TEXAS A&M UNIVERSITY
School of Public Health
Annual Research Report
2021

Prepared by the Texas A&M University School of Public Health Office of Research
The Office of Research is committed to providing efficient and effective administration and support for the research activities of the faculty and staff of the Texas A&M University School of Public Health.

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Research is an integral part of the mission of the Texas A&M School of Public Health (SPH). SPH faculty, staff, and students are actively engaged in a diverse array of sponsored and unsponsored research and service projects. This report summarizes SPH sponsored projects, scholarly publications, presentations, and faculty research interests for 2021.

**Highlights:** Several of our faculty members achieved accolades within the state and nation.

- Dean Shawn Gibbs was appointed to the National Academies of Sciences, Engineering, and Medicine Committee on Respiratory Protection for the Public and Workers without Respiratory Protection Programs at their Workplaces.
- Dr. Taehyun Roh received the 2020 Houston Methodist Cancer Center Research Innovation Award for, “Exploration of Early-Stage Biomarkers of Urothelial Cell.
- Dr. Virender Sharma ranked 325 globally among all researchers across 22 fields and 23rd globally in the “Environmental Science” sub-field!

SPH researchers continued to secure highly-competitive extramural research funding from federal and state governments, foundations, and other sources. A categorical summary of SPH funding and scholarly output is provided below.
57 new external grants and contracts totaling $12,020,102 were awarded to SPH researchers in 2021
Social Cognitive Theory hypothesizes that human behavior is determined by cognitive, behavioral and environmental factors. Jay Maddock, PhD, FAAHB is leading a study on identifying psychological variables to develop evidence-based interventions.

Virender Sharma, PhD and his colleague at Georgia Tech University have been awarded a National Science Foundation (NSF) grant to study the multi-oxidant systems that involve per oxy acids (POAs) and metals for application in water treatment.
Why Do COVID-19 Statistics Vary Significantly from State to State in Mexico?

Genny Carrillo, MD, ScD, associate professor in the Department of Environmental and Occupational Health along with researchers from Marista University in Mexico, investigated incidence, hospitalization and mortality related to COVID-19 among the 32 states within Mexico. The results, which were published in the *International Journal of Environmental Research and Public Health*, used data on both confirmed and suspected cases of COVID-19 in Mexico obtained from the Mexico General Council of Epidemiology.

Guiding Efforts to Improve Physical Activity Resources Along the Texas-Mexico Border

Luis Gomez and Joseph Sharkey, PhD along with faculty from Baylor University studied physical activity resources in low-income and underserved rural communities in Hidalgo County, TX. Their study, funded by the United States Department of Agriculture National Institute of Food and Agriculture and published in the journal *Health and Place*, developed a new assessment tool to better evaluate and prioritize physical activity resources in areas where diabetes and obesity are rampant.
S. Camille Peres, PhD, and a team of multidisciplinary researchers are using a National Science Foundation grant to address issues in current petrochemical and oil and gas industry procedures.

Dr. Fischer lead a clinical investigation funded by the National Institute of Health, studying the efficacy of the Moderna COVID-19 vaccine in young adults and its effects on subsequent infection, viral load, and transmission in the Texas A&M University community.
Centers & Programs
The Center for Community Health Development (CCHD) was formed to establish a research, education, and experience base for improving population health status in a cost-effective manner. The Center also provides research, education, and training experience for master’s and doctoral students of the Texas A&M University School of Public Health, the Texas A&M University Health Science Center, and The Texas A&M University System.
USA Center for Rural Public Health Preparedness

The USA Center for Rural Public Health Preparedness is designed to ensure public health professionals are ready to respond to threats to the nation’s public health. This Center at the Texas A&M University School of Public Health is the only center with a specific rural focus on supporting and developing the skills and competencies of emergency responders in rural areas of the United States.
Southwest Rural Health Research Center

The Southwest Rural Health Research Center (SRHRC), established in 2000, is one of only nine federally-funded research centers by the Health Resources and Services Administration's Federal Office of Rural Health Policy. The Center focuses on conducting policy-relevant research on meeting the needs of special rural populations, minority populations and health disparities (including border populations), and rural systems building.
Ergonomics Center

The mission of the Texas A&M Ergonomics Center is to help industry and healthcare partners increase their competitiveness by improving worker performance, reducing workplace injuries and illnesses, and designing unique products and applications to combat the negative impacts of aging and obesity.
The Center for Population Health and Aging (CPHA) promotes population health and successful aging through innovations in research, education, and practice that examines social, behavioral, economic, environmental, and technological solutions linking academic and real-world clinical and community settings. Research focuses on evidence-based programs, health communities, and interactions between health, aging, and technology.
Texas A&M School of Public Health Programs

Asthma Research and Education

The Program on Asthma Research and Education (PARE) facilities environmental research and education focused on asthma, addressing underserved and minority populations.

Director: Genny Carrillo, MD, ScD

Environment and Sustainability

The Program on Environment and Sustainability (PES) goals are to develop and lead a vibrant Environmental and Sustainability network and to build a model research program with a multi-disciplinary approach that also encompasses education and outreach.

Director: Virender Sharma, PhD

Global Health Research

The Program on Global Health Research engages in cutting-edge transdisciplinary research and teaching that reduces the burden on disease and improves lives in international settings.

Director: Brian Colwell, PhD
Texas A&M School of Public Health Programs (cont.)

Health Law & Policy

The Program on Health Law & Policy aims to become a nationally recognized center noted for its rigorous analysis of state health laws and in-depth training of empirical health law researchers, analysts, and policy advocates.

Director: Cason Schmit, JD

Health & Nature

The Program on Health & Nature facilitates research and educational activities focused on the relationship between human health and nature. Research foci span from the community, the role of industry and the health care system. It also serves as the Texas A&M home for the joint Center for Health and Nature, a collaborative effort between Houston Methodist Hospital, Texas A&M University and Texan by Nature.

Co- Directors: Jay Maddock, PhD, FAAHB & Bita Kash, PhD, MBA, FACHE
Awards & Recognition
2021 Faculty Excellence Award Recipient

Gang Han

Dr. Gang Han is a biostatistician who has collaborated on projects totaling over $18 million and is author or co-author on more than 90 peer-reviewed articles. His research focuses on statistical computing, Bayesian analysis, HIV viral load modeling, survival analysis methods in cancer research, design and analysis of Phase I/II clinical trials and translational studies, and statistical methods in the development of personalized medicine.
2021 Student Research Excellence Awardees

Doctoral Student Awardee
Eniola Olatunji
PhD, Health Services Research
Advisor: Dr. Robert Ohsfeldt
“Who Receives Influenza Vaccinations at the Pharmacy? An Analysis of the Texas Behavioral Risk Factor Surveillance System”

Masters Student Awardee
Wisdom Osisioma
MPH, Environmental Health
Advisor: Dr. Itza Mendoza-Sanchez
“Addressing the knowledge gap in predictors of Methicillin-resistant and other beta-lactamase resistant infection hospitalizations in Texas”
16th Annual Jean Brender Student Research Poster Awards: Graduate

1st Place: Nishat Hasan, MPH Student
Phthalate Exposure and Respiratory Diseases Among Adults and Children: the US NHANES 2007 - 2016

2nd Place: Maria Roque, DrPH Student
Mapping Interventions for Long-Acting Reversible Contraceptive Use to the Socioecological Model

3rd Place: Ayobami Ogunsola, MPH Student
Geospatial Analysis of the Disparity in COVID-19 Testing Sites in Texas
Research Publications


Research Publications


Research Publications


Research Publications


Research Presentations


Research Presentations


24. Kaur M, Kaur M, Singh AC, Garg Vk, Sharma VK. “NGO@MgFe2O4@SiO2 Dual Core Composite as an Efficient Photocatalyst for the Degradation of Organic Pollutants. American Chemical Society Fall Meeting 2021, Atlanta, Georgia. August 22-26, 2021.


Research Presentations


Research Presentations


64. Zheng Q. Let Computational Thinking Permeate Biostatistics Education of Public Health Students. 6th International Conference on Distance Education and Learning, Shanghai China. May 21-24, 2021.
Poster Presentations
Poster Presentations


Poster Presentations


Faculty Research Interests
Epidemiology & Biostatistics

Clendenin, Angela Ph.D Instructional Assistant Professor Risk Communication; Decision Analysis; Emergency Management and Emergency Communications; Cultural/Social Influences on Communication/Decision Making; Public Health Preparedness and Response for Refugee Populations; Communications Measurement and Assessment; Teaching as Research.


Gorman, Dennis Ph.D Interim Department Head, Professor Alcohol and Drug Availability and Violence; Alcohol and Drug Prevention Policies; System Methodologies; Science and Pseudoscience in Public Health Research.

Han, Daikwon Ph.D Associate Professor Spatial Epidemiology; GIS & Spatial Analysis Methods; Environmental Health/Exposure Science; Environmental Justice and Health Disparities; Healthcare Access; Population Studies/Spatial Demography.

Han, Gang Ph.D Associate Professor Biostatistics. Personalized Medicine and Development of Methods. Survivor Analysis. Trial Design for Clinical Trial Methods. Time to Event Data Analysis. Economically and Ethically Reduce Time of Clinical Trials.

Kalbasi, Shaida Ph.D Instructional Assistant Professor Health Disparities, Women's Health, Quality of care for Immigrants, and Racial Minorities, Effect of Discrimination, and Race Relations on Health outcomes.

Roh, Taehyun Ph.D Assistant Professor Arsenic and Water pollution of water supplies. Clean Water Access in Rural Populations. Toxicology and Environmental Health.

Taylor, Nicholas Ph.D Assistant Professor Molecular Epidemiology of Cancer - Melanoma and Breast Cancer; Study Design and Conduct.

Xu, Xiaohui Ph.D Associate Professor Air pollution epidemiological studies. Susceptible population to environmental exposures modified by genetics, pre-existing health conditions, and coexposure to other factors, etc. Maternal and child health. Environmental exposure assessment. Spatial epidemiology.

Zhao, Hongwei Ph.D Professor Survival analysis and longitudinal data analysis, Quality-adjusted lifetime estimation, and cost-effectiveness analysis conducted with censored data, Problems arising from correlated data from longitudinal studies, and multilevel epidemiological studies.

Benden, Mark Ph.D Department Head, Associate Professor Human Factors, Safety Engineering, Process Safety Management, and Ergonomics Office worker obesity, classroom ergonomics and childhood obesity, medical device development and testing, and rehabilitation engineering.


Cizmas, Leslie Ph.D Instructional Associate Professor Basic Environmental Toxicology, Global Health.

Gibbs, Shawn PhD, MBA, CIH Dean Ebola, antibiotic resistance, highly infectious disease management, biocontainment, industrial hygiene, personal protective equipment

Johnson, Dennis MPH, CIS, CPH. Graduate Program Manager Crisis Management/Emergency Response, HSE Leadership and Management Systems, Accident Investigation and Prevention, Exposure Assessment, and Control.

Johnson, Natalie Ph.D Associate Professor Environmental & Occupational Diseases, Environmental Health & Toxicology, Mechanisms of Disease Prevention. Environmental carcinogens; Environmental health disparities; Exposure to foodborne (aflatoxins) and environmental carcinogens (polycyclic aromatic hydrocarbons); Chemoprevention; Development of biomarkers of exposure to traffic-related air pollution; Prenatal exposure to air pollution and associated epigenetic changes; Dietary interventions to prevent environmentally-induced asthma; Population-based animal models of allergic airway disease.

Maddock, Jay Ph.D Professor Health, Wellness, and Physical Activity, Diet, SocialEcological Approaches to Increasing Physical Activity; Nutrition, Tobacco Use, and Global Health.

McDonald, Thomas Ph.D Regents Professor Environmental Measurements/Chemistry. Environmental chemistry, petroleum geochemistry, and general organic chemistry.

Environmental & Occupational Health

Ory, Marcia Ph.D Regents & Distinguished Professor / Associate Vice President for Strategic Partnerships (TAMHSC) / Public Health Interventions. Aging and Health promotion. Chronic Disease Management; Health Technology and Community Engagement. Translational research.

Peres, S. Camille Ph.D Associate Professor Human Factors, Research Methods, Alternative Displays. Biomechanics of Human-computer interactions, Design guidelines for auditory displays, and usability of home health care technology. Worker safety, human systems integration, human systems engineering, ergonomics, procedures, engineering psychology, occupational safety.

Pickens, Adam Ph.D Instructional Assistant Professor Occupational Safety, Industrial Hygiene, Ergonomics, and Biomechanics. Ergonomic tool development; Occupational safety screening/tool development, Upper extremity modeling; Manual materials handling, and Occupational biomechanics.

Sharma, Virender Ph.D Professor Environmental, Physical, Analytical Chemistry. IronBased Oxidants (Ferrates and Ferrites), Kinetics and Mechanism of High-Valant Transition Metals, Advanced Oxidation Methods, Solar-Based Photoactive Materials in Water Treatments, Green Synthesis of Nanoparticles, Formation, Fate, and Toxicity of Nanoparticles in the Aquatic Environment.

Smith, Matthew Ph.D Associate Professor. Health Risk Behaviors Across the Life Course; Evidence-based Programming for Older Adults; Program Evaluation; Measurement; Survey Research Methodology. Public health systems and service research; Rural health, health policy, and vulnerable populations; Nutrition, physical activity, obesity, and related conditions; Educational pedagogy, particularly around writing skills in health professions.

Sansom, Garret Ph.D Research Assistant Professor Environmental health policy and planning, Community Resilience, Sustainable development, and public health, Field research methods, Community engagement strategies.
Health Promotion & Community Health Sciences

**Burdine, James Ph.D** Interim Department Head / Professor Community Health Development; Community Organization and Assessment; Community Health Status Assessment. Measurement of factors influencing community capacity for population health improvement and community health development strategies, particularly community health needs assessment.

**Clark, Heather DrPH** Director of Public Health Practice / Research Associate Professor Building Community Capacity to Solve Problems. Grassroots Causes. Social Norms & Values, Partnerships with Community. Rural Access to Care. Physical & Mental Health. Diabetes & Opioid Abuse.

**Colwell, Brian Ph.D** Professor Social Ecology and Health Behavior; Seminar on Alcohol, Tobacco, and Other Drugs. Adolescent smoking cessation; school health education; youth smoking prevention; adolescent mental health and substance abuse.

**Jones-Mckyer, Ellisa Ph.D** Associate Dean for Climate & Diversity / Professor Minority health issues and health disparities; Parental influences on child health behaviors and outcomes; Socioecological factors of health behaviors.


**Mier, Nelda Ph.D** Instructional Assistant Professor Chronic Disease Prevention, Quality of Life through Behavioral Change in Mexican Americans of all ages living in Texas-Mexico border region, Physical Activity Among Mexican Americans, Intervention Research to Enhance Physical Activity Patterns, Diabetes Prevention Among Children and Adults in Border Region, Promotoras Model (Community Health Workers) in Border Regions.

**Sharkey, Joe Ph.D** Professor Social and Behavioral Research Methods; Program Evaluation; Mixed-Methods Research; Environment and Policy Assessment. Food access and food choice in underserved areas, food insecurity and hunger, childhood obesity, and effects of structural and individual characteristics on nutrition, physical activity, and health outcomes, promotora empowerment, community-engaged approached to population health.

**Stasi, Selina DrPH** Instructional Assistant Professor Access to and physical activity promotion within underserved communities and communities of color, through community-based research, asset mapping, and GIS analysis. Research regarding physician-based physical activity counseling, prescription and referral, and youth engagement and empowerment to combat disparities in physical activity and health. Linkages between community, clinic, and church, and the role public health practitioners play to leverage resources between them all.
Health Policy & Management

Andreyeva, Elena Ph.D Assistant Professor
Health economics, Spatial nature of the healthcare market, Urban/regional/rural economics, Health Insurance effects on policies of healthcare delivery, Risky health behaviors.

Bolin, Jane Ph.D, J.D., R.N Professor.
Health Law and Ethics, Regulatory Compliance; Cancer Screening and Prevention; Diabetes Self-Management; Chronic Disease Management; Interdisciplinary and Translational Research; Rural Health Research.

Callaghan, Timothy Ph.D Assistant Professor

Carrino, Gerard Ph.D Instructional Professor

Côté, Murray Ph.D Associate Professor

Ferdinand, Alva Ph.D, J.D. Associate Professor
Impact of laws and other policies relative to public health outcomes such as roadway safety, obesity, and access to care. Other interests include state and federal regulation of health care and community health development.

Griffith, Jennifer. DrPH Associate Dean for Academic Affairs/ Instructional Professor

Hatala, Jeffrey. Ph.D Program Director/ Instructional Associate Professor
Public health systems and service research; Rural health, health policy, and vulnerable populations; Nutrition, physical activity, obesity and related conditions; Educational pedagogy in health professions.

Kash, Bita MBA, Ph.D Professor
Organizational capacity for change and transformation; Change implementation in healthcare; Healthcare strategic planning and marketing; Quality and Cost of Care.

Kum, Hye-Chung, Ph.D Professor
Data science for health care; population and health informatics; analysis of big data; decision support systems for health policy and management. Machine Learning.
Lin, Sherry Ph.D Instructional Assistant Professor Preventive Care Services; Disabilities Research; Vulnerable Populations.

Ohsfeldt, Robert Ph.D Regents Professor Cost-Effectiveness and Cost Models; Economics of Health Behavior; Impact of Health Sector Regulation.

Quiram, Barbara Ph.D Professor Public Health Infrastructure; Health System Service Quality; Public Health Workforce Development; Rural Community Health System Planning and Development; Rural Community Disaster Planning.

Radcliff, Tiffany Ph.D Associate Dean for Research / Professor Health Economics; Health Policy; Health Services Research; Improving Quality of Care in Long-term Care; Access to Care for Rural and Other Underserved Populations; Improving Care, Processes and Outcomes; Disaster Preparedness and Response; Veterans Healthcare; Economic Evaluation.

Schmit, Cason J.D. Assistant Professor Law as a Social Determinant of Health; Health Information Technology; Health Information Exchanges; Privacy, Confidentiality, and Security of Health Information; Public Health Reporting and Surveillance; Pharmacists’ Vaccination Authorities.

Ukert, Benjamin Ph.D. Assistant Professor Affordable Care Act, Commercial Health Insurance, Health Care Organization, Health Care Delivery, Health Behaviors, Health Policy.

Tomaszewski, Lesley Ph.D Instructional Associate Professor Social Learning and Identity Formation; Gender in the Workplace; Andragogy and Curriculum Development.

Washburn, David Sc.D Assistant Professor Global Health; Health Policy; Health Systems Analysis; Strategic and Capital Planning; The Diffusion of Innovations; Decision-Making Behavior; Access to Care.
We are committed to help move the department and institutional dialogue beyond that of managing diversity as a problem. The multiple aspects of an individual’s identity enhance the work and educational environment.

Individual differences including race, sexual orientation, class, and gender, in addition to other qualities, do not exist in isolation, and each person has multiple aspects of their identity. We believe individuals are an integrative part of a healthy workplace climate.

All people, working together, are key aspects of cultural competency, diversity and inclusion that our office strives to uphold for the School of Public Health and Texas A&M University.

The Texas A&M University is a Council on Education for Public Health (CEPH) accredited institution.

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