the homeless individuals from HMSI using OpenEMPI software package, which is an open source implementation of an Enterprise Master Patient Index (EMPI). An entity model was generated based on the selective data elements from HMIS database, which were relevant for the patient identity management and healthcare service management. An automated script was implemented to extract data from HMIS and load it into OpenEMPI to build the MPI. Once the MPI is setup, the Emergency Department users were able to perform patient identity matching and confirm housing insecure or homeless status of their patients by querying the index using the web-based tool. We developed structured data elements to record homelessness information, which will allow us to measure the prevalence of this risk among patients. We are also exploring the possibility to integrate the systems the using the IHE PIX/PDQ profile, which provides ways for healthcare applications to query a patient information server for a patient based on user-defined search criteria, and retrieve a patient's information directly into the application. RESULTS/ANTICIPATED RESULTS: We implemented a MPI of homeless individuals, which would allow the emergency department users to perform patient identity matching of housing insecure or homeless patients, without undue privacy intrusions. We are confident that IHE PIX/PDQ profile is able to support the integration of healthcare and housing and homeless services systems and enable the data sharing in an efficient way. DISCUSSION/SIGNIFICANCE OF IMPACT: The project addressed the gap in the sharing of data about housing insecure or homeless persons between healthcare and housing and social services that will result in improvements in coordination of care, reduce the cycle time from recognition of risk to the referral to housing and services and improve health outcomes and residential stability. Successful completion of this integration project will give us a model that we can scale to many other communities.

## CLINICAL EPIDEMIOLOGY

**2027**

### Racial differences in leukemia prognosis: New epidemiologic analysis

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OBJECTIVES/SPECIFIC AIMS: Research on cancer difference is of significant scientific and practical value. For leukemia, the survival disadvantage of the Blacks has been suggested in multiple studies. However, the existing epidemiologic analysis has multiple technical limitations. The goal of this study is to more accurately quantify so as to better understand different sources of racial differences in leukemia survival. METHODS/STUDY POPULATION: A new statistical method, which is based on robust regression and resampling, is developed. Data are obtained from the SEER (Surveillance, Epidemiology, and End Results) database. Using the "classic" epidemiologic methods as well as the new method, analysis is conducted on the prognosis of 4 leukemia subtypes (ALL, CLL, AML, and CML) for 4 major racial groups (White, non-Hispanic White, Black, and Asian and Pacific Islander). RESULTS/ANTICIPATED RESULTS: After effectively removing differences caused by the observed clinicopathological and demographic factors, the survival disadvantage of the Blacks persists for the following patient groups: ALL and age $> 14$, CLL and age $> 14$, and ALL and age $\leq 14$. The quantitative results are significantly different from those from classic epidemiologic analysis. Such observed racial differences are more attributable to the unobserved risk factors and cancer disparity. DISCUSSION/SIGNIFICANCE OF IMPACT: This study provides a more effective and more direct quantification of racial difference in leukemia prognosis. The survival disadvantage of the Blacks which is observed for certain subtypes/age groups deserves further attention but should not be overstated. More data collection and analysis are needed to more accurately decipher racial differences in leukemia and other cancer types.

**2039**

### Modifiable risk factors Versus age on developing high predicted cardiovascular disease risk in African Americans

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OBJECTIVES/SPECIFIC AIMS: Clinical guidelines recommend using predicted atherosclerotic cardiovascular disease (ASCVD) risk to inform treatment decisions. The objective was to compare the contribution of changes in modifiable risk factors Versus aging to the development of high 10-year predicted ASCVD risk. METHODS/STUDY POPULATION: Prospective follow-up of the Jackson Heart Study, an exclusively African-American cohort, at visit 1 (2000–2004) and visit 3 (2009–2012). Analyses included 1115 African-American participants without a high 10-year predicted ASCVD risk ($<7.5\%$), hypertension, diabetes, or ASCVD at visit 1. We used the Pooled Cohort equations to calculate the incidence of high ($\geq 7.5\%$) 10-year predicted ASCVD risk at visit 3. We recalculated the percentage with a high 10-year predicted ASCVD risk at visit 3 assuming each risk factor [age, systolic blood pressure (SBP), antihypertensive medication use, diabetes, smoking, total and high-density lipoprotein cholesterol], one at a time, did not change from visit 1. RESULTS/ANTICIPATED RESULTS: The mean age at visit 1 was $45.2 \pm 9.5$ years. Overall, 30.9% (95% CI 28.3%–33.4%) of participants developed high 10-year predicted ASCVD risk. Aging accounted for 59.7% (95% CI 54.2%–65.1%) of the development of high 10-year predicted ASCVD risk compared with 32.8% (95% CI 27.0%–38.2%) for increases in SBP or antihypertensive medication initiation and 12.8% (95% CI 9.6%–16.5%) for incident diabetes. Among participants $<50$ years, the contribution of increases in SBP or antihypertensive medication initiation was similar to aging. DISCUSSION/SIGNIFICANCE OF IMPACT: Increases in SBP and antihypertensive medication initiation are major contributors to the development of high 10-year predicted ASCVD risk in African Americans, particularly among younger adults.

**2041**

### Before hospice: Symptom burden, dementia, and social participation in the final years

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OBJECTIVES/SPECIFIC AIMS: Traditional hospice focuses on symptoms and quality of life (QOL) at the very end of life. Clinical symptoms and QOL in the last 1–2 years of life are also important and may be affected by dementia. Our objective was to characterize how symptoms differ between people with and without dementia in the last years before death and whether symptoms impact social dimensions of QOL. METHODS/STUDY POPULATION: We studied 1270 community-dwelling participants who died between 2011 and 2015 in the National Health and Aging Trends Study, a nationally representative cohort of older adults. From the last interview before death, we examined sensory (vision; hearing), physical (pain; problems with breathing, chewing/swallowing, speaking, upper or lower extremity strength/movement, and balance/coordination), and psychiatric (depression; anxiety; insomnia) symptoms by dementia status. We examined associations between symptoms and participation restrictions (visiting family/friends, attending religious services, participating in clubs/activities, going out for enjoyment, and engaging in favorite activity). RESULTS/ANTICIPATED RESULTS: Low energy (69%), pain (59%), and lower extremity strength/movement problems (56%) were most common. People with dementia (37.3% of decedents) had higher prevalence of all symptoms ($p \leq 0.01$), except pain, breathing problems, and insomnia. Dementia and greater symptom burden were independently associated with greater odds of participation restrictions ($p < 0.05$). Problems speaking were significantly associated with limitations in all activities except for attending religious services. Balance/coordination, energy, and strength/movement problems were associated with limitations in 3 activities. DISCUSSION/SIGNIFICANCE OF IMPACT: Sensory, physical, and psychiatric symptoms are common in the year before death, with greater symptom prevalence in people with dementia. Both dementia and symptoms are associated with restrictions in participation. Older patients may benefit not only from earlier emphasis on palliative care but also programs and assistive devices that accommodate physical impairments.

**2091**

### Evaluating the validity and utility of surrogate endpoints in clinical trials of chronic kidney disease (CKD)

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OBJECTIVES/SPECIFIC AIMS: The objective of this research is to determine under what conditions endpoints based on estimated glomerular filtration rate (eGFR) slope or on relatively small declines in eGFR provide valid and useful surrogate endpoints for pivotal clinical trials in chronic kidney disease (CKD) patients. METHODS/STUDY POPULATION: We consider 2 classes of surrogate endpoints. The first class includes endpoints defined by the average