to better define heterogeneity involving other hallmarks of aging and to also explore associations between heterogeneity involving these biological measures with clinical manifestations or outcomes.

IMMUNOLOGICAL HETEROGENEITY
Laura Haynes, UConn Health, Farmington, Connecticut, United States

Ease of access to circulating peripheral blood cells (PBMCs) can offer unique insights into human immune function, as well as responses to vaccination and infection. Nevertheless, PBMC heterogeneity has been under-appreciated since results obtained from mixed populations may reflect changes in subset abundance as opposed to true age-related changes involving a specific subset. Technological advances have allowed for the examination of age-related heterogeneity with regards to systemic cytokine levels, immune cell frequencies and chemokine receptor expression by peripheral lymphocytes. Furthermore, introduction of sex as a variable in the examination of human PBMCs adds additional dimorphism to the study of aging and immunity including differences in epigenetic modifications, levels of pro-inflammatory activity and adaptive immunity.

BEHAVIORAL AND SOCIAL CONSIDERATIONS
Lisa Barry, UConn Center on Aging, Farmington, Connecticut, United States

Cognitive, behavioral and social dimensions also demonstrate increasing heterogeneity with aging. For example, a longitudinal study of over 1,000 clergy revealed increasing heterogeneity in cognitive function and rate of decline with aging. Moreover, studies of individuals with probable Alzheimer’s disease have shown heterogeneity in terms of clinical manifestations and rates of cognitive decline. Older adults also demonstrate greater heterogeneity in mood, anxiety, and the nature and patterns of symptoms over time. Heterogeneity of overall health status increases with aging, as does reported quality of life. Health and Retirement Study (HRS) data have shown that low socioeconomic status or being an underrepresented minority are both associated with greater intra-individual variability in health status in old age, with greatest differences seen in Hispanics. Finally, early life adversity can contribute to heterogeneity of multidimensional health trajectories even in late life.

CLINICAL CONSIDERATIONS
George Kuchel, University of Connecticut, Farmington, Connecticut, United States

Varied physiological functions demonstrate increased heterogeneity with aging. Variability in force exertion and motor performance is higher in old age, with increased step-to-step gait variability indicating greater risk of falls and cognitive decline. Even in healthy older adults, renal function may show no change, slight decline, or marked decline. In contrast, heart rate variability declines with age, with decreased complexity and a higher risk of cardiac events. The risk of death, disease and disability varies among individuals with increasing heterogeneity with aging. As a result, frailty has been conceptualized as both a phenotype and an accumulation deficit index, offering strong predictive validity when seeking to understand the heterogeneity of aging from the perspective of risk of mortality and physiologic dysregulation across different systems. Physical resilience defined as ability to maintain or restore function following exposure to stressors also demonstrates increased heterogeneity with aging.

POPULATION AND HEALTH POLICY CONSIDERATIONS
Julie Robison, University of Connecticut, Farmington, Connecticut, United States

The risk of death, disease, disability, hospitalization, institutionalization and high health care costs varies among individuals with increasing heterogeneity associated with aging. Frailty, physical performance measures, self-reported measures and multimorbidity all represent measures that are useful in helping to better define such heterogeneity at the level of populations and to ultimately define such risk in individuals. Those higher risk individuals account for a growing proportion of this nation’s health care costs, with continued increases over time that appear unsustainable in the long term. Therefore, efforts to better define the nature of such heterogeneity of risk and improved targeting, with the goals of improving outcomes and reducing costs, are essential. A closely related challenge is to effectively translate proven clinical and health system interventions from the world of research to that of health policy and real-world clinical practice via pragmatic trials.

SESSION 7710 (SYMPOSIUM)

REGARDS: A CASE STUDY IN AGING AND DISPARITIES RESEARCH, MENTORING, AND DATA SHARING
Chair: Virginia Howard
Co-Chair: Jennifer Manly
Discussant: Maria Glymour

Investigators in the NIH-funded REGARDS (REasons for Geographic and Racial Differences in Stroke) project have taken a novel approach to break the paradigm of epidemiologic studies limited to clinic-based convenience samples, by developing a national cohort of 30,239 black and white participants recruited from communities across all lower 48 US states, including 1,855 of the 3,033 counties. Mean age at enrollment (Jan 2003-Oct 2007) was 65.3 years. The four initial aims were to further understanding of: 1) geographic and racial differences in stroke risk factors; 2) geographic and racial differences in stroke incidence and mortality; 3) association of stroke risk factors and stroke risk (incidence and mortality) focusing on effect modification by race or region; and 4) establishment of a repository of serum, plasma, urine and DNA for use in future studies. When the grant was awarded, the study goals were broadened to include longitudinal remote assessment of cognitive function. A second in-home visit was completed May 2013-Dec 2016 including measures of functional status. The cohort is in its 17th year of follow-up. We will detail recruitment and enrollment methods, characteristics of the cohort and status, with brief overview of the biological, medical, psychosocial, environmental, and contextual data collected in the parent study. Speakers will discuss in more detail the stroke and...
cognitive data, ancillary studies focused on caregiver and heart disease outcomes, and provide examples of national and international mentoring that has leveraged REGARDS data. Finally, we will describe opportunities for additional data sharing and new ancillary studies.

DESIGN OF REGARDS: A NATIONAL COHORT OF BLACK AND WHITE ADULTS TO STUDY DISPARITIES IN STROKE AND COGNITIVE FUNCTION
Virginia Howard,1 Mary Cushman,2 Virginia Wadley,1 Jennifer Manly,1 Suzanne Judd,1 and George Howard,1 1. University of Alabama at Birmingham, Birmingham, Alabama, United States, 2. University of Vermont, Colchester, Vermont, United States, 3. Columbia University, New York, New York, United States

The REGARDS study enrolled 30,239 whites and blacks aged ≥45 from 2003 – 2007, with oversampling of blacks and residents of the Stroke Belt. Potential participants were mailed a letter/brochure followed by telephone call. After verbal consent, telephone interview assessed cardiovascular health and cognitive function. In a home visit, measurements of risk factors, biological samples, EKG, written consent were obtained; during the in-home visit, self-administered questionnaires were left to be completed and returned. Participants are followed for hospitalizations via telephone at 6-month intervals. Annually and biennially, brief and more comprehensive assessments of global cognitive function are conducted. Medical records for suspected strokes are collected with adjudication by stroke experts. A 2nd in-home and telephone assessment was conducted 2013-2016, approximately 10 years after baseline. This presentation will describe the methodological details of REGARDS, progress on the specific aims of the current grant, and establish the context for the remaining presentations.

REGARDS COGNITIVE ASSESSMENT AND APPROACHES TO DEFINING COGNITIVE IMPAIRMENT AND CHANGE IN COGNITIVE FUNCTION
Jennifer Manly,1 Frederick Unverzagt,2 Leslie McClure,3 Suzanne Judd,4 J David Rhodes,4 and George Howard,4 1. Columbia University, New York, New York, United States, 2. Indiana University School of Medicine, Indianapolis, Indiana, United States, 3. Drexel University, Philadelphia, Pennsylvania, United States, 4. University of Alabama at Birmingham, Birmingham, Alabama, United States

Since 2003, REGARDS participants have taken part in telephone-based cognitive assessments. Global cognitive status is assessed annually with the Six-item Screener. Between 2006 and 2009, measures of learning and memory (CERAD Word List) and language/ executive function (Animal and Letter Fluency) were implemented, and are administered biennially. A Brain Health Substudy, conducting in-home clinical examinations of neuropsychological, neurological, and functional status among 1000 participants, is underway to validate telephone assessments and estimate prevalence of VCID in REGARDS. Approaches to defining incident cognitive impairment and cognitive change, including definitions employed for case/cohort studies using stored blood samples, will be described. We will discuss psychometric and methodological considerations for characterization of risks for cognitive impairment across race and region, as well as longitudinal trajectories of cognitive function.

USING REGARDS TO STUDY FAMILY CAREGIVER WELL-BEING, HEALTH, AND MORTALITY
David Roth,1 and William Haley,2 1. Johns Hopkins University, Baltimore, Maryland, United States, 2. University of South Florida, Tampa, Florida, United States

The REGARDS study has provided a unique opportunity to study both disease-specific (stroke) and broader samples of family caregivers, and to examine the effect of transitions to caregiving over time. Using REGARDS has afforded many advantages over conventional caregiving research, including the availability of biomarker and mortality data, a large sample of non-caregiving controls who can be carefully matched to caregivers, and ability to track onset of caregiving over time. Our findings illustrate the complex nature of caregiving-related effects. While caregiving leads to worse psychological well-being, we have found minimal physical health decreases and reduced mortality rates compared to matched non-caregiving samples. These findings have policy implications and have challenged the conventional beliefs about caregiving based on previous studies of convenience samples. Diverse students and junior faculty members from multiple universities have also gained experience and contributed to high impact papers from this work.

ADDING HEART DISEASE OUTCOMES TO REGARDS: THE REGARDS MYOCARDIAL INFARCTION ANCILLARY STUDY
Raegan Durant,1 Emily Levitan,2 Paul Muntner,2 Todd Brown,2 and Monika M Safford,3 1. University of Alabama at Birmingham, BIRMINGHAM, Alabama, United States, 2. University of Alabama at Birmingham, Birmingham, Alabama, United States, 3. Weill Cornell Medical College, New York, New York, United States

The REGARDS-MI ancillary study provided new outcomes of heart disease events and adjudicated cause of death. A primary focus has been disparities in and risk factors for coronary artery disease. We demonstrated that compared to White men, Black men have a higher risk of fatal coronary heart disease (CHD) but a lower risk of non-fatal CHD. Ongoing work is investigating potential reasons for this. We have investigated the role of CHD in aging including the relationship between heart failure and cognitive function and the association of MI with functional status. The REGARDS-MI study has served as a platform for mentoring trainees and early stage investigators, many from underrepresented groups, and provided data to a large number of investigators to pursue research in CHD. To date, REGARDS-MI has contributed to nearly 200 publications and spawned additional ancillary studies. This presentation will highlight some of these publications and other research in progress.

OPPORTUNITIES FOR MORE AGING AND DISPARITIES RESEARCH, MENTORING, AND DATA SHARING WITH REGARDS
Suzanne Judd,1 Virginia Howard,1 Mary Cushman,2 Jennifer Manly,2 and George Howard,1 1. University of