**Facilities and Other Resources**

**Department of Epidemiology, Graduate School of Public Health, University of Pittsburgh** [www.publichealth.pitt.edu/epidemiology](http://www.publichealth.pitt.edu/epidemiology)

The Department of Epidemiology, the largest department at the University of Pittsburgh’s Graduate School of Public Health (GSPH), offers interdisciplinary research opportunities in the City Of Pittsburgh, which is recognized as an international hub for health care innovation and practice. GSPH is one of the nation’s leading schools of public health, consistently ranking in the top tier among schools of public health in terms of NIH funding. The Department of Epidemiology accounts for about forty percent of the school’s total grant funding.

The Department of Epidemiology has a central theme "Teaching and Prevention through Quality Research", and is involved in both research and prevention activities. The Department has 48 primary faculty members, with a varied range of research interests and more than 90 funded projects. Each year, more than 500 manuscripts are published. Participation of faculty, staff and students in regular departmental seminars provides a rich collaborative environment.

Based on faculty research, the department offers many areas of emphasis including aging, applied public health, cancer, cardiovascular and diabetes, clinical trials and methods, environmental, global health, infectious disease, injury prevention, molecular and genetics, neuroepidemiology, obesity and nutritional, prevention, lifestyle and physical activity, psychiatric, reproductive, perinatal and pediatric and women's health epidemiology.

Research programs include those with global reach in over a dozen nations. These programs include maternal and child health (rural India); functional disability in aging (rural India); diabetes (Rwanda), hypertension, cardiovascular disease (rural India, Tobago); impaired kidney function (Tobago); infectious disease/HIV (Brazil, India, and Mozambique); bone health (Tobago); prostate cancer (Tobago, Nigeria); cancer (China); environmental health (China); application of the Internet and Mobile technology for global health and prevention; Infectious diseases/dengue modeling (Thailand, Cambodia, Laos, Vietnam, Philippines, Singapore, Malaysia, Taiwan, Brazil, Columbia); atherosclerosis, coronary heart disease, Alzheimer’s disease, chronic obstructive pulmonary disease (Japan).

The Department of Epidemiology is also home to four centers and four laboratories:

**Centers:**

**1) The** [**Epidemiology Data Center**](http://www.edc.pitt.edu/) (EDC), which was established in 1980 as a section of the Department of Epidemiology in the Graduate School of Public Health (GSPH), provides a research environment in which complex health questions are explored and answered using the combined tools of biology and statistics. The EDC has collaborated in over 100 research studies sponsored by the National Institutes of Health and others. Presently, the EDC coordinates data management and analysis activities for over 20 research projects sponsored by federal agencies or industry. Staffing at the EDC includes 10 faculty, over 60 staff and more than ten graduate students.

The current studies represent a variety of scientific designs including clinical trials, registries, and case-control studies. The successful coordination of our research requires that the EDC facilitate national and global communication among a number of institutions worldwide and collaborate with researchers in the health sciences and elsewhere at the University of Pittsburgh and at universities and medical centers across the United States and throughout the world. To contribute to new knowledge, the EDC develops and refines data collection, data management, computing and statistical methods, with the ultimate goal of advancing treatment and preventing disease.

Researchers at the EDC have decades of experience designing clinical research studies, obtaining resources, preparing protocols, and performing all functions required to implement single- and multi-center clinical research projects across a spectrum of application areas. Design components such as defining measures, clearly specifying interventions in the case of a clinical trial, data capture, rigorous quality control processes, appropriate follow-up schedules, and patient eligibility criteria are addressed by collaboration among clinical, data management and statistical investigators. Innovative designs have been incorporated to evaluate treatments for resistant depression, traumatic brain injury, bariatric surgery and gun crime.

Examples of current studies are the Data Coordinating Center for the Hepatitis B Research Network (HBRN), a multi-national network comprised of 28 clinical centers and central laboratory and pathology resources that includes registries of participants with chronic hepatitis B, multiple treatment trials and several ancillary studies. How women present differently through menopause is being investigated by the Study of Women’s Health Across the Nation (SWAN), a multi-center longitudinal study following women through menopause and subsequent aging. A multi-center randomized clinical trial designed to evaluate the efficacy of high-dose vitamin D supplementation in children with asthma is also underway.

The success of the EDC is reflected by funding from multiple sources. The EDC has received grants and contracts from most of the National Institutes of Health, including NHLBI, NIDDK, NINDS, NIMH, NEI, NIAMS, NIA, and NCCAM. The EDC also collaborates on industry- sponsored trials and registries and has received Commonwealth of Pennsylvania and internal University of Pittsburgh funding as well.

**2) The** [**Center for Aging and Population Health**](http://www.caph.pitt.edu/) (CAPH) was established in the Department of Epidemiology in 2006 with a central focus for promoting healthy aging, longevity and prevention of age-related disabilities. The Center incorporates the activities of the Prevention Research Center, the Health Studies Research Center and the Epidemiology of Aging Training program. The program in aging includes many large studies with a high level of long term federal funding. The CAPH has positioned the University of Pittsburgh as a candidate for continued research support from the NIH and CDC, and other federal, philanthropic and corporate sources for its long term research priorities. The CAPH provides resources for the analysis, presentation and publication of findings from current research and maintains several large data sets from multicenter studies.

The Health Studies Research Center (HSRC) and the Monessen Health Studies Officeare amongthe largest and well established field centers for conducting epidemiologic studies and clinical trials. Current studies include the Cardiovascular Health Study (CHS), the Women’s Health Initiative (WHI), Aspirin Reducing Events in the Elderly (ASPREE), Enabling Reduction of Low-Grade Inflammation in Seniors pilot (ENRGISE), the Study of Osteoporotic Fractures (SOF) and Osteoporotic Fractures in Men Study (MrOs) and Long Life Family Study (LLFS). The centers serve as the field laboratory for trainees in the aging program and the Epidemiology of Aging courses. Many of the studies have been ongoing for almost thirty years (SOF, CHS) and involve 10,000 subjects. The University of Pittsburgh Department of Epidemiology has extensive experience in recruiting and retaining diverse populations for cohort studies and clinical trials. The Department of Epidemiology staff provides community relations development, study promotion and advertising, development of screening and recruitment materials, population mailing lists and sampling, mass mailings, and telephone eligibility screening. Department staff have successfully implemented the recruitment for all the major national and international studies carried out in the HSRC.

* Monessen Health Studies Office

The Monessen Health Studies office is housed in space rented at Eastgate #15, Monessen, PA. This is approximately 30 miles south of the University. It includes space for the recruitment and clinic activities. Total clinic/office space is approximately 4,000 square feet and includes designated space for DXA (Hologic 4500), high resolution peripheral quantitative computed tomography (HRpQCT), laboratory (centrifuge, freezer, refrigerator), kitchen, waiting room, restrooms, examination rooms, and freezer/storage, personnel and data offices. We are equipped with a force plate to measure dynamic power and have blocked off courses for our 400 meter walk and performance of the Short Physical Performance Battery (SPPB). The clinic staff includes ISCD certified DXA operators, and certified research specialists. Clinic staff are skilled at performing interviews with frail older adults, in home sleep studies, detailed cognitive and physical function testing. The research staff has many years of experience. The Mon Valley Clinic Staff has been involved with many large studies of older adults including the Study of Osteoporotic Fractures and Osteoporotic Fractures in Older Men and many randomized clinical trials.

* Health Studies Research Center

The Health Studies Research Center (HSRC) of the Center for Aging and Population Health includes the staff and space (15,000 square feet) designed for the conduct of population research in aging, including interview rooms and a large clinical laboratory for evaluation of health and performance. Located at 130 N. Bellefield Avenue, the 4th floor includes 13,025 square feet of examination rooms for clinical examination and testing, and telephone interviews. Equipment and space are available to conduct clinical research assessments for all studies including home visits, follow up calls, and data entry. Equipment includes 3 anthropometry stations (stadiometers and balance beam scales), stopwatches and marked corridors for 6, 20 and 400 meter walks, GaitMat, 2 video cameras for gait assessment, a force plate for balance assessment, 4 Polar Pacer heart monitors, 25 ActiGraph GT3x accelerometers, 15 Mini-meter sleep actigraphy watches, 10 blood pressure sphygmomanometers, 2 dual energy x-ray absorptiometry (DEXA) scanners (Hologic 4500 a), a pQCT scanner to measure bone quality, 2 NeuroMax 1002 Electromyograph (EMG), electrocardiography (ECG) machine, stationary (Deltatrac, Parvomedics TrueOne 2400) and portable (CosMed) metabolic carts, spirometry (desktop and portable) and isometric (Good Strength Chair), isokinetic (KinCom) and isotonic (Jaymar grip strength), and pneumonic (Keiser leg press) strength testing devices. A large locked and alarmed file room on the 3rd floor provides for confidential storage of participant records. A dark fiber optic line provides access to several local and national wide area networks, including access to the Epidemiology Data Center server. A conference room is also available with a fully equipped demonstration kitchen for participant information sessions, and also for use by staff and investigators. The HSRC laboratory is also located on the fourth floor and is a fully equipped lab which provides for phlebotomy and the processing and storage of serum, plasma, cells and DNA, as well as urine samples. The laboratory is equipped with two benchtop IEC GP8R refrigerated centrifuges and three freezers (-70, -40 and -20). The lab is set up to perform lipid panels and glucose using Cholestech analyzer, blood gas using Radiometer unit and sedimentation rate.

**3) The** [**Diabetes Prevention Support Center**](http://www.diabetesprevention.pitt.edu)(DPSC) of the University of Pittsburgh was established in 2006 with the goal of preventing diabetes and improving cardiovascular health. The DPSC is one of the first in the country specifically developed to address the diabetes/obesity epidemic through evidence–based prevention intervention programs focusing on weight loss and increasing physical activity levels. At the core of the Center is a group-based, behavioral lifestyle intervention called the Group Lifestyle Balance™ (GLB) program, which is modeled closely on the original Diabetes Prevention Program (DPP) lifestyle intervention shown to significantly reduce risk for the development of type 2 diabetes.

The DPSC has played a key role in the implementation of multiple diabetes prevention translation studies conducted in the community setting including the GLB Healthy Lifestyle Translation and recently funded Physical Activity & Sedentary in Diabetes Prevention Efforts studies.  In translation, the DPP GLB program has been shown to be highly effective in improving risk factors for diabetes and CVD in multiple diverse community settings such as community/senior centers, the worksite, primary care practice, churches and the military.

**4) The Physical Activity Resource Center for Public Health (PARC-PH)** in 1997, the Physical Activity Epidemiology group at the University of Pittsburgh developed a Medicine and Science in Sports and Exercise (MSSE) supplement containing a collection of the physical activity questionnaires used in population research at that time (Introduction to the collection of physical activity questionnaires in A collection of Physical Actitivy Questionnaires for Health-Related Research1). This effort was one of the most sought after journal volumes that MSSE had ever published.

Since the original publication of the MSSE supplement, the demand for current physical activity assessment and intervention information has increased due to overwhelming growth in the area of physical activity and lifestyle intervention efforts. Thus, the birth of the Physical Activity Resource Center for Public Health (PARC-PH).

The PARC-PH was developed in order to satisfy the need for a comprehensive center that can provide up-to-date physical activity and, more recently physical function, assessment and intervention information as well as guidance to interested researchers and community members.

**Laboratories:**

**1) The** **Heinz Chemistry and Nutrition Laboratory** in the Department of Epidemiology at the Graduate School of Public Health, University of Pittsburgh was established in the late 1970’s. Initially, the laboratory focused on lipid analysis that supported studies of cardiovascular disease (CVD). Subsequently, the analytical capability of the laboratory expanded to include analyses of adipokines, antioxidants, cytokines, hormones, isoflavones, long-chain fatty acids and vitamins. The techniques employed include capillary gas-chromatography, enzyme-linked immunosorbent assays, high-pressure liquid-chromatography, mass-spectrometry, radioimmunoassay and turbidimetric methods. The conditions investigated include CVD, diabetes, HIV infection, obesity, osteoporosis and pregnancy disturbances. Collaborations involve not only several groups at the University of Pittsburgh but also at other institutions in the United States and abroad (Bolivia, Canada, Japan, Nigeria, Trinidad and Tobago).The lab is CLIA certified and participates in proficiency testing organized by the CDC and the American Proficiency Institute.

The laboratory occupies approximately 1,000 square feet in the Department of Epidemiology at the University of Pittsburgh's Graduate School of Public Health Annex and is equipped with two Sterilgard Biological Safety cabinets; a Biorad model 550 microplate reader, a Bio-Tek Synergy 2 absorbance, fluorescence, luminesence microplate reader, a Bio-Tek ELx405 microplate washer, an Elan Atac 8000 Automatic Analyzer; an Olympus AU400 Chemistry Analyzer; a Perkin Elmer Enspire multi-label reader, a Perkin Elmer Clarus 500 gas chromatograph with an FID detector and an auto sampler; a DSQ II GC-MS single quadrapole system, with a TRACE ULTRA GC and a TriPlus liquid auto sampler; a Waters HPLC System, (two 515 pumps, a 717plus automatic injector, a 2996 Photodiode array detectorand a 490 Programmable detector); a Packard Cobra II Gamma Counter; a LS-S fluorescence spectrophotometer; a Carey 50 UV/Visible spectrophotometer; 2 Centra GP8R refrigerated centrifuges; an Optima TLX ultracentrifuge; three -20ºC freezers; twenty -70ºC freezers; a Mettler H542 analytical balance; an APX-100 analytical balance; and a Thermo Fisher Savant vacuum concentrator.

Students may pursue individual projects in the laboratory. In addition, a laboratory course is offered and students may select analyses involving ELISA, GC-FID, GC-MS, HPLC and RIA.

**2) The** **Molecular Epidemiology Laboratory** is located in Bay 8 on the third floor of the GSPH Pavillion. The laboratory provides unique opportunities for graduate students and post-doctoral fellows to conduct molecular epidemiologic research. Trainees have gained laboratory and analytical experience in molecular epidemiology including: DNA extraction and quantification, DNA sequence analysis for mutation discovery, polymerase chain reaction, gel electrophoresis, genotyping assays using a variety of techniques, and statistical analysis of genetic data. Projects have sought to understand the genetic contributions to osteoporosis, obesity, type 2 diabetes, cardiovascular disease, renal disease, hypertension, [nonalcoholic steatohepatitis](http://digestive.niddk.nih.gov/ddiseases/pubs/nash/), pre-term birth and preeclampsia.

The laboratory is fully equipped for conducting biochemical and molecular epidemiologic research including refrigerators, centrifuges, balances, incubators, water baths, spectrophotometer and small equipment items. The lab is equipped for DNA electrophoresis in agarose and polyacrylamide gels in a variety of analytical and preparative formats. Genotyping by Quant Studio is a standard protocol in the laboratory. Major equipment includes: Revco Ultra-Low Temperature Freezer (6); BioTek  Synergy™ H1 multi-mode microplate reader; BioTek ELx50 Microplate Washer; BioTek Epoch Microplate Spectrophotometer; NanoDrop ND-1000 spectrophotometer; ThermoFisher -20's (2); Eppendorf tabletop centrifuges (2); ABI Quant Studio 12K Flex System (Applied biosystem); 4 x dual 384-well (ABI 9700) and 4x single 96-well (Eppendorf Mastercycler) PCR machines; Hamilton Microlab Star liquid handling robotics station.

**3) The Laboratory of Environmental Health, Reproduction, and Development:**The Laboratory was launched in May 2014 and is located in the newly built Parran Annex in the Graduate School of Public Health. The Lab is staffed by a full-time laboratory technician.  The laboratory space consists of one large bay with two 6-foot benches, a desk, a sink, 2 procedures rooms, and a cold room.  It is an open lay-out which we share with 2 other Epidemiology groups and the Department of Human Genetics.  Established protocols include 1) quantitative western blotting using the Bio-Rad Electrophoresis and Blotting system and the Li-Cor Odyssey CLx Infrared Imaging System ; 2) quantitative PCR using the Life Technologies Quant Studio; 3) High-throughput tissue homogenization using the Qiagen Tissue Lyser II;  4) protein quantification using the Millipore Direct Detect infrared (IR)-based biomolecular quantitation system; and 5) ELISA using the Biotek and Bio-Rad plate readers (owned by Heinz Nutrition Lab).  We have the following equipment for cell culture: EVOS fluorescence microscope, Leica M125 Stereomicroscope, Thermo HERA dual stack incubators with oxygen control, two Thermo Class II Biosafety cabinets, CryoPlus LN2 freezer with 200L capacity, Eppendorf large capacity centrifuge for cell culture and primary cell isolation, and VWR bead bath. In addition, we have a -80C Freezer, a -20C Freezer, a 4C refrigerator, a benchtop Eppendorf centrifuge.  We have stocked our lab with essential reagents and consumables for all of these assays.  We started culturing trophoblast progenitor cells, donated by the Fisher Laboratory at UCSF, and first trimester placental villi explants. We are using both of these models to test the effects of exposures to environmental chemicals.

**Department of Epidemiology Ultrasound Research Laboratory (URL):** The primary goal of the Department of Epidemiology Ultrasound Research Laboratory (URL) is to provide a high volume of quality non-invasive subclinical vascular testing to advance cardiovascular research. Directed by Dr. Emma Barinas-Mitchell the URL team brings experience in vascular research and testing in excess of >50 person-years. The lab has three full-time highly qualified vascular technologists who perform non-invasive vascular testing and post-imaging analysis, one full time research lab manager, and one part-time data manager who provides addition support with data management, analysis and quality control. The technologists are trained and certified in all testing procedures provided by the laboratory. The Epidemiology Data Center (EDC) provides software and hardware computer support. The URL is located at 130 N. Bellefield Avenue, near the University of Pittsburgh Medical Center (UPMC) main campus and consists of 2000 sq. ft. including three exam rooms, a conference room, kitchen, waiting and receptionist area and a main tech reading room.

Available equipment includes 6 ultrasound systems: 2 Antares (Acuson-Siemens), 1 Toshiba (Toshiba American Medical Systems, Tustin, CA), 3 portable Terason T3000s and 1 Cypress (Acuson- Siemens). Other equipment includes 2 Brachial Analysis Systems, 1 traditional pulse waveform collection system, 2 Colin VP2000 PWV systems (OMRON), 2 Complior PWV systems (ALAM MEDICAL), 1 SphygomoCor XCEL EM4C, 1 Ansar Autonomic Nervous System Physiology machine (ANSAR Group, Inc.), 2 Dynapulse blood pressure machines (Pulse Metric, Inc.) and 6 reading stations.

The laboratory offers research protocols for carotid ultrasound (IMT and plaque assessment), flow-mediated brachial artery reactivity, three different measures of vascular stiffness, and ankle/arm blood pressures. The lab currently supports 7 onsite and 3 offsite ongoing studies funded by the NIH, NHLBI, the American Heart Association, the American Diabetes Association as well as other funding sources. In 2015, our total test volume was 806 local participants and >2000 total post-imaging readings. The URL is currently the central reading/QC center for 3 multi-centered studies, SWAN (U01 AG012553-16), Long Life Family Study (U01 AG023744-09), and HuCardio (R01 HL122648-01A1) and various local and offsite single centered studies.

**Animal: N/A**

**Computer:**

The University of Pittsburgh provides comprehensive infrastructure and a technology framework for academic and research endeavors within the Department:

Network & Web:

The University of Pittsburgh's robust network and Web services support learning, teaching, research, collaboration, and business operations. PittNet is a high-speed, multi-service network that provides access to University computing resources and the Internet. Our secure and easy-to-use Wireless PittNet service is available campus wide, and Guest Wireless provides access to visitors on official University business.

Enterprise Web Services:

The University's centralized approach for Web hosting ensures high availability and security of all official University Web sites. Known as the Enterprise Web Infrastructure (EWI), this infrastructure provides robust server hosting to departments, business units, individual faculty, research labs, and other University-affiliated groups. The Enterprise Web Infrastructure is located in Computing Services and System Development’s [Network Operations Center](http://technology.pitt.edu/network-web/noc.html), which manages the service 24 hours a day and provides exceptional bandwidth, redundancy, and security.

Network Access Charges:

The Epidemiology Data Center's (EDC) Local Area Network (LAN) is operated as a shared resource, which is supported by all projects that access its services.  This arrangement yields a fair and cost-effective means of providing secure, high-speed network access to both local and Internet resources that are required for our collective research.  Resources available include file sharing, laser and color printing, backup, security and firewall services via an array of servers, which leverage the computing power on individual workstations.  Complete hardware and software support is also provided for each workstation and its peripherals on the LAN.

**Office:**

Housed in Parran and Crabtree Halls, the building encompasses an entire city block and contains two auditoriums, a lounge, administrative offices, seminar rooms, classrooms, and faculty offices. A new state of the art Laboratory Pavilion is attached. Parran and Crabtree Halls are connected academic buildings on the campus of the University of Pittsburgh where the GSPH is home to seven academic departments including Behavioral and Community Health, Biostatistics, Environmental and Occupational Safety, Health Policy and Management, Human Genetics, Infectious Disease Microbiology and Epidemiology. The adjacency of faculty and staff office space facilitates study operations by encouraging ease and frequency of communications and prompt problem solving as well as direct contact with many knowledgeable faculty and staff. Offices with computers are convenient to shared copiers, fax machines and meeting rooms.

**Other:**

The **Health Sciences Library System (HSLS)** at the University of Pittsburgh offers a wide array of information services, educational opportunities, and resources in print and electronic format to faculty, students, and researchers in the schools of the health sciences (Medicine, Dental Medicine, Pharmacy, Nursing, Health and Rehabilitation Sciences, and Public Health).The libraries provide Internet access to a number of on-line databases, capable of reaching extensive additional literature sources. The Non-Print Media Department offers program materials and projection equipment that are available during library hours: videocassettes, slides, audiocassettes, motion pictures, filmstrips, sound-on-slide, microfilm, microfiche, and microcomputer software are available. Computers are also available during library hours.