Emerging pathogens. Food insecurity. Changing climate. Biodiversity loss. Antimicrobial resistance. These are just a few of the national and global health challenges we seek to combat through research, education, and outreach. Our home at the University of Tennessee is the ideal base for this initiative. With access to myriad, diverse expertise, 10 Research and Education Centers, and partners like ORNL and NIMBioS, we have the ability to train the future One Health workforce and facilitate research to address key issues in Tennessee, the region, and world.

Since our launch in March 2020, we have been hard at work. We’ve established a leadership team, built a community of One Health Scholars that represent every UT College and Unit, and formed an external Advisory Board of various stakeholders and partners. We’ve formed working groups, funded research projects through a seed grant program, established a One Health Minor program, and created a new undergraduate course, Introduction to One Health: from Antimicrobial Resistance to Zika with a side of Thousand Cankers. In addition, we helped bring in over $9 million dollars to UT! All in all, we met or exceeded our first year goals, and in some cases, we have achieved goals that we estimated would take the entire three years! This is a testament to our amazing UT faculty and emphasizes that there is nothing we cannot achieve when we believe in something and work together to make it happen. Inspiration is best experienced as a two-way street, and it is clear that the UT One Health Initiative is inspiring faculty just as the faculty inspired its conception.

Our work has just begun, and the progress made thus far has inspired us to reach even higher. Many might argue that launching during a pandemic was unfortunate, while others argue it was fortuitous. But I would remind them that while One Health can be reflected within a pandemic, the essence of One Health lies deep within the nuances of all of the various human, plant, animal, and environmental factors that ultimately contribute to the pandemic. Our goal is to tackle these nuances at their earliest beginnings (sources) to prevent pandemics and other health crises from becoming even whispers, making Tennessee healthy for all: healthy environment, healthy plants, healthy animals, healthy people.

Uniting disciplines to protect and promote the health of all life on Earth.
## Year One Accomplishments

### Research

<table>
<thead>
<tr>
<th>One Health Research Seed Grant Program</th>
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</thead>
<tbody>
<tr>
<td>Funded 6 projects across UT for a total of $359,374 through inaugural seed grant program</td>
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<table>
<thead>
<tr>
<th>Working Groups and Research Teams</th>
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<tbody>
<tr>
<td>Formed 7 working groups to foster collaboration across disciplines within a one health framework</td>
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</table>

<table>
<thead>
<tr>
<th>Extramural Funds Generated</th>
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<tbody>
<tr>
<td>Of the 25 One Health-flagged proposals submitted, 13 were directly linked to OHI; 4 are already funded, totaling $9M+</td>
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</tbody>
</table>

### Education

<table>
<thead>
<tr>
<th>One Health Minor</th>
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<tbody>
<tr>
<td>Available to undergraduate and graduate students Fall 2021</td>
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<table>
<thead>
<tr>
<th>Introduction to One Health Course</th>
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<tbody>
<tr>
<td>New course taught by One Health Scholar available Fall 2021</td>
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</table>

<table>
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<tr>
<th>K-12 Educator Materials</th>
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</thead>
<tbody>
<tr>
<td>Developed educator materials to introduce K-12 communities in Tennessee to One Health</td>
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</table>

### Outreach

<table>
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<tr>
<th>Monthly Seminar Series</th>
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<tbody>
<tr>
<td>Features local and international speakers discussing their One Health approach to current global challenges</td>
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<tr>
<th>One Health Day Celebration</th>
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<tr>
<td>Full-day event with keynote speakers, UT research highlights, and discussion panels on International One Health Day (Nov 3)</td>
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<table>
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<tr>
<th>One Health Podcast Series</th>
</tr>
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<tbody>
<tr>
<td>Hosted by comedian and science-enthusiast Shane Mauss, currently in production</td>
</tr>
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</table>
Deliverables by 2024

- **Formation of the Tennessee Center for Global One Health**
  >1.2M annual operating budget supported by state and federal funds and private industry

- **Increase in extramural grants**
  >2.7M per year
  Expected >8 proposal submissions per year by One Health-associated faculty

- **Increase in peer-reviewed publications**
  10-20 per year

- **Provide diagnostic support for research/surveillance activities**
  >20 UT faculty per year

- **Train >100 students and post-docs in One Health**

- **Organize 12+ public seminars and 4 One Health Day celebrations**

- **Become nationally recognized as one of the premier One Health programs and partners**
Leadership

Dr. Deb Miller
Interim Director

Dr. Nina Fefferman
Associate Director

Dr. Carole Myers
Associate Director

Dr. Rebecca Hardman
Post-Doctoral Researcher

Dr. Kimberlyn Roosa
Post-Doctoral Researcher

Alyssa Merka
Administrative Assistant

Jennifer Webster
Internal Advisor

Dr. David White
Internal Advisor
One Health Scholars

Isabella Baxter  
Assistant Professor  
University Libraries

Zack Buck  
Associate Professor  
College of Law

Brad Collett  
Assistant Professor  
Dept. of Plant Sciences  
Associate Professor  
School of Landscape Architecture

Dr. Jennifer Debruyn  
Associate Professor  
Dept. of Biosystems Engineering and Soil Science

Dr. Shigetoshi Eda  
Professor  
Dept. of Forestry, Wildlife, and Fisheries  
Adjunct Professor  
Dept. of Microbiology

Dr. Matt Gray  
Professor  
Dept. of Forestry, Wildlife, and Fisheries

Dr. Daniel Grove  
Extension Assistant Professor  
Dept. of Forestry, Wildlife, and Fisheries

Dr. Denita Hadziabdic-Guerry  
Assistant Professor  
Dept. of Entomology and Plant Pathology
Dr. Xueping Li
Professor
Dept. of Industrial and Systems Engineering

Dr. Emily Martin
Associate Professor
Dept. of Medicine

Dr. Laurie Miller
Associate Professor
School of Communication Studies

Dr. Mircea Podar
Associate Professor
Dept. of Microbiology
Distinguished Staff Scientist
ORNL Biosciences Division

Dr. Hollie Raynor
Associate Dean of Research
College of Education, Health, and Human Sciences
Professor
Dept. of Nutrition

Dr. Laura Russo
Assistant Professor
Dept. of Entomology and Plant Pathology

Dr. Heather Sedges Wallace
Assistant Professor
Dept. of Entomology and Plant Pathology
Lecturer
Dept. of Child and Family Studies

Dr. Charles Sims
Associate Professor
Dept. of Economics
Director of Energy and Environment Program
Howard H. Baker Jr. Center for Public Policy
One Health Scholars

Dr. Marcy Souza
Professor
Biomedical and Diagnostic Sciences Dept.
Director of Veterinary Public Health
Dept. of Public Health

Dr. Elizabeth Strand
Clinical Associate Professor
College of Veterinary Medicine
Director of Veterinary Social Work
College of Social Work

Dr. Chunlei Su
Associate Professor
Dept. of Microbiology

Dr. Becky Trout Fryxell
Associate Professor
Dept. of Entomology and Plant Pathology

Dr. Brynn Voy
Professor
Dept. of Animal Science
Associate Professor
Genome Science and Technology

Dr. Adam Willcox
Research Associate Professor
Dept. of Forestry, Wildlife, and Fisheries
Coordinator
Smith Center for Intl. Sustainable Agriculture

Dr. Yang Zhao
Assistant Professor
Dept. of Animal Science
External Advisory Board Members

Dr. Cathie Woteki, Chair
Professor
Dept. of Food Science and Human Nutrition
Iowa State University
Visiting Distinguished Institute Professor
Biocomplexity Institute; University of Virginia

Dr. Samantha Beaty, Vice-Chair
State Veterinarian; Assistant Commissioner for Animal Health
Tennessee Department of Agriculture

Dr. Mary-Margaret Fill
Deputy State Epidemiologist
Tennessee Department of Health
Tennessee One Health Initiative

Dr. Brad Greening
Health Scientist and Mathematical Modeler
US Centers for Disease Control and Prevention

Dr. Marti Head
Director
Joint Institute for Biological Sciences
Oak Ridge National Laboratory

Dr. Tim Kurt
Scientific Program Director
Advanced Animal Systems
Foundation for Food and Agriculture Research

Dr. Nick Patterson
Owner
Honest Abe Log Homes
Tennessee Farm Bureau

Chuck Yoest
Chronic Wasting Disease Coordinator
Tennessee Wildlife Resources Agency
Ex Officio Advisory Board Members

Dr. Deb Crawford
Vice Chancellor for Research
UT Office of Research and Engagement

Jeff Eisenberg
Principal
Rockspring Resource Solutions

Dr. Paul Hauptman
Professor and Dean
Division of Cardiology
UT Graduate School of Medicine

Tom Hebert
Managing Partner
Bayard Ridge Group

Dr. Stacey Patterson
Vice President for Research, Outreach, and Economic Development
Office of Research President
UT Research Foundation

Dr. Ashley Stokes
Professor and Dean
UT Extension
UT Institute of Agriculture

Dr. Jim Thompson
Professor and Dean
UT College of Veterinary Medicine
UT Institute of Agriculture

Dr. Hongwei Xin
Professor and Dean
UT AgResearch
UT Institute of Agriculture
2020 Working Groups

Chronic Wasting Disease
**Current Group Leaders:** Dan Grove (UT Institute of Agriculture, Dept. of Forestry, Wildlife, and Fisheries), Shigetoshi Eda (UT Institute of Agriculture, Dept. of Forestry, Wildlife, and Fisheries). Collaboration between Tennessee Wildlife Resources Agency and UT (including UT Medical School; Dept. of Microbiology; and Dept. of Forestry, Wildlife, and Fisheries); evaluating environmental testing from field-collected samples is at beginning stages; efforts have been augmented by OHI seed funding to Dr. Shigetoshi Eda for development of prion sensor technology.

Green Spaces
**Current Group Leaders:** Carole Myers (College of Nursing), Sharon Jean-Philippe (UT Institute of Agriculture, Dept. of Forestry, Wildlife, and Fisheries). UT faculty from the Dept. of Forestry, Wildlife, and Fisheries (Urban Forestry) and College of Nursing and a broad complement of community scholars and practitioners are exploring opportunities to address inequities in the distribution and availability of parks and green spaces.

Mental Health
**Current Group Leader:** Carole Myers (College of Nursing). An exploratory meeting was held in late 2020. A follow-up meeting to explore opportunities will be held early Fall 2021.

Microbiome
**Current Group Leader:** Becky Hardman (UT Institute of Agriculture, Dept. of Forestry, Wildlife, and Fisheries). Connect microbiome researchers across UT (including College of Nursing; College of Veterinary Medicine; Dept. of Ecology and Evolutionary Biology; Dept. of Entomology and Plant Pathology; Dept. of Forestry, Wildlife, and Fisheries; and Oak Ridge National Laboratory) to foster collaboration and improve techniques across campus.

One Health in K-12
**Current Group Leader:** Keren Rozensher (USDA Animal and Plant Health Inspection Service). Partnership between USDA Veterinary Services, Tennessee Department of Health, and UT (including College of Veterinary Medicine; Dept. of Child and Family Studies; Dept. of Entomology and Plant Pathology; Dept. of Ecology and Evolutionary Biology; and Dept. of Biosystems Engineering and Soil Science) to introduce One Health to the next generation and spreading One Health messages to K-12 communities across the state. Materials for K-12 educators have been developed and distributed through the Tennessee 4-H Youth Development program.

Science of Team Science
**Current Group Leader:** Elizabeth Strand (College of Veterinary Medicine; College of Social Work). Multidisciplinary group of researchers at UT (including College of Social Work; College of Veterinary Medicine; Dept. of Ecology and Evolutionary Biology; Dept. of Child and Family Studies; College of Nursing; and Institute of Agriculture) interested in exploring effective collaborative teamwork and providing training and service to foster facilitative skills needed to promote synergy and productivity in One Health research.

Substance Misuse and Addiction Resources for Tennessee (SMART) Policy Group
**Current Group Leader:** Carole Myers (College of Nursing). UT Substance Misuse Community of Scholars are sharing resources, innovations, and opportunities with One Health Initiative members to create synergies in combating substance misuse across the state. The SMART Policy Group meets bi-weekly and the Community of Scholars meets monthly.
2020 Seed Grant Recipients

**Transdisciplinary Diagnostic Investigation of Freshwater Mussel Mortality in the Clinch River**

Drs. Michelle Dennis, Nina Fefferman, Gerald Dinkins, Rebecca Hardman
UTIA, College of Veterinary Medicine, Dept. of Biomedical and Diagnostic Sciences; College of Arts and Sciences, Dept. of Ecology and Evolutionary Biology; McClung Museum of Natural History and Culture; UTIA, Dept. of Forestry, Wildlife, and Fisheries

$75,000

**Socio-Economic Epidemiology of Disease Risk in Wildlife Trade Networks**

Drs. Matthew Gray, Neelam Poudyal, Nina Fefferman
UTIA, Dept. of Forestry, Wildlife, and Fisheries, Center for Wildlife Health; College of Arts and Sciences, Dept. of Ecology and Evolutionary Biology and Dept. of Mathematics

$125,000

**One Health Approach to Controlling Escherichia albertii, the Emerging Human Pathogen**

Drs. Jun Lin, Qiang He
UTIA, Dept. of Animal Science; Tickle College of Engineering, Dept. of Civil and Environmental Engineering
Collaborators: Erin Patrick (USDA, Animal and Plant Health Inspection Service, Wildlife Services); Rebecca Lindsey (CDC); Li Zhang (Mississippi State University, Dept. of Poultry Science); Shinji Yamasaki (Osaka Prefecture University, Japan)

$40,000

**Developing a System for Molecular Detection/Identification of Zoonotic Pathogens of Most Concern in the US**

Drs. Chunlei Su, Richard Gerhold, Michelle Dennis, Sree Rajeev
College of Arts and Sciences, Dept. of Microbiology; UTIA, College of Veterinary Medicine, Biomedical and Diagnostic Services Dept.

$40,000

**Developing a Model of Chronic Inflammation to Elucidate its Effects on Reproduction**

Drs. Brian Whitlock, Bhavya Sharma; Allison Renwick (graduate student)
UTIA, College of Veterinary Medicine, Large Animal Clinical Sciences; College of Arts and Sciences, Dept. of Chemistry; UTIA, College of Veterinary Medicine, Comparative and Experimental Medicine Program
Collaborator: Dr. Joseph Daniel (Berry College, Dept. of Animal Science)

$33,714

**Impact Assessment of Climate Change on Cotton Production via Computational Simulation**

Drs. Xinhua Yin, Joshua Fu, Sangeeta Bansal
UTIA, Dept. of Plant Sciences; UT-ORNL Bredesen Center for Interdisciplinary Research and Graduate Education; UTIA, Dept. of Plant Sciences

$40,000

**Other OHI-Funded Research**

**Detection of Chronic Wasting Disease Prion in the Environment**

Dr. Shigetoshi Eda
UTIA, Dept. of Forestry, Wildlife, and Fisheries, Center for Wildlife Health; College of Arts and Sciences, Dept. of Microbiology

$100,000
Proposals: OHI-Supported

**FUNDED**

Intelligence Advanced Research Projects Activity  
**Bio-inspired Robustness and Resilience in Dynamic Supply Chain Distribution Networks**  
**Status:** Recommended  
**Awarded:** $581,563  
**PI:** Nina Fefferman (College of Arts and Sciences, Dept. of Ecology and Evolutionary Biology, Dept. of Mathematics)

National Science Foundation (NSF)  
**Status:** Funded  
**Awarded:** $1,199,129  
**PI:** Shuai Li (Tickle College of Engineering, Dept. of Civil and Environmental Engineering)  
**OHI Contributor:** Nina Fefferman (College of Arts and Sciences, Dept. of Ecology and Evolutionary Biology, Dept. of Mathematics)

Scientific Exchange Initiative  
USDA FAS  
**Status:** Funded  
**Awarded:** $224,293  
**PI:** *Marcy Souza (College of Education, Health, and Human Sciences, Dept. of Public Health; College of Veterinary Medicine, Biomedical and Diagnostic Sciences Department)*  
**OHI Contributor:** Deb Miller (UT Institute of Agriculture, Dept. of Forestry, Wildlife, and Fisheries; College of Veterinary Medicine, Biomedical and Diagnostic Sciences Department)

USDA National Institute of Food and Agriculture (NIFA)  
**Farm and Ranch Stress Assistance Network: Southern Region**  
**Status:** Funded  
**Awarded:** $7,187,000  
**PI:** *Heather Sedges (UT Institute of Agriculture, Dept. of Entomology and Plant Pathology; College of Education, Health, and Human Sciences, Dept. of Child and Family Studies)*

*One Health Scholar*
Proposals: OHI-Supported

PENDING

Danone Foundation
Youth Can! Grow and Develop Relationships through Outreach with Senior Adults
Status: In Review
Requested: $20,000
PI: Marsha Spence (College of Education, Health, and Human Sciences, Dept. of Nutrition)
Co-PI: Carole Myers (College of Nursing)

National Institutes of Health
Developing Healthy Behavioral Choices to Promote Illness Prevention in Preschool Children
Status: Pending
Requested: $53,516
PI: Nina Fefferman (College of Arts and Sciences, Dept. of Ecology and Evolutionary Biology, Dept. of Mathematics)

NSF
HDR Institute: Geometric Data Analytics and Computation for Decoding the Convergence of Health, Aging and the Environment
Status: Pending
Requested: $2,831,282
PI: Nina Fefferman (College of Arts and Sciences, Dept. of Ecology and Evolutionary Biology, Dept. of Mathematics)
Co-PI: *Shigetoshi Eda (UT Institute of Agriculture, Dept. of Forestry, Wildlife, and Fisheries; College of Arts and Sciences, Dept. of Microbiology)

NSF
NRT-HDR: Predictive Biology Knowledge Enterprise (PBKE) in One Health
Status: Pending
Requested: $689,332
PI: *Shigetoshi Eda (UT Institute of Agriculture, Dept. of Forestry, Wildlife, and Fisheries; College of Arts and Sciences, Dept. of Microbiology)
Co-PI: Nina Fefferman (College of Arts and Sciences, Dept. of Ecology and Evolutionary Biology, Dept. of Mathematics)

NSF
Socio-Economic Epidemiology of Disease Risk in Wildlife Trade Networks
Status: Pending
Requested: $2,499,876
PI: *Matt Gray (UT Institute of Agriculture, Dept. of Forestry, Wildlife, and Fisheries)
OHI Contributor: Nina Fefferman (College of Arts and Sciences, Dept. of Ecology and Evolutionary Biology, Dept. of Mathematics)

US Department of Agriculture (USDA)
Enhanced Crop Pollination through Sustainable Management of Honey Bee Queens in Apiculture
Status: Pending
Requested: $582,055
PI: Nina Fefferman (College of Arts and Sciences, Dept. of Ecology and Evolutionary Biology, Dept. of Mathematics)

*One Health Scholar
Proposals: OHI-Supported

NOT FUNDED

Blue Cross Blue Shield Foundation
Using a Dynamic Messaging Model Informed by Social Listening to Increase COVID-19 Vaccine Uptake in a Hispanic Population
Status: Lack of Funds
Requested: $68,189
PI: Elizabeth Foster (College of Communication and Information, School of Advertising and Public Relations)
Co-PI: Nicholas Geidner (College of Communication and Information, School of Journalism and Electronic Media); Carole Myers (College of Nursing)

John’s Hopkins School of Nursing
Smart Isolation and Return to Work: Optimized Sequential Testing for COVID-19
Status: Not Funded
Requested: $10,775
PI: Nina Fefferman (College of Arts and Sciences, Dept. of Ecology and Evolutionary Biology, Dept. of Mathematics)

USDA NIFA
Strengthening Advanced One Health Skills
Status: Not Funded
Requested: $749,914
PI: Sharon Thompson (College of Veterinary Medicine, Biomedical and Diagnostic Sciences Department)

OHI Contributor: Deb Miller (UT Institute of Agriculture, Dept. of Forestry, Wildlife, and Fisheries; College of Veterinary Medicine, Biomedical and Diagnostic Sciences Department)

*One Health Scholar*
Proposals: Others Involving OHI

**FUNDED**

NSF
A Workshop on Pre-emergence and the Predictions of Rare Events in Multiscale, Complex, Dynamical Systems
Status: Funded
Awarded: $81,834
PI: Nina Fefferman (College of Arts and Sciences, Dept. of Ecology and Evolutionary Biology, Dept. of Mathematics)

NSF
RAPID: Modeling the Coupled Social and Epidemiological Networks
Status: Funded
Awarded: $198,932
PI: Nina Fefferman (College of Arts and Sciences, Dept. of Ecology and Evolutionary Biology, Dept. of Mathematics)

Oak Ridge Associated Universities Directed Research & Development
Application of multi-method modeling & machine learning support planning for public health & emergency preparedness in rural communities.
Status: Funded
Awarded: $147,818
Co-PI: Thomas Berg (College of Nursing); Carole Myers (College of Nursing)

**PENDING**

NSF
Breaking Down Cell Walls: Dissecting the Functional Role of Cell Walls in Root Growth Regulation Under Drought
Status: In Review
Requested: $825,364
PI: Priya Voothuluru (UT Institute of Agriculture, Center for Renewable Carbon)
Co-PI: Niki Labbe (UT Institute of Agriculture, Center for Renewable Carbon); Carole Myers (College of Nursing)

Oak Ridge Institute
Rooted in Science: Training Scientists to Effectively Communicate Scientific Research and Productively Engage with Tennessee Communities
Status: In Review
Requested: $45,531
PI: Priya Voothuluru (UT Institute of Agriculture, Center for Renewable Carbon)
Co-PI: Niki Labbe (UT Institute of Agriculture, Center for Renewable Carbon); Mark Littman (College of Communication and Information, School of Journalism and Electronic Media); Carole Myers (College of Nursing)

Tennessee Wildlife Resources Agency
Using Communications to Fight CWD
Status: Proposal Approved
Requested: $25,619
PI: Neelam Poudyal (UT Institute of Agriculture, Dept. of Forestry, Wildlife, and Fisheries)

*One Health Scholar*
Proposals: Others Involving OHI

**US Department of Justice**
**Assistance for Tennessee Domestic Violence Victims with Pets**
**Status:** Proposal Approved
**Requested:** $396,756
**PI:** *Marcy Souza (College of Education, Health, and Human Sciences, Dept. of Public Health; College of Veterinary Medicine, Biomedical and Diagnostic Sciences Department)*

**UT Medical Center Cancer Research Endowment Gift Fund**
**Health Assessment via Mobile Outreach**
**Status:** In Review
**Requested:** $40,000
**PI:** Carole Myers (College of Nursing)
Proposals: Others Involving OHI

**NOT FUNDED**

**National Council of State Boards of Nursing, Center for Regulatory Excellence**

**National APRN Practice and Pandemic Study**

**Status:** Not Funded

**Requested:** $200,000

**PI:** Wendy Likes (UT Health Science Center, College of Nursing; College of Medicine, Dept. of Obstetrics and Gynecology), Carole Myers (College of Nursing)

**National Institute for Health Care Management Foundation**

**Reducing Stigma to Improve OUD Treatment and Recovery Outcomes**

**Status:** Submitted

**Requested:** $60,000

**PI:** Carole Myers (College of Nursing)

**Co-PI:** Jenny Crowley (College of Communication and Information, School of Communication Studies); Lara Miller (College of Communication and Information, School of Communication Studies); Jennifer Tourville (College of Nursing)

**NSF**

**Using a Dynamic Messaging Model Informed by Social Listening to Increase COVID-19 Vaccine Uptake in a Hispanic Population**

**Status:** Concept paper submitted to NSF; deemed not a good fit with funding mechanism

**PI:** Elizabeth Foster (College of Communication and Information, School of Advertising and Public Relations)

**Co-PI:** Nicholas Geidner (College of Communication and Information, School of Journalism and Electronic Media); Carole Myers (College of Nursing)

**NSF**

**Engineering Analysis Framework for Hierarchal Response Strategy and Control of Epidemic Outbreaks**

**Status:** Not Funded

**Requested:** $1,999,566

**PI:** Mingzhou Jin (Tickle College of Engineering, Institute for a Secure & Sustainable Environment); Carole Myers (College of Nursing)

**One UT Collaboration and Innovation**

**Connecting with Communities to Facilitate Assimilation and Adoption of Research Discoveries**

**Status:** Not Funded

**Requested:** $49,689

**PI:** Niki Labbe (UT Institute of Agriculture, Center for Renewable Carbon)

**Co-PI:** Carole Myers (College of Nursing); Scott Senseman (UT Institute of Agriculture, Dept. of Plant Sciences); Priya Voothuluru (UT Institute of Agriculture, Center for Renewable Carbon)

*One Health Scholar*
Publications: One Health

PUBLISHED

How Resource Limitations and Household Economics May Compromise Efforts to Safeguard Children During Outbreaks.
Myers, K., A. Redere, and N.H. Fefferman

The Impact of Host Metapopulation Structure on Short-term Evolutionary Rescue in the Face of a Novel Pathogenic Threat.
Global Ecology and Conservation. 2020. Published
Jiao, J., M. Gilchrist, and N.H. Fefferman

Bossart, G.D., A.C. Camus, D.L. Miller, S. J. Raverty (editors)

The Potential Role of Asymptomatic Infection in Outbreaks of Some Emerging Pathogens.
Tropical Medicine and Infectious Disease. 2020. Published.
Siewe, N., B. Greening, and N.H. Fefferman

SUBMITTED

The Epidemiological Implications of Jails for Community, Corrections Officer, and Incarcerated Population Risks from COVID-19.
Submitted/In Review.
Lofgren, E., K. Lum, A. Horowitz, B. Madubuonwu, K. Myers, and N.H. Fefferman

Homophily in Risk and Behavior Complicate Understanding the COVID-19 Epidemic Curve.
Submitted/In Review.

How Limitations in Energy Burdens Compromise Health Interventions for COVID Outbreaks in Urban Settings.
Submitted/In Review.
N.H. Fefferman , C-F. Chen, G. Bonilla, H. Nelson, and C-P. Kuo

How Public Reaction to Disease Information Across Scales and the Impacts of Vector Control Methods Influences Disease Prevalence and Control Efficacy.
Submitted/In Review.
J. Jiao, and N.H. Fefferman

How Social Learning Shapes Preventative Health Behaviors in an Outbreak.
Submitted/In Review.
Carrignon, S., R.A. Bentley, M.J. Silk, and N.H. Fefferman

Improving Pandemic Mitigation Policies Across Communities Through Coupled Dynamics of Risk Perception and Infection.
Submitted/In Review.
Silk, M.J., S. Carrignon, R.A. Bentley, and N.H. Fefferman

Where to Learn to Flatten the Curve.
Submitted/In Review.
Silk, M.J., S. Carrignon, R.A. Bentley, and N.H. Fefferman
Publications: Others Involving OHI

**PUBLISHED**

Lian M, Castellini JM, Miller D, Griff B, Vertyankin VV, Dupont J, Broker K, Godard-Codding CAJ and O’Hara TM

The Earth Has Humans, So Why Don’t Our Climate Models?

Efficacy of Subcutaneous Implants to Provide Continuous Plasma Terbinafine in Hellbenders (Cryptobranchus alleganiensis) for Future Prophylactic Use Against Chytridiomycosis.

Evaluation of Severity and Factors Contributing to Foot Lesions in Endangered Ozark Hellbenders, Cryptobranchus alleganiensis bishopi.
Hardman R, Irwin K, Sutton W, and Miller DL

Experimental Methodologies Can Affect Host Tolerance to Batrachochytrium Salamandrivorans Infection
Kumar R, Malagon DA, Carter ED, Bohanon ML, Cusaac JPW, Peterson AC, Miller DL, Gray MJ

Genomic Signatures of Evolutionary Rescue in Bats Surviving White-Nose Syndrome.
Gignoux-Wolfsohn, S.A., Pinsky, M.L., Kerwin, K., Herzog, C., Hall, M., Bennett, A.B., Fefferman, N.H. and Maslo, B.

Geographic and Individual Determinants of Important Amphibian Pathogens in Ozark and Eastern Hellbenders.

Host Density and Habitat Structure Influence Host Contact Rates and Batrachochytrium Salamandrivorans Transmission.
*Scientific Reports*. 2020. Published.

How Disease Risk Constrains the Evolution of Social Systems.
Udiani, O. and N.H. Fefferman

How Emergent Social Patterns in Allogrooming Combat Parasitic Infections.
Wilson, S., S. Sindi, H. Brooks, M. Hohn, C. Price, A. Radunskaya, N. Williams, and N.H. Fefferman

Impact of Strain Competition on Bacterial Resistance in Immunocompromised Populations.
DeNegre, A., Myers, K., and N.H. Fefferman
Publications: Others Involving OHI

Interactive Effects of a Pesticide and Emerging Amphibian Pathogens in Eastern Hellbenders.

The Sensitivity of a Honeybee Colony to Worker Mortality Depends on Season and Resource Availability.
*BMC Evolutionary Biology.* 2020. Published.
*Lemanski, N.J., S. Bansal, and N.H. Fefferman*

Winter is Coming—Temperature affects immune defenses and susceptibility to Batrachochytrium salamandrivorans. *PlosPathogens.*
*PlosPathogens.* 2021. Published.
*Carter ED, Bletz MC, Le Sage M, LaBumbard B, Rollins-Smith LA, Woodhams DC, Miller DL, Gray MJ*

**SUBMITTED**

Fear, Access, and the Real-Time Estimation of Etiological Parameters for Outbreaks of Novel Pathogens.
*Submitted/In Review.*

Linking Immuno-Epidemiology Principles to Violence.
*Submitted/In Review.*
*Sisk, A., P. Bamwine, J. Day, and N.H. Fefferman*
ONE HEALTH COURSE

A new course will be available in the 2021-22 course catalog that will allow students to explore the interconnectedness of human, animal, plant, and environment health, develop an understanding of the One Health approach, and serve as an introductory experience for students considering One Health careers. The course, Introduction to One Health: From Antimicrobial Resistance to Zika with a side of Thousand Cankers, is taught by Dr. Adam Willcox, a One Health Scholar.

ONE HEALTH MINOR PROGRAM

Also new to the 2021-22 catalog is the One Health Minor, available to undergraduate and graduate students wishing to develop skills to prepare themselves for careers in agricultural, environmental, and human sciences, in addition to scientific policy and communication. The required courses are interdisciplinary and will provide training that is relevant for all majors.

Undergraduate Minor
The undergraduate minor consists of 18 hours, including at least one course from each of the six categories below. (Introduction to One Health is required.)

- Introduction
- Communication and Leadership
- Policy
- Global Issues
- Science
- One Health Capstone

Graduate Minor
The graduate minor consists of 10 hours (four courses) in the three areas of focus below.

- Communication and Leadership
- Translation of Science to Policy
- One Health Focus
**Education**

**SCIENCE OF TEAM SCIENCE WORKSHOPS**

In the spring of 2021, members of the Science of Team Science working group and other interested staff and faculty participated in the INTEREACH Spring Webinar Series on tools for excellence in consilience and team science through Duke University. On May 21, 2021, the spring webinar series will culminate with a three-hour online, experiential workshop that gives participants the opportunity to practice the skills covered in the spring webinar series. This workshop will target One Health Scholars and those whom each scholar invites. Additionally, the working groups aims to host an in-person event in the UT Gardens that includes applying skills learned in the spring webinar series to a wicked problem chosen by the initiative. This event would potentially be open to the entire UT community.

**K-12 EDUCATOR MATERIALS**

The One Health in K-12 working group adapted a One Health Lesson (onehealthlessons.com) for use in 4-H to introduce students to the topic of outbreaks from the lens of One Health. Students will learn about outbreaks and connect the dots between the provided background information and the current global SARS-CoV-2 pandemic. This lesson is designed to be taught in either a traditional classroom setting or online-learning environment.
Presentations (scientific)

Intelligent Systems for Molecular Biology 2020, COVID-19 Session (virtual)
Date: July 2020  Staff: Fefferman

Research Day Comparative and Experimental Medicine, UT College of Veterinary Medicine
Date: September 2020  Staff: Miller (Ashley Reeves)

Mathematical Biology Seminar, ASU (virtual)
Date: October 2020  Staff: Fefferman

League of Women Voters (Oak Ridge, TN)
Date: October 2020  Staff: Fefferman

Banff International Research Station Workshop: Mathematics of Human Environmental Systems (virtual)
Date: October 2020  Staff: Fefferman

Society for Industrial and Applied Mathematics: Minisymposium on Using Mathematical Models in Epidemiology and Medicine to Outwit Diseases, Joint Mathematics Meetings (virtual)
Date: January 2012  Staff: Fefferman

UT Science Forum (virtual)
Date: March 2021  Staff: Fefferman

Southeastern Partners in Amphibian and Reptilian Conservation (virtual)
Date: February 2021  Staff: Miller

Texas Chapter of The Wildlife Society Annual Conference (virtual)
Date: February 2021  Staff: Miller (Ashley Reeves)

3-Minute Thesis Competition University of Tennessee Graduate School
Date: March 2021  Staff: Miller (Ashley Reeves)

9th World Congress of Herpetology (New Zealand, virtual)
Date: January 2021  Staff: Miller
Community Engagement

MONTHLY SEMINAR SERIES

The first installment of the monthly One Health Lunch & Learn Seminar Series was held on February 25, 2021. The series allows speakers from across UT, the nation, and world to discuss their work, how they tackle current global challenges, and how solutions can be achieved with a One Health approach.

The seminars regularly attract 60+ attendees and have received very positive feedback thus far. Past seminars are available on our website and YouTube channel.

COMMUNICATIONS

An initial communications plan has been developed to promote the initiative. The main features of the plan are: a quarterly electronic newsletter, beginning April 2021, focused on periodic news and updates; a website with general and more enduring content about the One Health Initiative along with posting of timely content; and a social media presence, beginning with Twitter, to further develop the One Health brand and spread awareness. Initially, social media efforts will be focused on curating information and connecting people with people, as well as people with information. Efforts also include building a follower base and defining One Health to the general population. A well-established social media account will allow us to disseminate and amplify One Health messages to the community, promote One Health events, and collaborate with various stakeholders; the Tennessee Department of Health has expressed interest in partnering with us in these efforts.

OHI WEBSITE AND BRANDING

As of March 2021, the initiative has an official logo and is working on brand development and awareness. We have a public-facing website under the UT Institute of Agriculture, and we are continually making updates and improvements to increase its functionality. Currently, visitors can learn about One Health and the short- and long-term vision of the initiative, read about current One Health-related research at UT (including abstracts and video presentations by the seed grant recipients), and access a growing number of resources (below).
# Interviews and PR

## Print/Online

<table>
<thead>
<tr>
<th>Source</th>
<th>Name</th>
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<tbody>
<tr>
<td>ABC News</td>
<td>Fefferman</td>
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<tr>
<td>The Guardian</td>
<td>Fefferman</td>
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<tr>
<td>Health Feedback</td>
<td>Fefferman</td>
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<td>i-24</td>
<td>Myers</td>
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<td>Knox News Sentinel</td>
<td>Myers</td>
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<td>The Marshall Project</td>
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<td>Mother Jones</td>
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<tr>
<td>Newsweek</td>
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<td>POLITICO</td>
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<td>Scientific American</td>
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<td>Southerly</td>
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<td>The Telegraph</td>
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<td>The Tennessean</td>
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<tr>
<td>UNILAD</td>
<td>Fefferman</td>
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<tr>
<td>YAHOO Entertainment</td>
<td>Fefferman</td>
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## Podcasts/Radio

<table>
<thead>
<tr>
<th>Show</th>
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<tbody>
<tr>
<td>Health Connections (weekly)</td>
<td>Myers</td>
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<tr>
<td>Slate.com: The Gist</td>
<td>Fefferman</td>
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<tr>
<td>Stand Up Science (four episodes)</td>
<td>Fefferman, Miller</td>
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<td>You Made It Weird</td>
<td>Fefferman</td>
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## TV/Web

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<th>Network</th>
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<tbody>
<tr>
<td>CGTN</td>
<td>Fefferman</td>
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<tr>
<td>The Washington Post</td>
<td>Fefferman</td>
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<tr>
<td>WBIR</td>
<td>Fefferman</td>
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<td>WVLT</td>
<td>Fefferman</td>
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## Webinars

<table>
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<tr>
<th>Webinar</th>
<th>Name</th>
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<tbody>
<tr>
<td>Ecological Society of America</td>
<td>Fefferman</td>
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<tr>
<td>NIMBioS</td>
<td>Fefferman</td>
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</table>
## Presentations (organizational)

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
<th>Presenter</th>
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<tbody>
<tr>
<td>Conservation Science Lab</td>
<td></td>
<td>Miller</td>
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<tr>
<td>UT College of Veterinary Medicine, Dept. of Biomedical and</td>
<td>Monthly</td>
<td>Miller</td>
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<tr>
<td>Diagnostic Services Meeting</td>
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<td>Opioid Group</td>
<td>January 2020</td>
<td>Miller</td>
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<td>COD</td>
<td>February 2020</td>
<td>Miller</td>
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<tr>
<td>Oak Ridge National Laboratory</td>
<td>February 2020</td>
<td>Miller</td>
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<tr>
<td>Directors, Deans, Department Heads</td>
<td>May 2020</td>
<td>Miller</td>
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<tr>
<td>One Health Scholars Meeting</td>
<td>May, December 2020</td>
<td>All</td>
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<tr>
<td>Remote Area Medical</td>
<td>July 2020</td>
<td>Miller</td>
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<tr>
<td>UT Lunch and Learn: Intro to OHI</td>
<td>July 2020</td>
<td>Miller</td>
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<tr>
<td>FWF Alumni</td>
<td>August 2020</td>
<td>Miller</td>
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<tr>
<td>Herbert College of Agriculture, Fall Kick Off</td>
<td>August 2020</td>
<td>Miller</td>
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<tr>
<td>Faculty Senate Research Council</td>
<td>November 2020</td>
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<td>UT Mic Nite</td>
<td>November 2020</td>
<td>Miller</td>
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<tr>
<td>Office of Research and Engagement</td>
<td>November 2020</td>
<td>Miller</td>
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<tr>
<td>Advisory Board Meeting (Quarterly)</td>
<td>November 2020,</td>
<td>All</td>
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<td></td>
<td>March 2021</td>
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<tr>
<td>Tennessee One Health</td>
<td>March 2021</td>
<td>Miller</td>
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<tr>
<td>Seed Grant Recipient Meeting</td>
<td>March 2021</td>
<td>All</td>
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<tr>
<td>OHI and Rural Health (Congressman Burchett)</td>
<td>March 2021</td>
<td>Miller, Sedges</td>
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“One Health is a great theme to build synergies among UT’s research, education, and extension programs and deliver on its mission to enhance wellbeing throughout the state and across the nation.”

Dr. Cathie Woteki
UTOHI Advisory Board Chair

“More than ever, society appreciates the impact of the whole human-animal-ecosystem interface. The One Health Initiative is vital to addressing the future health of people, animals, and the environment in our world.

It is wonderful that UT has an established program to pioneer addressing these needs—locally, nationally, and beyond—beginning in our communities.”

Dr. Samantha Beaty
UTOHI Advisory Board Vice-Chair