FACILITIES & OTHER RESOURCES – UNIVERSITY OF MARYLAND, BALTIMORE

DEPARTMENT OF EPIDEMIOLOGY & PUBLIC HEALTH (EPH)

Faculty
Under the chairmanship of Andreea Creanga, the EPH consists of 57 primary faculty, and more than 100 secondary, and adjunct faculty--comprising a multidisciplinary environment of epidemiologists, clinicians, health economists, behavioral scientists, and occupational physicians. The faculty pursue interests in biostatistics and bioinformatics, cancer epidemiology, gerontology, health-care service delivery and outcomes research, toxicology, preventive medicine, maternal and child health, women's health, problem gambling, health disparities, population health, infectious diseases, and other subdisciplines.

Funded Research
The Department of Epidemiology and Public Health (EPH) was awarded over $34 million in extramural funds in FY25. This translates to $602K per faculty member. In NIH funding, the 2025 Blue Ridge Report ranked EPH #3 among like departments in public schools of medicine and ranked it #7 among like departments in schools of medicine nationwide. Departmental faculty work closely with other units inside and outside the School of Medicine including the Center for Vaccine Development, the Division of Infectious Diseases, the Department of Obstetrics & Gynecology, the Division of Human Genetics, the University of Maryland Cancer Center, and the Departments of Medicine, Neurology, Surgery, and Rehabilitation Medicine. The Baltimore Veterans Administration Medical Center, the Maryland Department of Health & Mental Hygiene, the Baltimore City Health Department, the Maryland Office on Aging, serve as both placements for the EPH residency program and collaborators on EPH research projects.

The Division of Biostatistics and Bioinformatics
Biomedical research is increasingly a team science, requiring the expertise and skills of collaborators from a variety of disciplines and backgrounds. Members of the Division of Biostatistics and Bioinformatics bring to the team a strong foundation in statistics, mathematics, and computational methods, augmented by domain-specific knowledge of the bio-medical sciences as well as familiarity with biomedical concepts and terminology of preclinical and clinical research. The division serves as a resource to the University community by participating as collaborators in preclinical, translational, clinical, and population research, generally contributing biostatistical or methodologic expertise to the projects; teaching biostatistics and epidemiologic methods to medical students, graduate students and researchers on campus; providing short-term statistical consultations; actively participating in the "Statistical Interest Group", a campus-wide group which organizes seminars and consolidates resources of use to statisticians. Faculty interests include longitudinal data analysis, random effects models, clinical trial designs, categorical data analysis with misclassification or incomplete classification, evaluation of biomarkers, proxy reliability and validity, statistical methods in epidemiology, meta-analysis, infectious disease models, mixture models, survival analysis, recurrent count data, and segmented polynomial models. Additionally, faculty provide statistical bioinformatics expertise including artificial intelligence/machine learning, and data mining methods in the analysis of high dimensionality “big data”, as well as systems biology, gene regulatory network inference, biomarker discovery, personalized medicine.

The Division of Cancer Epidemiology
The Division of Cancer Epidemiology brings together faculty who conduct cancer population science research to identify environmental, lifestyle and genetic determinants of cancer risk and outcomes, and to elucidate mechanisms underlying these associations. Faculty conduct research on a wide array of environmental and lifestyle exposures including viruses, pesticides, hormones, diet, and physical activity; inflammatory, metabolic, and endocrine responses; and germline and somatic genetic and epigenetic changes associated with cancer risk. Faculty also focus on discovery of predictive and prognostic biomarkers, cancer implementation science, data science cancer research, big data using EHR and other databases. The Division works closely with the Population Science Program of the University of Maryland Marlene and Stewart Greenebaum Comprehensive Cancer Center which fosters collaborations across the University of Maryland Baltimore as well as faculty from other universities in the University System of Maryland, including University of Maryland College Park. The Division of Cancer Epidemiology also conducts research internationally in Africa and South America to understand the basis for global differences in cancer risk and outcomes to identify remedies.

The Division of Genomic Epidemiology and Clinical Outcomes

The Division brings together faculty with expertise in outcomes research as it applies to the health care system. Members have expertise in clinical and health care epidemiology, quality improvement research, technology assessment, clinical decision-making, and healthcare policy and administration. The research interests of the group are diverse and include the study of infectious diseases, antibiotic-resistant organisms, healthcare-associated infections, traumatic brain injury in the geriatric population, vaginal microbiome, genetics, genetic ontology, health informatics, economics, mathematical modeling, generative AI, and statistics.

Division members teach medical and graduate student courses and mentor pre-doctoral students and post-doctoral fellows. Division members are currently funded by grants from the Veterans Administration (VA), National Institutes of Health (NIH), Centers for Disease Control and Prevention (CDC) and Agency for Healthcare Research and Quality (AHRQ). We provide opportunities for trainees to conduct mentored research and receive advanced training in clinical research skills.

Division of Gerontology

The Division of Gerontology is an academic unit involved in research, teaching, and service in the areas of health and related topics relevant to older persons. The Division of Gerontology is a unique interdisciplinary academic environment and hosts research projects that span topics such as hip fracture recovery, improving osteoporosis treatment, cognitive functioning, Parkinson's Disease, HIV and aging, chronic care and disease management, trauma and emergency care, knee osteoarthritis, gero-science informed omics, and global aging. Additionally, the Division has foundations in community-based participatory research, innovative applications of biostatistical methodology to real-world epidemiological problems, clinical trials design, implementation science, mixed methods, intervention development, and methods for studying older persons. Collaboration with other faculty in the department, across the School of Medicine and UM Campuses, and the VA Maryland Health Care System is encouraged. The Division comprises a core group of 11 doctoral-level faculty specializing in issues on aging. Staff include program coordinators and data analysts, administration, and technical/field staff members. Within the Division, there is ample opportunity to teach, train, and mentor the next generation of scientists (pre- and post-doctoral) across the fields of epidemiology, gerontology, and health care policy; medical students; and students in other professional schools. The Division is home to a National Institute on Aging Training Grant in the Epidemiology of Aging, the UMB Center for Research on Aging, and Doctoral Program in Gerontology.

Division of Maternal and Child Health

The Division of Maternal and Child Health (MCH) at the University of Maryland School of Medicine is dedicated to improving the health and well being of women, infants, children, and families through research, public health practice, and interdisciplinary collaboration.

The division brings together multi-disciplinary researchers with expertise in epidemiology, demography, program evaluation, implementation science, and mixed-methods research. Using data science and large datasets, our research focuses on maternal and perinatal morbidity and mortality. Faculty also work with clinical and community providers to develop and test quality improvement interventions to support maternal, newborn, and child health outcomes and care experiences.

Division head, Andreea Creanga, MD, PhD is an internationally recognized leader in maternal and child health. Division members have been funded through grants from the Health Resources & Services Administration (HRSA), National Institutes of Health (NIH), and the Gates Foundation.

The Division of Preventive Medicine

The Division of Preventive Medicine focuses on prevention of disease and promotion of well-being of children and adults, in Maryland, the United States, and around the world. Faculty members are involved in training physicians in preventive medicine and public health, teaching epidemiology and prevention to MPH, medical and graduate students, leading academic training programs, community engaged research and practice, and conducting research on risk factors and prevention of acute and chronic diseases and injury at home, in the workplace, and in the community.

The Division of Translational Toxicology

The Division of Translational Toxicology is an academic unit that conducts research on the environmental and human health effects of chemicals, serves as a resource for chemical risk assessment issues, and provides graduate level training through the Graduate Program in Life Sciences. Faculty members have expertise in cellular mechanisms of receptor binding and function of neurotoxic agents, animal models of ageing-associated changes (meno-and andropause and the treatment of symptoms associated with them), animal models of neurodegenerative diseases and their treatments. In addition, faculty have experience with GLP-compliant studies that support development of drugs to treat ailments induced by toxicants.

Clinical and Translational Research Informatics Center (CTRIC)
The Clinical and Translational Research Informatics Center (CTRIC) offers a variety of services to help researchers gather high quality data and translate findings into meaningful outcomes. CTRIC provides assistance with research design, power and sample size calculations, form design, data collection, data capture and storage, data management, data analysis, data visualization, and scientific writing. Data can be captured using a variety of methods, including, web-based data entry, electronic scanning of paper forms, manual keying of data and extraction of data from existing data sources. Data are stored in a secure, relational database repository and appropriate audit trails for all changes are maintained. CTRIC adheres to robust research practices to provide maximum protection of the confidentiality, security, and backup of data collected. CTRIC is also home to an Evaluation Program which conducts mixed-methods evaluations for a variety of state-funded programs and academic programs.

Dr. Jessica P. Brown, CTRIC Director, maintains scanners, a label printer, and licenses for SAS and Stata statistical analysis software, and provides WHO Drug and MedDRA coding. Dr. Brown's staff includes one Business Operations Manager, two Epidemiologists (PhD level), one Biostatistician (PhD level), three Clinical Research Specialists, and one Business Service Specialist.

Offices
The offices of EPH investigators are located on the first, second, and fourth floors of the UMB School of Medicine in Howard Hall and on the second, third and ninth floor of the Medical School Teaching Facility (MSTF) building. Offices are fully equipped with a PC's networked to a color, multifunction printers that serve as copiers and scanners.

Laboratory
The EPH has approximately 12,300 square feet of laboratory space on the 9th floor of the MSTF building and 800 sq ft of wet laboratory space in Howard Hall. This space consists of laboratories equipped for research utilizing whole animals, cell culture, and human samples.

Computer

Information Services (IS) provides a modern networked environment that is fast, secure, and flexible. IS supports approximately 9000 computers in over 25 physical locations. A firewall controls traffic entering the school; a Virtual Private Network (VPN) further isolates network traffic that contains Protected Health Information (PHI). We maintain secure wireless networks. Our network staff maintain more than 200 physical and virtual file servers and back up more than 700 terabytes of data weekly. Desktop technicians maintain our helpdesk, resolving calls over the phone and dispatching technicians when necessary. We respond to requests for assistance with such hardware as servers, switches, desktop computers, laptops, printers, scanners, PDAs,

The software development team supports the data warehouse and databases, develops web enabled customized applications, supports applications licensed by the school, and maintains the SOM web site. Staff members are the custodians of data that need to interface with SOM applications and are responsible for the transmission of various data to numerous locations across campus. Staff members have expertise in Oracle, SQL Server, and Access databases as well as Java and ASP.NET. A web content management system is in place that allows SOM customers to keep their own web sites up to date.