digital systems. Disruptions to water, power, feed delivery, transportation, communications, security, or monitoring may extend beyond operational interruption by altering shared exposure pathways among cattle, workers, consumers, and the production environment. However, food-defense assessments commonly emphasize contamination of products without simultaneously evaluating animal-health, environmental-health, and occupational or public-health consequences. This presentation introduces a One Health framework for determining when a disruption in beef production becomes a shared health threat. The framework links an initiating event and compromised preventive control with animal exposure, environmental movement or persistence of hazards, worker and consumer exposure, measurable early-warning indicators, and cross-sector interventions. Water-system disruption is used to demonstrate how a single event may affect cattle health and welfare, microbial movement through the production environment, occupational exposure, and the probability that contaminated beef enters commerce. The proposed research approach integrates operational assessments, microbiological and environmental measurements, pathway modeling, and scenario-based decision exercises. By evaluating health consequences and intervention tradeoffs across multiple domains, the framework moves food defense beyond facility vulnerability and toward coordinated protection of animals, people, the environment, and the food supply.

Abstract # 37 Research

Bacteriocin diversity, antimicrobial activity, and probiotic properties of multi-sourced enterococci: potential for health and agrifood applications

Rine Reuben
Stephen F. Austin State University

Enterococci are a widely distributed group of lactic acid bacteria with numerous untapped potential for broad applications in health and agrifood systems. Like other beneficial microbes, some enterococci possess probiotic properties and produce bacteriocins that can serve as alternatives to antibiotics, therapeutics, dietary supplements, and food preservatives. In this study, we extensively characterized the antimicrobial activities, bacteriocin production and diversity, and probiotic properties of enterococci sourced from multiple [unexplored] niches
using phenotypic and genomic approaches, including whole-genome sequencing. Of the 524 multi-sourced enterococci, 18 demonstrated broad antimicrobial activity against major foodborne and zoonotic pathogens of public health importance. The 18 enterococcal strains exhibited varied and remarkable probiotic features, including survivability in simulated gastric juice (pH 2.0), bile salts, and phenol, as well as excellent cell-surface properties. Importantly, all selected strains harbor three or more bacteriocin-encoding gene repertoires belonging to bacteriocin classes I, II, and III. While a significant proportion of the bacteriocin genes were notably found in enterococci sourced from storks, we also identified potential novel bacteriocins (lanthipeptides) that were not previously known [or fully characterized] from storks, wild rabbits, and rhizospheres, thus highlighting enterococci-specific adaptations and competitive fitness in diverse niches. Furthermore, we found three intrinsic antibiotic-resistant determinants (aac(6')-Ii, msr(C), and efmA), and two adherence-related virulence determinants (acm and efaAfm), and some plasmid reps in the genomes of some of the enterococci. Our findings reveal notable bacteriocin diversity, pathogen-inhibitory activity, and probiotic potential in enterococci from unexplored niches, thereby accentuating their potential for application in health and agrifood systems.

ABSTRACTS

Abstract # 38 Research

Preharvest antibiotic use in commercial poultry and swine production systems influences antibiotic resistance in Salmonella enterica

Rine Reuben*, Timothy Odey#, Kayode Afolabi^
*Stephen F. Austin State University, #Anchor University, ^University of Ibadan

The widespread use of antibiotics in commercial livestock production for growth promotion and prophylaxis is a primary driver of antimicrobial resistance (AMR) globally. This study systematically characterizes the drivers of pre-harvest AMR in Salmonella enterica across animal production systems. We evaluated 3,600 fecal samples from poultry and swine for S. enterica and antimicrobial and virulence determinants using established microbiological, biochemical, and molecular protocols. We further assessed farm management practices and antimicrobial use through structured questionnaires and correlated these data with antimicrobial resistance phenotypes and determinants in S. enterica strains recovered from fecal samples across the farms. Overall, we observed a 1.5% (54/3,600) prevalence of S. enterica across the sampled animals, with 0.67%, 1.67%, and 2.2% in layers, broilers, and pigs, respectively. While most S. enterica strains showed multidrug resistance, high rates of AMR to erythromycin (80-100%) and tetracycline (75-92.3%) were observed across animal species, with multiple antibiotic resistance indices ranging from 0.2 to 0.9. Molecular analysis revealed widespread distribution of major resistance determinants - tetA (70-100%), ant(3")-Ia (80.8-100%), and sul1
(65.4-80%) and high prevalence of Salmonella-associated virulence factors, including iroB (62.5-75%), pipD (37.5-92.3%), and orfL (65-88.5%). We also found extensive preharvest antibiotic use [as growth promoters (53.8-85.7%) and prophylaxis (71.4-81.3%)] and weak positive correlations between antibiotic use and AMR phenotypes across animal species. Our study reveals widespread AMR and virulence determinants in S. enterica from commercial farms, suggesting a potential public health risk and the need for enhanced surveillance, antimicrobial stewardship, and a concerted One Health approach to mitigation.

Abstract # 39 Research

One Health Implications of Doxycycline-Induced Antimicrobial Resistance in Off-Target Bacteria of the Nasopharyngeal Microbiome

Ellen Dingwall
University of Washington

This abstract will be an adaptation of my MPH thesis. My thesis is focused on analyzing trends of antimicrobial resistance (AMR) of Group A Streptococcus, E. Coli, and S. aureus in human nasopharyngeal microbiomes, caused by overuse of doxycycline in the form of DoxyPEP. DoxyPEP is a post-exposure treatment for preventing sexually-transmitted infections (STIs), however, recent data is showing that overuse of DoxyPEP can cause unintended resistance in in human microbiomes, ultimately leading to poorer health outcomes in patients on DoxyPEP. My thesis research is to analyze some of the trends seen in this data, but to also better understand the public health implications of the overuse of DoxyPEP and widespread resistance in microbiomes. I believe that this research would be applicable to One Health, as doxycycline is an antibiotic used in animal medicine, and off-target bacteria in other animal microbiomes could also be impacted by the overuse of doxycycline. Some of the public health concerns associated with DoxyPEP resistance include environmental health concerns, such as the release of resistant bacteria into the environment, and further disruption of natural microbial communities in the environment.
I am still very early in the process of researching and formulating my thesis, but if accepted, I will have a polished poster to share at the conference.

ABSTRACTS

Abstract # 40 Research

The effectiveness of AI-integrated, eHealth, and mHealth interventions for addressing loneliness and social isolation in rural communities: A systematic review and Hedge's g meta-analysis

Adrian Buttazzoni
Texas Tech University

Loneliness and social isolation—the former an emotional state of feeling disconnected or not belonging, the latter being the measurable lack of social ties—are growing global public health priorities, with some suggesting these issues are global epidemics. Chronic social disconnection increases risks for cardiovascular disease, stroke, dementia, and inflammation, as well as contributes to a loss in healthy life years. One of the most at-risk groups for loneliness and social isolation is rural communities. With health econometric analyses suggesting significant return-on-investment for the implementation of preventive interventions, digital and artificial intelligence-integrated initiatives are becoming increasingly popular to address social disconnection issues, principally due to their cost effectiveness. This systematic review and meta-analysis synthesizes the designs and implementation approaches, as well as statistically measures the effectiveness, of AI-integrated digital health interventions for addressing loneliness and social isolation in rural communities. Advanced searches were run in three interdisciplinary electronic databases (PubMed, Scopus, Web of Science), producing 6,516 titles. After the removal of duplicates and vetting process, 26 articles were included in the review. Quality assessments were conducted using the Effective Public Health Practice Project tool and found most studies to be of 'moderate' or 'strong' quality. The most common intervention approaches included: virtual/video meeting formats (e.g., group therapy, skill development, social support),
telehealth/call/digital healthcare professional access (e.g., supportive texts/chatbots, support sessions with nurses), and virtual activity guides (e.g., yoga, active ageing). Effectiveness findings, as assessed via a pooled analysis using Hedge's g to correct for disparate sample sizes, are forthcoming.

Abstract # 41 Research

Cotton-Sorghum Rotation With and Without Cover Crops Promotes Soil Regeneration and Enhances Soil Health in the Texas High Plains

N**ilesh Sagwal, Impa Somayanda, Seth Cope, Lee Fischel, Krishna Jagadish, Aaron Norris, Dinesh Kumar Saini, Nicholas Mc Nab Tome**
Texas Tech University

Soil degradation and groundwater depletion threaten the long-term sustainability of cropping systems in the Texas High Plains, where Ogallala Aquifer levels declined 8.84 feet between 2007 and 2017. Conventional cotton production, with low residue return and limited crop diversity, can deplete soil organic carbon (SOC), weaken soil structure, and increase greenhouse gas (GHG) emissions. Conservation practices such as no-till, crop rotation, and cover crops can rebuild soil health. However, field-scale evidence on their combined effects on soil health and crop productivity in this semi-arid region remains limited. A replicated 14-acre study evaluated six no-till systems: continuous cotton, continuous sorghum, and cotton-sorghum and sorghum-cotton rotations, each with and without cover crops. SOC, total nitrogen, field-saturated hydraulic conductivity (Kfs), soil moisture, and crop yield and quality were monitored in 2024–2025. Soil GHG fluxes were measured in 2026 using FTIR-based static chambers (Gasmet DX4015). After two seasons, SOC did not differ among systems ($p = 0.76$) but trended upward under rotations with cover crops (0.06%) and continuous sorghum (0.10%). Continuous cotton had the highest Kfs ($p = 0.01$), indicating system-specific differences in soil physical function. Cotton yield was similar across systems ($p = 0.34$) but varied between years ($p = 0.01$). These results establish a soil health baseline for tracking how conservation management builds soil function. Ongoing GHG monitoring will assess whether soil health gains reduce emissions without compromising productivity.

ABSTRACTS

Abstract # 42 Research

Early Season Chilling Tolerant Forage Sorghum to Advance Planting Window and Enhance Productivity in Texas High Plains

Nicholas Mc Nab*, Impa Somayanda*, Mayank Bangari, Alondra Cruz Krishna Jagadish#, Nilesh Sagwal*, Dinesh Kumar Saini#
Texas Tech University

Sorghum is a C_4 tropical crop planted later than maize, exposing it to severe hot and dry summers that reduce productivity and forage quality. Early-season chilling tolerance in forage sorghum hybrids could advance the planting window, effectively utilize residual moisture during spring and enhance forage productivity in the Texas High Plains, supporting reliable livestock feed supply and animal health. This study evaluated the effects of planting date, seeding density, and hybrid on biomass production using 11 forage sorghum hybrids and one forage maize hybrid in 2025.
Planting dates included April 1 (chilling temperatures), April 15 (intermediate environment), and May 1 (agronomically optimal baseline). A three-way ANOVA with Tukey HSD comparisons, and ANCOVA adjusting for stand establishment, were used to evaluate treatment effects. Cultivar ($p < 0.001$) and planting date ($p < 0.001$) were the primary drivers of biomass production, whereas seeding density was not significant ($p = 0.46$). A significant cultivar × planting date interaction ($p = 0.0003$) indicated that cultivar performance varied across environments. Chilling stress reduced mean biomass by 17.5% relative to optimal planting date (4,949 vs. 5,996 kg ha^{-1}), while the intermediate planting date recorded a 9.6% reduction. Several hybrids maintained relatively high productivity, with WarnerP4205, AltaF8322, and RichardsonF27 among the top performers across environments. Selected hybrids are being validated in 2026 with a focus on assessing silage quality for improving livestock nutrition. Findings indicate certain forage sorghum hybrids tolerate chilling stress and sustain relatively high biomass, supporting resilient forage systems for animal, environmental, and human health.

Abstract # 43 Research

Upregulation of neuroinflammatory markers in murine Sim-A.9 microglia and mitigation by tart cherry

David Appiah Korang, David Appiah Korang, Muyiwa Fatola, Thalia Ramos Casas, Benjamin Madura, Maryam Seifishahpar, Josimar Dornelas-Moreira, Naima Moustaid-Moussa*.
Texas Tech University and Texas Tech Health Science Center

The environmental exposure to Micro- and Nano-plastics (MNPs) has now been documented as a risk factor for Central Nervous System (CNS) dysfunction. Experimental models and human specimens have confirmed that MNPs can enter the brain through the blood-brain barrier. Non-biodegradable MNPs are engulfed by the resident immune cells of the CNS, microglia, inducing cellular stress and neuroinflammation and leading to potentially neurodegeneration.
In this study, we examined the toxicity of MNP internalization by SIM-A.9 mouse microglia cells, we determined which pathways of activation and neuroinflammation were involved. We tested whether dietary tart cherry juice (TCJ) protects cells from the neurotoxic effect of MNPs.
SIM-A.9 microglia cells were exposed to different concentrations of Polyethylene Terephthalate with Carboxylic Acid Plastics (PET-COOH MNPs; 0.2µm, 2µm, 10µm). Cell viability was assessed via the MTT assay, while the inflammatory response was determined by measuring the production of pro-inflammatory cytokines, IL-6 and MCP-1. The potential neuroprotective effects of TCJ against exposure to MNPs was examined.
Exposure of microglia cells to PET-MNPs induced pro-inflammatory profile characterized by elevated levels of IL-6 and MCP-1. Pre-treatment of microglia with TCJ, cyanidin-3-glucoside conferred a significant protective effect. Treatment with TCJ inhibited MNP-induced microglial activation by reducing pro-inflammatory cytokine secretion.
MNPs induced SIM-A.9 microglia inflammation, which was prevented by TCJ, likely due to its anti-inflammatory and antioxidant properties. This finding suggests that dietary interventions with tart cherry, represent a viable therapeutic strategy to mitigate neuroinflammation induced by MNPs. Further studies are warranted to determine underlying mechanisms in cells and animal models

ABSTRACTS

Abstract # 44 Research

Bridging Entomology and Healthcare Epidemiology: A Systematic Review of Antimicrobial Resistance in Healthcare-Associated Arthropods

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Background: Antimicrobial resistance (AMR) poses a growing challenge to healthcare systems worldwide. The role of arthropods in the dissemination of AMR within healthcare environments remains relatively understudied.
Understanding potential arthropod-mediated dissemination of resistant organisms may inform infection prevention and healthcare epidemiology efforts and aligns with the One Health framework linking human, animal, and environmental health.
Objective: To evaluate the role of arthropods in the carriage and potential transmission of AMR organisms in healthcare settings.
Methods: Building on a prior systematized review conducted according to JBI methodology and PRISMA guidelines, we searched PubMed, Cochrane Library, Ovid MEDLINE, EMBASE, Web of Science, and Google Scholar through 2026. Forty-four articles met inclusion criteria. Data were extracted on arthropod vectors, isolated microbes, resistance profiles, and resistance mechanisms with emphasis on high-consequence ESKAPE/enteric pathogens.
Results: Across 44 studies, arthropods in healthcare settings, particularly cockroaches and flies, frequently carried antimicrobial-resistant pathogens and resistance genes, including MRSA, ESBL-producing Enterobacterales, and carbapenem-resistant organisms. Arthropods collected in healthcare facilities generally demonstrated greater microbial burden and antimicrobial resistance than community-derived specimens. While direct transmission was rarely demonstrated, several studies identified epidemiologic or molecular similarities between organisms isolated from arthropods, patients, and the healthcare environment.
Conclusion: Arthropods may represent an underrecognized reservoir and potential mechanical vector for antimicrobial-resistant organisms in healthcare settings. Although evidence for direct transmission remains limited, the consistent recovery of multidrug-resistant pathogens from healthcare-associated arthropods supports further investigation and reinforces the importance of integrated pest management and infection prevention strategies.

Abstract # 45 Research

Less Is More: Optimizing Sample Mass to Minimize Matrix Interference in Microplastics Characterization of Biosolids #45

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Characterizing microplastics (MPs) in biosolids remains arduous because of time-consuming analyses and matrix interference. While prior-informed subsampling methods, such as Particle Mean Count (PMC) and Particle Mean Size (PMS), offer faster analysis, matrix interference persists. Matrix interference manifests in three different forms: (i) Noise dominance in the IR spectra of 12- 20% of suspected MPs due to surface characteristics and thermal sensitivity, (ii)
inorganic interference that overwhelms 17-37% of acquired spectra; and (iii) residual organics that yield approximately 60% false positives during fluorescence-based screening. This study assessed sample mass optimization and combined digestion as strategies to address these effects. We homogenized a biosolids sample and analyzed three subsample masses (25, 50, and 100 mg) for MP count, size distribution, polymer composition, and spectral interference. MPs count, size distribution, and polymer composition remained statistically similar across subsample masses. MPs in the 4- 8 µm size range dominated, while Polyvinyl Acetate (PVA) was the most frequently detected polymer. Noise-dominated responses remained consistent across subsamples, whereas the least inorganic interference was observed in the 25 mg subsample. Fluorescence-based false-positive rates remained near 60% regardless of the digestion approach, indicating that residual organics persist as a challenge. These results indicate that reducing sample mass can lower inorganic interference without compromising representativeness, provided the sample is well homogenized. Persistent spectral noise and fluorescence-based false positives show that sample preparation and analytical workflows need further improvement.

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NAOHUN COMMUNITY EVENT

Community Event: One Health Clinic (OHC), Transformation Park, Amarillo, TX

One Health Clinics offers an integrative approach to healthcare that recognizes people and their companion animals as interconnected members of a family unit. At a One Health Clinic, health care professionals and veterinarians work together to diagnose and treat both people and companion animals addressing the health and well-being of both. Importantly, health care professionals and veterinarians share information that allows them to better identify and address shared environmental exposures, overlapping health risks and interconnected health needs.

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NAOHUN MILESTONES

Inaugural NAOHUN organizational meeting at Colorado State University

August 8, 2024



2nd NAOHUN virtual organizational meeting hosted by North Carolina State University

September 4-5, 2025



NAOHUN joins the One Health community for its first scientific meeting

November 6-7, 2026



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