city communities to become active participants in the design and conduct of interventions to improve their health. Researchers are identifying ways to promote enhanced cardiopulmonary health—from policy to biology—and to eliminate cardiopulmonary health disparities.

University of California, Los Angeles: This center aims to reduce cardiovascular disease risk in East Los Angeles, a predominantly Latino and underserved area, using community-based participatory approaches. Studies include implementation of family and neighborhood environment interventions. Physiological data will be collected to examine risk for cardiovascular disease in individuals and across generations. The interventions aim to influence several dimensions that affect health outcomes—personal and family factors, systems factors, and environmental factors.

University of Illinois at Chicago: This center is defining how apparent disparities in early detection, diagnosis, and treatment of breast cancer can be addressed in safety-net hospitals—which treat a substantial share of uninsured, Medicaid, and other vulnerable patients regardless of their ability to pay—through the use of lay patient navigators. The center is investigating how community health clinics can more effectively identify and monitor patients at risk for aggressive breast cancer and how patients at elevated risk can be engaged to participate in a tailored screening and monitoring program. Studies are also focused on how biological factors, specifically DNA methylation (a chemical reaction in which a small molecule, called a methyl group, is added to other molecules), promote aggressive breast cancer disproportionately among women of color.

University of North Carolina, Chapel Hill: This is a collaboration between UNC-Chapel Hill, East Carolina University, and a broad coalition of community partners. The research will be conducted in a rural, low income county (Lenoir), in the "stroke belt" of eastern North Carolina. The primary aim is to create long-term, sustainable approaches to reducing cardiovascular disease risk disparities. Three coordinated studies will follow a year of in-depth formative research. The first study will test a lifestyle intervention to improve nutrition, physical activity, and weight management, including policy and environmental change. The second will test a clinic-based enhanced care intervention for hypertension control. The third study will explore genetic factors associated with cardiovascular disease risk and treatment success. The center will also explore the multilevel determinants of poor health outcomes and the potential social and community capital that can support sustainable change.

University of Washington: The center is conducting five interwoven research projects on cancer in American Indian/Alaska Native (AI/AN) populations, examining genetic, environmental, biological, psychosocial, and cultural influences on cancer health disparities at multiple levels and across the lifespan. One project studies nicotine metabolism, while another investigates a preventive intervention for cervical cancer among Hopi women and girls. Other studies include an evaluation of an intervention using computerized multi-media storytelling that emulates Native traditions to increase colorectal cancer screening, as well as an intervention to reduce environmental tobacco smoke and a study of surgical treatment and outcomes among AI/ANs with lung, prostate, breast, or colorectal cancers.

http://obssr.od.nih.gov/cphhd
The Centers for Population Health and Health Disparities (CPHHD) program supports transdisciplinary, multi-level integrated research to elucidate the complex interactions of the social and physical environment, mediating behavioral factors, and biologic pathways that determine health and disease in populations—leading to an understanding and reduction of health disparities. By combining approaches from various disciplines (e.g., physical, biological, social, and behavioral sciences), the CPHHD program advances research on disparate health outcomes. Specifically, the program aims to develop interventions and identify practice and policy approaches to address such outcomes. Thus, the CPHHD program is increasing the rigor and impact of science that addresses the many factors associated with health disparities.

In CPHHD’s first funding period, 2003-2008, NIH established eight centers sponsored by the National Institute of Environmental Health Sciences, NCI, the National Institute on Aging, and the Office of Behavioral and Social Sciences Research (OBSSR). The CPHHD program was instrumental in catalyzing transdisciplinary research to improve the understanding of contextual, behavioral, and genetic factors in disease risk and outcomes (see [http://cancercontrol.cancer.gov/populationhealthcenters/cphhd/previously_funded.html](http://cancercontrol.cancer.gov/populationhealthcenters/cphhd/previously_funded.html) for more information).

In 2010, the National Cancer Institute (NCI), the National Heart, Lung and Blood Institute, and OBSSR at the National Institutes of Health (NIH) partnered to provide funds to continue the CPHHD program. This funding round is designed to better understand and address inequities associated with the two leading causes of death in the United States—cancer and cardiovascular disease. The centers form a network of research teams charged with understanding the complexity of health disparities, rather than single-factor relationships. In addition, each center is developing interventions to address health inequities and is training the next generation of transdisciplinary researchers in collaborative team science (see [http://obssr.od.nih.gov/cphhd](http://obssr.od.nih.gov/cphhd) for more information).

Current research areas:

**Fred Hutchinson Cancer Research Center:** Projects in this center are designed to better understand and prevent breast cancer in Latinas. The projects focus on increasing breast cancer screening among age-eligible Latinas, in particular, understanding the processes by which ancestry, Body Mass Index (BMI), inflammation, and breast cancer are related in Latinas. One of the projects is testing the metabolic response to Western and indigenous diets among Latinas. In addition, the center aims to understand aspects of the etiology of poor-prognosis breast cancers by identifying risk factors related to triple negative (TN) and human epidermal growth factor receptor-2 (HER-2)-overexpressing (H2E) tumors, which are more commonly found in Latinas than among non-Hispanic whites; understand the role of ancestry in breast cancer antecedents and incidence among Latinas; and explore expression of genes involved in tumor-related pathway signaling.

**Harvard School of Public Health:** The center’s goal is to better understand and alter the joint influence of race and socioeconomic status on disparities across the continuum of lung cancer. Studies include testing a novel tobacco control intervention that addresses the social contexts that initiate and sustain smoking behavior; bringing a social determinants perspective to the clinical factors and other individual-level factors that lead to social disparities in lung cancer survival and the genetic factors that could affect the onset, course, and outcomes of lung cancer; and understanding and influencing public policy and public opinion about health disparities through media.

**Johns Hopkins University:** This center’s focus is on reducing disparities in hypertension control between African Americans and whites in Baltimore. Studies include the testing of comprehensive, multi-level interventions that will speed the translation of evidence-based approaches to hypertension management into clinical and public health practice and create a model for subsequent cardiovascular disease interventions. Study 1 is a pragmatic clinical trial that examines the implementation of a multi-method quality-improvement intervention in six community-based primary care practices. Study 2 is a randomized controlled trial that tests the effectiveness and long-term sustainability of self-management and problem-solving training for patients, families, and community members. Study 3 is a three-arm randomized controlled trial of culturally tailored nutritional advice and a supplement containing potassium, magnesium, and vitamin C.

**Ohio State University:** The emphasis of the center is on cardiovascular risk in the Puerto Rican community. Projects include consideration of genetic variation in relation to changes over time in allostatic load (physiologic changes due to exposure to chronic stress) and biochemical indicators of risk. Using community-based participatory techniques that involve community stakeholders in all aspects of the research process, the center is implementing and testing a multidimensional intervention that focuses on diet and physical activity and fully considers the social and physical environment.

**Northeastern University:** The center is focusing on understanding why cervical cancer incidence and mortality rates in white women are higher in Appalachian Ohio and West Virginia than in the rest of the U.S. The research questions integrate issues of medical research (gynecological oncology and pathology, family medicine, molecular genetics), natural science (molecular biology, virology, statistics, biostatistics, immunology), social science (communication, psychology, sociology), and social work in addition to public health to implement interventions. The studies include several locations within Appalachia to address the issue of health disparities in this socioeconomically depressed region.

**Rush University Medical Center:** The objectives for the center are to develop and integrate rigorous clinical trial methodology into disparities-focused behavioral clinical trials; test innovative multi-level interventions across the lifespan from children to the elderly; and empower inner-