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Note: Authors' names appearing in bold denote abstract presenter at the Saunders-Watkins Leadership Workshop.

Race, Ethnicity, and Use of Non-Vitamin K Antagonist Oral Anticoagulants in Patients with Atrial Fibrillation: A National Study

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BACKGROUND: While atrial fibrillation (AF) is less common in Blacks and Hispanics, it poses a higher risk of stroke and mortality in these populations. Prior studies show that oral anticoagulant (OAC) use, the mainstay of AF management, is low in minorities. Little is known about disparities in non-vitamin K antagonist oral anticoagulant (NOAC) use—novel agents, shown to be as safe as warfarin with improved adherence and stroke prevention. We examined whether disparities exist in NOAC use for AF patients.

METHODS: The cohort for this analysis was derived from the Outcomes Registry for Better Informed Treatment of Atrial Fibrillation II (ORBIT-AF II): a prospective U.S. outpatient registry of AF patients enrolled from primary care and cardiology practices. Race/ethnicity was categorized as White, Black, or Hispanic. Overall OAC and NOAC use was evaluated using logistic regression, adjusting for demographic, clinical, and socioeconomic (SES) factors (median household income, insurance status, and education).

FINDINGS: The cohort included 11,100 White, 646 Black and 671 Hispanic AF patients. Relative to Whites and Hispanics, Blacks were younger. Blacks and Hispanics included a higher proportion of females, were more likely to have Medicaid, and less likely to have graduated from college. Blacks and Hispanics were more

likely to have a high CHA₂DS₂VASc score, hypertension, diabetes, and prior stroke.

Overall, OAC use (warfarin and NOACs) was high (89%), and predominantly NOACs (75%). After adjusting for demographic and clinical features, fewer Blacks received any OAC versus Whites, adjusted odds ratio, aOR, 0.75, (95% CI: 0.56, 0.99); and fewer received NOACs, aOR 0.63 (95% CI: 0.49-0.83). After further controlling for SES there was a trend toward lower OAC use in Blacks, aOR 0.78 (95% CI: 0.59-1.04). NOAC use remained lower in Blacks using OAC, aOR 0.74 (95% CI: 0.56-0.97). There was no significant difference in OAC or NOAC use between Whites and Hispanics.

Among warfarin users, median time in therapeutic range was lower in Blacks (57.1%) and Hispanics (51.7%) than Whites (67.1%, $p < 0.0001$). Blacks and Hispanics treated with NOACs were less likely to receive appropriate dosing (15.5% vs. 18.1% vs. 12.6% respectively, $p = 0.01$).

INTERPRETATION: After controlling for clinical factors and SES, in a cohort with access to care, Blacks with AF were less likely than Whites and Hispanics to receive NOACs. When treated, quality of OAC and NOAC use was poorer in Blacks and Hispanics. Identifying modifiable causes of these disparities should improve overall quality of care in AF.

SOURCE OF FUNDING: Janssen Pharmaceutica

Associations between Insurance Status and Hypertension and Diabetes among Pregnant Women in a Medicaid Non-expansion State

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BACKGROUND: In states that did not expand Medicaid, more than half of reproductive-age low-income women rely on Medicaid or have no health insurance. These women may miss opportunities for preventive care that can reduce the risk of adverse pregnancy outcomes. We examined associations between insurance status and hypertension and diabetes in pregnancy in a sample of urban women in North Carolina.

METHODS: We conducted a retrospective cohort study using data from billing and electronic medical records of a large integrated healthcare system based in Charlotte, North Carolina, a metropolitan region with a population of approximately one million. Data were examined for 9,613 women who lived in Mecklenburg County and had deliveries during 2014 and 2015. For women with multiple births during the period, only the most recent delivery was included in the analysis. We examined rates of preeclampsia and gestational diabetes. Logistic regression models, adjusted for timing of prenatal care, age, race/ethnicity, medical comorbidities, neighborhood poverty and neighborhood education level, were fitted to determine the independent association between insurance status at delivery (private vs. Medicaid/uninsured) and selected outcomes.

FINDINGS: Most women were aged 25 to 34 (59.3%) and lived in Charlotte (92.1%). The cohort was ethnically diverse with 30.0% Hispanic, 27.0% Black and 28.2% White. At delivery, 46.2% of the sample had private insurance (n=4441), 51.9% had Medicaid (n=4988) and 1.9% were uninsured (n=184). Compared to women with private insurance, women with Medicaid/uninsured were younger, less likely to be White, more likely to have pre-existing hypertension or diabetes and more likely to be obese. Women with Medicaid/

uninsured were also less likely to have first trimester prenatal care. Gestational diabetes (12.0% vs. 10.7%, $p=0.04$) and preeclampsia (4.6% vs. 2.4%, $p<0.01$) were both higher among women with Medicaid/uninsured compared to women with private insurance. However, only differences in preeclampsia remained statistically significant after adjustment for patient characteristics (OR 1.22; 95% CI 1.04-1.41).

INTERPRETATION: Odds of developing preeclampsia are higher for women with Medicaid or no insurance. These women enter pregnancy with greater comorbidity burden than their privately-insured counterparts. Strategies to improve access to preventive care among these women before, during and after pregnancy may improve outcomes. Future research should examine patterns in treatment and outcomes for preeclampsia to inform strategies for improving care. Attention to social factors impacting the pregnancy experiences and outcomes of low-income women with preeclampsia is also warranted.

SOURCES OF FUNDING: AcademyHealth and the March of Dimes

Bridging the Gap between Obesity and Weight Management

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BACKGROUND: Increased weight loss treatment engagement could reduce the prevalence of obesity-related conditions. Unfortunately, the Veterans Health Administration (VHA) has a clear weight loss treatment implementation gap: roughly 80% of the millions of VHA patients have overweight/obesity, almost all are offered weight loss treatments, but only 10% use them. Work is needed to understand available treatments and staff perspectives to facilitate the implementation of a self-help tool to increase weight loss treatment engagement.

Findings are particularly important for veterans of color because they have high obesity rates and low long-term engagement in MOVE!, VHA's behavioral weight loss program.

METHODS: Between October 2016 and June 2017 we conducted 45-minute phone interviews with VHA leadership and staff at sites with high and low weight loss treatment engagement, identified via VHA Office of Reporting, Analytics, Performance, Improvement & Deployment data. We used rapid qualitative analysis to answer three questions: 1) Which behavioral weight loss treatments are available to veterans through the VA?; 2) What are motivators/barriers to veterans' weight loss treatment engagement?; and 3) What are participants' opinions regarding a self-help tool prototype?

RESULTS: We interviewed VHA leadership (n=15, from nine offices) and staff (n=19, from 18 sites). Participants described weight loss treatments in many clinics, including MOVE!, mental health, primary care, nutrition, physical therapy, recreation therapy, and disease specific clinics. Participants listed fewer motivators than barriers to veterans' weight loss treatment engagement. Motivators included health conditions (e.g., diabetes) and a desire for improved quality of life. Barriers included insufficient time and frustration after failed weight loss attempts. Participants responded positively to the self-help tool and supported an online tool if there is also a paper version.

INTERPRETATION: A self-help tool to increase weight loss treatment engagement may be a feasible way to close VHA's weight loss treatment implementation gap and reduce the burden of obesity-related conditions. Given the varied locations of weight-related care, it will be important to understand differences in engagement in clinics across racial/ethnic groups to ensure that efforts to increase weight loss treatment engagement do not exacerbate disparities. Future work will triangulate findings with administrative database analyses of weight loss treatment use and qualitative analyses of interviews with veterans. Ultimately, findings will help tailor the self-help tool to populations at highest risk for poor outcomes.

SOURCE OF FUNDING: VHA, Health Services Research & Development, Career Development Award 15-257. Views are the authors and do not necessarily represent those of VHA.

Development of Potent and Selective Inhibitors of Human Factor XIIa as Effective Anticoagulants that Are Potentially Devoid of Bleeding Complications

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BACKGROUND: Thrombotic disorders are among the leading causes of deaths worldwide. The prevalence of thrombotic disorders significantly varies among ethnic and racial groups. In the US, African-Americans are more likely to be diagnosed with venous thromboembolism than any other group. Anticoagulants represent the main strategy for their prevention and/or treatment. The current paradigm of anticoagulant therapy is inhibiting thrombin and/or factor Xa. Yet, all current anticoagulants in clinical use are associated with a significant risk of internal bleeding. Thus, alternative protein targets should be considered to develop effective anticoagulants that do not result in bleeding complications. Factor XIIa (FXIIa) is a plasma serine protease belonging to the intrinsic coagulation pathway. FXII-deficient mice were found to be protected against arterial thrombosis, collagen- & epinephrine-induced thromboembolism, and ischemic stroke without suffering from spontaneous or prolonged injury-related bleedings. Importantly, deficiency of FXIIa does not lead to bleeding tendency in humans. Thus, we have hypothesized that FXIIa inhibition by small molecules may serve as a promising therapeutic strategy to achieve effective and safe anticoagulation.

METHODS: We exploited an interdisciplinary approach of organic chemistry, molecular modeling, enzyme kinetics, and human plasma testing to make progress toward the goal of developing potent and selective inhibitors of human FXIIa as effective and safe anticoagulants. We chemically synthesized and characterized several triazol-3-yl benzamide derivatives as potential FXIIa inhibitors and studied their potency, selectivity, and binding affinity using UV- and fluorescence-based assays. Their effects on clotting times of human plasma were also studied using a standard one-stage recalcification assay.

FINDINGS: We identified a specific triazol-3-yl benzamide derivative as the most potent inhibitor in this series with an IC_{50} value of ~ 0.11 μM and a fluorescence-based binding affinity of ~ 0.98 μM . The molecule dose-dependently inhibited FXIIa-mediated activation of FXI, a physiological substrate of FXIIa, with an IC_{50} value of ~ 2 μM . It also exhibited a significant margin of selectivity of at least 150-fold over thrombin, FXa, FIXa, FXIa, FVIIa/TF, plasmin, plasma kallikrein, trypsin, and chymotrypsin. This derivative also selectively doubled clotting time in activated partial thromboplastin time assay of the intrinsic coagulation pathway without significant effect on prothrombin time of the extrinsic pathway in normal human plasma.

INTERPRETATION: This work introduces small molecule triazol-3-yl benzamides as potent and selective inhibitors of human FXIIa that can potentially be developed as safe and effective anticoagulants.

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Risk of Venous Thromboembolism Following Diagnosis and Treatment of Multiple Myeloma: Differences by Race

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BACKGROUND: The overall goal of this research is to understand relationships between multiple myeloma (MM) and its treatment with risk of venous thromboembolism (VTE) and differences in risk by race. Racial minorities are disproportionately affected by increased incidence, morbidity and mortality from various cancers in the United States. Many factors contribute to these disparities and poor outcomes among cancer patients, including complications from VTE. Risk of cancer-related VTE depends on multiple clinical and therapy-specific factors, although differences in cancer-related VTE by race are not well-understood. Increased knowledge regarding risk of VTE following diagnosis and treatment of MM could greatly inform prevention strategies for MM patients undergoing treatment and at high risk for VTE.

METHODS: Two retrospective cohort studies are being conducted to determine risk of VTE among patients following MM diagnosis and treatment by race in: (i) a large retrospective cohort study of MM patients from the SEER-Medicare linked database and (ii) a pooled multi-institutional cohort study of MM patients undergoing bone marrow transplant with detailed information on other prognostic indicators and clinical factors, including biomarkers, cytogenetics and prior treatment response.

FINDINGS: In preliminary findings, we described racial differences in long-term incidence of VTE following diagnosis of MM in patients aged ≥ 66 years for up to 36 months since diagnosis until VTE, or death. Poisson regression was used to compare age- and gender-adjusted incidence rate ratios (IRR) and 95% confidence intervals (CI) comparing different racial/ethnic groups with White patients. We observed that VTE incidence was highest among Black patients (IRR=1.24; 95% CI 1.07-1.44) and lowest in Asian Pacific Islanders (IRR=0.55; 95% CI 0.37-0.81). Moreover, Black

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patients continued to have an elevated risk of VTE in the subsequent two years of follow up. Analyses for the two study aims are ongoing.

INTERPRETATION: This research will make an important contribution to public health and inform clinical practice because cancer treatment-related cardiotoxicities such as VTE are of increasing concern to the growing population of MM patients successfully treated with improved care. Forthcoming findings from the pooled multi-institutional MM cohort are from two academic medical centers serving largely minority populations and medically underserved areas. Thus, this research is uniquely suited to achieve our goal to better understand and ultimately reduce the unequal burden of cancer-related cardiotoxicities among minority populations.

SOURCES OF FUNDING: This work was supported by the National Institutes of Health, NHLBI through Grant R21HL140531, and NCATS through Grant KL2TR000048.

Innovative Smoking Cessation Interventions using mHealth in Community Health Centers

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BACKGROUND: Tobacco use is the leading cause of preventable disease and death in the United States, and cigarettes are the most commonly used tobacco product among U.S. adults. Although cigarettes are addictive and harmful, nearly 40 million U.S. adults still smoke; each year, nearly half a million die prematurely due to smoking. Many adult cigarette smokers want to quit (68%); over half (55.4%) have made a quit attempt in the past year. However, psychosocial factors such as chronic stress contribute to greater difficulty in smoking cessation among racial/ethnic minorities. Thus, targeted innovative intervention studies are needed that include culturally relevant cessation interventions to reduce and eliminate tobacco use and tobacco-related health

disparities. Most studies are designed to include smokers of >10 cigarettes per day (CPD), which excludes nearly half of racial/ethnic minorities who are non-daily smokers or very light smokers (NDVL) and consume <5 CPD. Additionally, insufficient evidence exists to recommend medication for light smokers (<10 cigarettes per day). This project addresses challenges in assisting NDVL smokers to quit and measure impact of stress processes on smoking frequency, intensity, cessation, and relapse among racial/ethnic populations.

METHODS: A community-based participatory research design will be used to test feasibility and acceptability of developing a mobile health (mHealth) stress management text messaging intervention in community health centers to include culturally relevant practice guidelines for NDVL African American smokers with chronic stress. Evidence-based cessation interventions (as recommended by the Clinical Practice Guidelines for Treating Tobacco Use Dependence) such as clinician assessment to ask, advise, and refer based on the stages of change model will be integrated with the electronic medical record. One-, three-, and six-month point-prevalent quit rates and other smoking outcomes among NDVL African American smokers will be assessed using two-sample t-test or nonparametric Wilcoxon Rank-Sum test, as appropriate. Predictors of continued cessation maintenance will be analyzed using applicable statistical methods.

FINDINGS: This research will improve provider/patient relationship to facilitate smoking cessation in community health centers in Pennsylvania and could be adapted as a model to address NDVL African American smokers in community health centers across the United States.

INTERPRETATION: This project will establish a new model for smoking cessation programs in racially and ethnically diverse minority community health centers and provide greater insight into components of a successful tobacco cessation intervention. It will also further the understanding of factors affecting chronic stress and continued tobacco use among African Americans.

SOURCE OF FUNDING: None

A Descriptive Analysis of the Perceptions of Workplace Wellness Among Latino Men

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BACKGROUND: Workplace wellness programs are frequently administered by employers in an effort to promote a culture of health. Prior research studies, which measured physical activity among Latinos, comprised mainly females, with limited participation among males. It is unclear how Latino males perceive workplace wellness. A local manufacturing company in a mid-west urban area, with a high concentration of Latino employees, will serve as a recruitment location. Recruitment will continue until at least 20 participants have enrolled in the project. Previous programs directed at workplace wellness have been successful in improving outcomes, such as increased physical activity. Employees will be invited by the researcher to meet one time for an individual interview. The meetings will take place in the workplace and last for approximately 30 minutes. The interviews will be conducted in English or Spanish. A professional interpreter will be present during the sessions. Perceptions of workplace wellness programs are important to consider prior to program implementation to increase Latino male participation.

METHODS: The project goal is to examine the perceptions of workplace wellness among adult Latino males. Partnering with a local community and cultural center with connections to the target community, the researcher will meet with human resource managers to identify existing wellness programs. Participants will be individuals who are: 1) male employees; 2) aged ≥18 years; and 3) self-identify as Latino. The study findings will be sustained through the shaping of future workplace wellness interventions, which can then be carried out in occupational settings among ethnically diverse employees.

FINDINGS: Continued partnership with community based organizations is an important outcome of the current study and is ongoing. Once the study is completed, evaluation and results of the project will be disseminated at local and national presentations.

INTERPRETATION: Ongoing challenges in the proposed study are limited time available among human resource departments, as well as increased workplace productivity expectations among employees. The results from this study may help shape future workplace interventions aimed at Latino men, and the factors that influence participation in workplace wellness programs.

SOURCE OF FUNDING: None

**“It’s Like They Forget That the Word ‘Health’ Is in ‘Home Health Aide’:
Understanding the Perspectives of Home Care Workers Who Care for Adults with Heart Failure**

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BACKGROUND: Paid home care workers (HCWs) are increasingly utilized by home-dwelling adults with heart failure (HF) for long term assistance and post-acute care. While they observe, assist, and advise these patients, few studies have examined their role in HF. As the foundation for future interventions, we sought to understand the perspectives of HCWs caring for adults with HF.

METHODS: We conducted 8 focus groups in partnership with the Home Care Industry Education Fund, a non-profit organization within United Healthcare Workers East, the largest healthcare union in the US, located in New York, NY. English and Spanish-speaking HCWs with a HF client in the last year were eligible to participate. Focus groups were audio recorded and professionally transcribed. Data were analyzed thematically.

FINDINGS: 46 HCWs from 21 unique home care agencies participated. They had a mean age of 49 years, 98% were female, 37% Black, and 54% Hispanic. Overall, general and HF-specific themes emerged. Generally, HCWs: (1) Feel overworked and undervalued, (2) Find communication and care to be fragmented, (3) Are dedicated to clients and families but caught in the middle, and (4) Love their job. With respect to HF, HCWs: (1) Find it frightening and unpredictable, (2) Are involved in HF self-care without any HF training, and (3) Find the plan of care to lack sufficient detail.

INTERPRETATION: Although frequently involved in HF self-care, most HCWs have not received HF training. Many also felt poorly supported by other healthcare providers and the care plan, especially when their clients' symptoms worsened. Interventions that provide HF-specific training and aim to improve communication between members of the home healthcare team may enhance HCWs' ability to care for adults with HF and potentially lead to better patient outcomes. Strengths of the study include a multi-lingual population of HCWs from a variety of agencies and a framework driven approach. A limitation of the study

is that findings may not be generalizable beyond agency-employed HCWs in New York, NY.

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Improving Denver Latinos' Sleep through a Culturally Relevant Intervention

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BACKGROUND: Sleep disturbances are a major unmet health problem in Latinos. Latinos are 3.5 times more likely to sleep < 5 hours/night than non-Hispanic Whites, with poor sleep quality. Sleep disturbances increase the burden of chronic conditions like high blood pressure [BP], obesity, diabetes, cardiovascular disease, and depression – all prevalent among Latinos. Sleep disturbances have direct costs (e.g., health consequences) and indirect costs (e.g., lost productivity, costing the nation \$63.2 billion per year).

Most sleep research has been conducted with non-Hispanic White samples and relied on self-reported data, with potential limitations in accuracy. Few interventions have been conducted to address sleep disturbances in Latinos. These interventions have not included adults or aimed for multi-behavior change.

This research has two primary aims:

Aim 1. To explore the psychosocial and behavioral factors contributing to sleep deficiencies among Latino adults, and how these deficiencies may be related to health outcomes (i.e., BMI, BP, depressive symptoms,

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and self-reported quality of life); and

Aim 2. to implement and evaluate an 8-week intervention to improve engagement in physical activity and sleep among Latinos in Denver.

The hypotheses are that, from pre-intervention to post-intervention, in the mindfulness group (IG) but not in the control group (CG): (1) sleep will significantly improve; (2) there will be significant increases in levels of motivation and decreases in levels of perceived barriers to physical activity; (3) BMI, systolic BP, diastolic BP, and depressive symptoms will significantly decrease; and (4) quality of life will significantly improve.

METHODS: This study is a partnership with the YMCA. Low-SES overweight/obese adult Latinos in Denver will be recruited. Participants will complete a baseline data collection, including: (a) demographic data questionnaire, (b) sleep duration and quality data (collected by a fitness tracker, for a week), (c) BMI and BP, (d) motivators and barriers to physical activity, (e) the Brief Patient Health Questionnaire, and (f) self-rated quality of life. Participants will wear a fitness tracker during the entire study. Participants will be divided into: 8 weeks of Zumba® plus mindfulness group, and control group. Data will be collected after 8 and 12 weeks.

FINDINGS: Study is currently in the planning phase.

INTERPRETATION: This community-university partnership will boost YMCA efforts to improve Denver Latinos' health. It is also expected to increase understanding of the factors contributing to sleep deficiencies, and how sleep deficiencies may lead to health disparities in Latinos, a growing health disparity population in the U.S.

SOURCE OF FUNDING: None.

LEveraging A viRtual eNvironment (LEARN) to Enhance Prevention of HIV-related Comorbidities in at-risk Minority MSM (Men who have sex with men)

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BACKGROUND: The breadth and depth of eHealth in implementation science is evolving as medicine and research employ technology-based strategies alongside user-centered approaches to address complex problems. Approximately 1.2 million Americans are living with Human Immunodeficiency Virus (HIV), a blood-related chronic illness that disproportionately affects racial/ethnic minorities. Despite monumental feats in improving quality and duration of life, HIV-related comorbidities, such as heart, lung, and blood (HLB) disorders can be debilitating. It is well-documented that persons living with HIV (PLWH) are at higher risk of developing comorbidities at an earlier life stage than those who are not living with HIV. Without proper lifestyle and behavior modifications, the prevalence of HIV-related HLB disorders will only increase. To address this gap, we propose a study to leverage an online eHealth intervention to facilitate knowledge and health promoting behaviors for prevention of HIV-related comorbidities.

METHODS: Respondent-driven sampling will be used as the primary recruitment strategy. A two-phase, exploratory sequential mixed methods one-group pre/post clinical feasibility trial will be conducted. Phase one will consist of 15 qualitative in-depth interviews to explore perceptions of HIV-related HLB disorders (e.g., cardiovascular, chronic airway, and metabolic). User-centered design approaches from phase one will better inform the next phase of the intervention. In phase two, the Learning in Virtual Environments (LIVE®) platform, (previously used with diabetes patients), will be used to conduct a feasibility clinical trial with 30 adult, minority, MSM living with HIV and at-risk for HIV-related HLB disorders.

To address our primary outcomes of feasibility and acceptability, continuous process data will be captured.

We will also measure perceived usefulness and perceived ease of use. To test the preliminary effects of the online eHealth intervention on short-term behavioral and psychosocial outcomes, we will measure awareness and perceptions about hypertension and type 2 diabetes mellitus, physical activity, dietary intake, tobacco and e-cigarette use, and depression using standardized measures.

FINDINGS: We anticipate that upon successful completion of the proposed research activities, our contribution will represent an early vertical step in the field to address prevention of HIV-related HLB disorders in diverse populations.

INTERPRETATION: Adopting user-centric and participatory approaches can increase adoption of study findings and provide a stronger foundation of trust to support new long-lasting relationships that exceed programmatic funding timelines. The importance of health equity, or the equitable distribution of health and health-resources, cannot be overstated.

SOURCE OF FUNDING: None

Clinicians' Perceptions of a Population Health Initiative to Improve Blood Pressure Screening

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BACKGROUND: Although tremendous medical advancements occurred in the last century, hypertension (HTN) remains the leading cause of morbidity and mortality. Over 13 million Americans are unaware of their diagnosis, although most have insurance and a medical home. Therefore, protocols that ensure every

patient visit includes blood pressure (BP) measurement are needed. However, before initiating practice-wide changes, the understanding of organizational climate is essential. The purpose of this cross-sectional study was to assess clinician's perceptions of a population health initiative to improve BP screening across primary and specialty care visits.

METHODS: 1,053 clinicians were surveyed within an ambulatory academic medical center with 500,000 visits annually, 85% to specialty clinics. The researchers used the Consolidated Framework for Implementation Research (CFIR) to assess constructs of Readiness for Implementation and Implementation Climate. Quantitative data were analyzed using descriptive and inferential statistics. Data from survey comments were analyzed using the CFIR codebook.

FINDINGS: 249 clinicians responded, with varying response rates by role (MD/DO-8%, APP-54%, RN-96%, MA-97%). Clinicians agreed or strongly agreed with the CFIR constructs of worthwhile initiative (56%), adequate training (57%), sufficient resources (60%), timely information (61%), and supportive leaders (69%). There was a significant effect of clinician role on all of the CFIR constructs, worthwhile initiative [F(4, 230)=6.84, p<0.001], adequate training [F(4, 216)=15.90, p<0.001], timely information [F(4, 227)=11.65, p<0.001], sufficient resources [F(4, 225)=9.06, p<0.001], and supportive leaders [F(4, 225)=7.70, p<0.001].

There was a significant difference in the endorsement of the statement, *The BP program is a worthwhile initiative* in clinics that manage HTN (M=4.23±1.08) and clinics that do not (M=3.23±1.61); t(143.21)=5.21 p<0.001. The survey comments (N= 94) demonstrated robust resistance to (n=89) and minimal support for (n=5) the BP program in CFIR domains of Tension for Change, Compatibility, Goals & Feedback, and Relative Priority.

INTERPRETATION: An initiative aligning population health goals across primary and specialty care clinics has potential to mitigate an enormous health burden. These results suggest that clinician role and clinic affiliation have a significant effect on support for a population health initiative focused on

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screening patient's BP across all visit types. Leaders must consider how opposition to the program may impact sustainability of this population health initiative that challenges practice paradigms. Resolution of tensions for change and perceived incompatibility with program protocols must occur before a shift in the organization's culture appreciates every patient BP measurement is an opportunity to improve health.

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Becoming American through Food: Diet Acculturation among Bhutanese Refugee Adolescents in the U.S.

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BACKGROUND: Dietary preferences, consumption patterns, and behaviors may change after migration in ways that are relevant to health. Post-migration changes may be particularly marked among adolescents, who are particularly integrated into the practices and norms of their new communities through schools and after-school programs, and who are particularly attuned to their peers' preferences and behaviors. This study examines dietary patterns and perceptions among newly resettled refugee adolescents.

METHODS: We developed and fielded a questionnaire measuring preferences, perceptions, and consumption patterns among refugee youths. Thirty participants between the ages of 11 and 18 were recruited

from among Bhutanese refugee families resettled within the previous five years in a major metropolitan area in the Southeast United States. Distributions and correlations of close-ended questions were examined; open-ended questions were coded by hand and analyzed for themes in domains of healthy eating, opinions of friends, food preferences and perceptions.

FINDINGS: Youth (N=30) were able to categorize foods and drinks as healthy, unhealthy, American, and cool. They identified vegetables, fruit, and milk as healthy, candy, soda, and chips as unhealthy, and hamburgers, pizza, and energy drinks as American. Youth viewed their own diets and the diets of their friends as being generally healthy. Foods identified as American were more often also identified as cool and drinks identified as American were less often identified as healthy. Youth ate food identified as American almost exclusively at lunch at school. Youth reported that they were very similar to their best friends in terms of their consumption of fast food, snacks, sodas and fruits.

INTERPRETATION: Behavioral change after migration is a social process, and youth negotiate a multi-cultural path as they decide which items from their pre-migration country they will retain and what to adopt from their new communities. These youths are aware of concepts pertaining to healthfulness and of the tensions that they face in terms of coolness, integration, and healthfulness.

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Reducing the Incidence of Diabetes Among Caribbean-Descent Individuals with Lifestyle Intervention and Metformin Escalation: The LIME Study

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BACKGROUND: Despite evidence that diabetes prevention is cost-effective, diabetes prevention interventions have had limited uptake and sustainability among minority groups in the US who suffer a disproportionate burden of disease. Lifestyle Intervention with Metformin Escalation (LIME) seeks to address this gap using implementation science frameworks and stakeholder engagement to overcome implementation barriers. LIME is an NIH-funded, evidence-based, diabetes prevention intervention targeting Caribbean-descent populations. The overall objective of this project is to evaluate implementation of LIME to inform future dissemination and scale-up of similar interventions. Our central hypothesis is that a framework-based evaluation can identify contextual factors critical to implementation effectiveness.

METHODS: LIME is a hybrid I effectiveness-implementation trial, targeting high-risk Caribbean and Caribbean-descent individuals with pre-diabetes in six clinical sites: New York (2 sites), Puerto Rico, US Virgin Islands, Barbados and Trinidad. LIME was launched in May 2018 and supports healthy lifestyle modification through a series of culturally adapted workshops, followed by escalation to Metformin therapy if needed. This is a pragmatic trial with a target recruitment of 750 intervention/control participants. Primary outcome over 3 years is diabetes incidence; secondary outcomes: hemoglobin A1c, diabetes risk score, BMI/waist-circumference/waist-to-hip-ratio, blood pressure, cholesterol, and self-efficacy. The LIME implementation strategy was developed through stakeholder engagement and implementer meetings that optimized RE-

AIM domains – Reach, Effectiveness, Adoption, Implementation and Maintenance. This resulted tailoring the workshop curriculum and the addition of critical intervention components. Evaluation of LIME will use a mixed methods approach applied to the RE-AIM framework. Qualitative data collection through in-depth interviews with administrators, providers and participants will be guided by the Consolidated Framework for Implementation Research (CFIR) to identify important contextual factors influencing implementation.

FINDINGS: Evaluation metrics and data collection tools have been developed to enable comprehensive evaluation of LIME RE-AIM components: Reach (proportion of the target population receiving the intervention), Effectiveness (primary and secondary outcomes), Adoption (proportion of staff trained and involved), Implementation (protocol fidelity, process, cost-effectiveness) and Maintenance (sustainability). Interview guides based on the CFIR have been developed and interviews will be conducted 6-months post implementation.

INTERPRETATION: Engaging stakeholders and implementers is critical for designing culturally appropriate interventions and overcoming implementation barriers that have hindered the success of prior diabetes prevention interventions in minority populations. Findings from implementation and evaluation of LIME will be highly applicable to dissemination and scale up of diabetes prevention efforts, and implementation of other cardiovascular risk-reduction interventions targeting minority populations.

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Improving Asthma Assessment For Adolescents in an Urban School-Based Health Center by Completion of NHLBI-Recommended Clinical Screener and Office-Based Spirometry: An Implementation Approach

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BACKGROUND: NHLBI's National Asthma Education and Prevention Program's (NAEPP) Guidelines for Diagnosis and Management of Asthma emphasizes accurate classification of asthma severity/control. Studies show providers tend to underestimate children's asthma severity leading to under-treatment. School-based health centers (SBHC) may provide opportunities for care. However, parents are often not present and little data on adolescent response is available. Spirometry provides objective assessment but is effort-dependent. This study was done to explore feasibility of an asthma program in an urban SBHC using the NAEPP clinical screener and portable spirometry. The study's aims were to initiate Performance Improvement measures to plan for implementation of an Asthma Visit and determine feasibility of spirometry.

METHODS: The performance improvement study was initiated January 2018 at a SBHC in the Bronx, New York serving 718 adolescents aged 13-20 years (58% female, 76% Latino or African American). 60 (8%) were identified with asthma based on electronic health records. Stakeholders including clinical and support staff, parents and adolescents were engaged to identify key drivers influencing asthma assessment completion. The Model for Improvement's Plan, Do, Study, Act (PDSA) approach was utilized. Asthma Severity/Control was assessed using a five-question screener (daily symptoms, nighttime awakenings, rescue inhaler use, activity limitation, exacerbations with steroid use). Outcome measure included percentage of patients who had asthma severity/control determination by parent or adolescent response. A convenience sample during one-week-in was offered spirometry during visits. Adequacy was graded A-E.

FINDINGS: Key drivers were identified: Provider knowing the adolescent has asthma; provider having time during visit to assess asthma; communication with parent to complete the screen. Two PDSA cycles were completed: one with direct communication with parent by telephone, one with adolescent response. With a baseline of 25%, asthma assessment via parent response reached 50%; assessment via adolescent response reached 75%. Two reasons accounted for 80% of lack of assessment: not enough time during visit and inability to reach parent. Nine patients completed spirometry; 8 (89%) had acceptable adequacy.

INTERPRETATION: Limited time in visit and inability to reach a parent were two challenges identified. Interventions to make assessment more efficient need to be tested. Spirometry is potentially feasible within SBHC visit but requires training. Comparison of adolescent and parent response to screener questions is needed, as well as comparison of screener vs. spirometry. Next steps include qualitative inquiry with providers, adolescents and parents on perspectives of asthma assessment and care in a SBHC setting.

SOURCE OF FUNDING: None.

Novel Strategies to Increase Utilization of Renin-Angiotensin Aldosterone System (RAAS) Blockade Drugs in Patients with Heart Failure

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BACKGROUND: Heart failure (HF) affects about 2% of adults, and has substantial morbidity and mortality. Pharmacologic treatment guidelines for HF include angiotensin converting enzyme inhibitor (ACEI), angiotensin receptor blocker (ARB), mineralocorticoid receptor antagonist, (MRA) angiotensin receptor neprilysin inhibitor (ARNI), and beta-blockers. All have substantial proven evidences in decreasing morbidity and mortality in patients with HF. The degree of gap in RAAS blockade use and dosing

persists in outpatient practices is unclear. The aim of this study is to assess utilization of RAAS blockade use in patients with HF in Western New York overtime starting in 2002 [prior to chronic kidney disease (CKD) staging], 2005, 2012, and 2017 in primary care, cardiology offices. Primary outcome is to identify and develop interventions to increase utilizations of RAAS blockade.

METHODS: This study is designed to mine electronic medical records from VA as well as Allscript database overtime. Since 40-60% of patients with HF also have CKD, estimated glomerular filtration rate (eGFR) was reported in 2004 in Western New York. The potential barrier to RAAS drug use include side effects, CKD staging, patient barriers, provider barriers, complex health care systems, healthcare leaderships/insurances. Participants and stakeholders, such as selected outpatient healthcare practices, patients, providers, insurance, healthcare leaders, will be interviewed to identify potential barriers. Then intervention strategies will be developed, using implementation science models, to increase RAAS drug use in the appropriate populations.

FINDINGS: We predict there are substantial gaps between the use and doses of RAAS blockade use between guidelines and actual clinical practice. There are unmet needs in developing strategies for optimal directed medical therapy in patients with reduced HF.

INTERPRETATION: There are challenges to using RAAS blockade including hypotension, hyperkalemia, worsening kidney function, other drug side effects, dose titration, medication adherence, patient education, provider education, economic and social barriers. Novel strategies may include quality-improving metrics, patient and provider education, technological innovation (such as mobile apps). As result of this study, a pragmatic clinical trial of strategic interventions to increase RAAS blockade utilization and dose titration in patients with HF, especially with reduced ejection fraction, would improve quality of care, morbidity and mortality.

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Treating Weight Management in Rural Appalachia through Patient Empowerment Utilizing an Electronic Health Application

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BACKGROUND: Obesity is a leading public health problem in West Virginia (WV), Appalachia, and the nation. It is the major risk factor for numerous chronic medical conditions including hypertension, diabetes, hypercholesterolemia, and sleep apnea. Clinical practice guidelines include addressing weight loss, dietary changes, lifestyle interventions, medications, and surgical options; however, these guidelines are rarely used. Recommended weight management guidelines suggest patients make behavioral changes, which can be encouraged through patient empowerment and improved patient and provider communication. Patient empowerment can be improved by providing education prior to a clinic visit using mobile technology. Unfortunately, there is a paucity of quantitative research related to technology use outcomes in the clinical setting. Limited previous work has shown mobile technology increases patient satisfaction, knowledge, and cooperative clinical decision making.

METHODS: This implementation science study is designed to assess effects of an electronic health application on patient/provider discussions and patient activation for healthy weight management. Specifically, three objectives include: 1) determining the effect of an electronic health application on patient-provider communication related to weight management in primary care practices; 2) evaluate the effect of an electronic health application on patient activation for weight management; and 3) assess implementation fidelity of an electronic health application in rural primary care. Participants will include adult primary care patients in the rural setting.

FINDINGS: The usability of the electronic health application was tested through a two-cycle approach. The first cycle generated information that led to adjustments

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for the second cycle of testing to determine final usability. Results indicated that primary care patient participants found this application to be usable. Acceptability and feasibility testing is ongoing.

INTERPRETATION: In this study we hypothesize that by implementing weight management guideline based information to rural primary care patients through an electronic health application in the primary care setting there will be an increase in clinical patient-provider weight management discussions and patient activation. We will evaluate implementation fidelity using the RE-AIM framework. This study is expected to be completed across a five-year time period. Our long-term goal is to improve the treatment of weight management in the primary care setting in rural Appalachia.

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BACKGROUND: Hypertension is the leading preventable risk factor of cardiovascular diseases, premature death, and disability in the world and disproportionately affects low- and middle-income countries (LMICs) such as Guatemala. The aim of this study is to identify priority short and long-term needs for strengthening the public health system in its capacity to implement a multicomponent hypertension intervention prior to implementing a cluster randomized trial.

METHODS: From March to May 2018, we conducted semi-structured interviews with 16 key informants who work in or are knowledgeable about Guatemala's public primary health care system. Interviews focused on hypertension prevention and care as it relates to the World Health Organization's health systems framework: service delivery, human resources, information system, medications and technologies, financing, and leadership/governance. We conducted a thematic analysis to identify categories illustrating priority needs for each building block. We organized needs into those that may be addressed in the intervention trial, and broader system-level needs.

FINDINGS: Short-term needs identified during the intervention trial for different building blocks include: limited availability of treatment guidelines, unsystematic identification of hypertension (service delivery); limited training about hypertension and non-communicable diseases (NCDs) (health workforce); unstandardized forms and processes, undercounting, and few providers track patients with lists (information systems); limited administrative capacity to stock necessary medications (medications); and patients do not demand treatment (leadership/governance). The study is not expected to influence financing. Long-term and broader system-

Defining Priority Needs and Implications for a Hypertension Control Intervention Study in Guatemala's Public Primary Health Care System

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level needs include: insufficient service coverage; limited supplies and physical infrastructure; curative focus; limited primary care level emphasis; staff turnover and unstable employment; lack of laboratory capacity; low public investment in health; absence of high-level commitment to hypertension and NCDs; inadequate emphasis on regulation and health promotion; and need for increased intersectoral collaboration.

INTERPRETATION: This analysis clarifies needs that the intervention trial may address and those requiring additional efforts. Opportunities to respond to needs that are not addressed during the trial include: coordinating with training schools to enhance NCD content; identifying indicators that may be adopted to track hypertension control; supporting efforts to improve national-level prevalence estimates; and providing guidance in estimating cost of care. This study captures needs defined by key stakeholders at the central level; in a subsequent phase we captured input from frontline health workers, patients and community members. Findings are relevant to practitioners and policy makers in low-resource settings interested in defining system-level needs to improve hypertension care.

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develops an agent-based simulation model (ABM) to estimate how increasing food access would increase FV consumption in a targeted community.

METHODS: An ABM was developed to predict individual dietary behaviors. The modeled population represents a synthetic population of adults in Muleshoe, a rural community in Texas. In this community, 12.9% of its population was 65 years or older, around 50% of its residents were female, 66.4% had high school degree. In our model, consumers make food choices and interact through a social network and with the food stores that sell fruits and vegetables. The simulated individuals differ by their sociodemographic characteristics (e.g. age, gender, and educational attainment) and health beliefs (whether a person strongly prefers healthy foods). Through an empirical probability function, these choices account for accessibility of stores, sociodemographic characteristics, health beliefs, food prices, and price sensitivity. Model parameters were estimated from the 2012 American Community Survey, the Food Attitudes and Behaviors Survey, United States Departments of Agriculture's Food Environment Atlas, and previous literature. We validated the model with observed data and simulated the impact of increasing access on the percentage of people consuming at least two servings of fruits and vegetables per day.

FINDINGS: We found that decreasing the driving distance to healthy food outlets would increase FV consumption. For example, a one-mile decrease in driving distance to the nearest FV store could lead to an 8.9% increase in consumption; a five-mile decrease in driving distance could lead to a 25% increase in FV consumption in the community. The highest marginal increase in FV consumption was found when the driving distance was decreased from 3.5 miles to 3 miles.

INTERPRETATION: To increase healthy eating among rural residents, one highly potential intervention is to improving accessibility to healthy food. An ABM of dietary behaviors that accounts for a rural region's geography has the potential to inform local community on how increasing access increases FV consumption. The findings from modeling can be used to evaluate different policies in addressing chronic diseases through dietary interventions.

Evaluating the Impact of Improving Access to the Consumption of Fruits and Vegetables in a Rural Community in Texas—A Modeling Study

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BACKGROUND: Many Americans, especially in rural regions, do not consume the recommended servings of fruits and vegetables (FV) each day. One of the key reasons for low FV consumption is that these regions have limited or no access to healthy food. This research

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The Perfect Storm: Health Literacy among Prelingual Culturally Deaf Aged ≥ 50 Years

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BACKGROUND: Older adults are expected to live longer, experience development of, increases in, and have extended periods of living with senescence/age-related health disorders. English is not the first, preferred or most proficient language for many prelingual/culturally deaf individuals; their preferred method of communication is American Sign Language (ASL). Members of this minority linguistic/cultural community are not recognized as being bilingual; many have limitations and deficits in English proficiency at about a 4th-grade reading level, which can lead to deficiencies in general knowledge of health-related terminology.

METHODS: G*Power analysis utilizing: *T*-tests – Means, yielded a minimum sample size of 27, recruited from two senior centers providing deaf services. Fourteen males (51.9%), mean age 74, age range 61-86; Thirteen females (48.1%), mean age 65, age range 51-86. Recruitment utilized a probabilistic/purposeful/convenience random sample (facilitated by snowballing) of 27 prelingual/culturally deaf individuals (not late-deafened or hard-of-hearing) aged >50 years, conducted at the two senior centers. The survey instrument was developed based on a broad theoretical framework of health literacy and a modified version of the REALM, revised to include ASL graphics (study strength). Informed consent, sample/example questions, and evaluation instructions were presented in three formats, signed video - signed by an interpreter/CODA, written, and signed by the researcher. Written and signed video instructions to match written word(s) with picture(s) or written instructions were given and stopped at the beginning of each printed evaluation section and started again for the next section once participants indicated

they had completed a section or had done as much as they could.

FINDINGS: These preliminary findings confirm and extend limited prior research and clearly indicate that low and limited health literacy among members of this population is far more extensive than anticipated. Findings revealed that further and continued research with this underserved population is vitally necessary.

INTERPRETATION: Results of this study will better inform the healthcare community of the unrecognized magnitude, implication, and need for positive social change in health care policies and procedures in providing appropriate medical, health-care, and health-related information to prelingual/culturally deaf individuals. Limitations include small sample size; research was conducted exclusively in the New York City metropolitan area.

SOURCE OF FUNDING: None.

Barriers to Implementation of Pharmacogenomics among African Americans with Coronary Artery Disease on Clopidogrel

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BACKGROUND: Patients with acute coronary syndrome (ACS) are commonly prescribed antiplatelet therapy (aspirin and clopidogrel) to prevent recurrent myocardial infarction (MI) and stent thrombosis after percutaneous coronary intervention (PCI). However, patients have varying levels of platelet inhibition response to clopidogrel. African Americans with coronary artery disease (CAD) have a 3 to 5 times greater risk of a major adverse cardiovascular event (MACE) after PCI while on clopidogrel, compared with Whites. Genetic studies established that the CYP2C19 loss-of-function polymorphism is associated with resistance to antiplatelet effects of clopidogrel, which increases risk of MACE, in

particular stent thrombosis, after PCI. Ongoing studies at Vanderbilt University Medical Center (VUMC) and Meharry Medical College (MMC) are among the first to examine this relationship among African American patients.

The Clinical Pharmacogenetics Implementation Consortium (CPIC) released new guidelines in 2011 (updated 2013) for use of clopidogrel to reduce risk of MACE, which linked genetic variability to drug-related phenotypes, using commercially available genomic tests. However, implementation of these evidence-based guidelines in clinical practice settings has been limited to date. General barriers to implementing pharmacogenomics into clinical care include integration of genomics within the electronic health record and clinical workflow, low provider understanding of how to interpret genomic tests, and low patient knowledge and trust of genomic tests.

METHODS: The purpose of this research is to identify system-level, provider-level, and patient-level barriers to implementation of routine CYP2C19 pharmacogenomic testing to guide clopidogrel treatment among African American patients. The project will leverage ongoing pharmacogenomic studies on clopidogrel being conducted by VUMC and MMC at Nashville General Hospital (NGH), a public hospital serving underserved patients. To identify system-level and provider-level barriers, an online survey and qualitative key informant interviews with physicians and administrators will be conducted in the outpatient cardiology clinic at NGH. To identify patient-level barriers, the study will recruit 100 African American patients with CAD on clopidogrel who enroll in an ongoing pharmacogenomics study at NGH to complete a patient survey. A subsample of 20-30 survey respondents will be invited to participate in 4-6 qualitative focus groups. Survey questionnaires and interview questions will be guided by the Consolidated Framework for Implementation Research (CFIR).

FINDINGS: Study is pending IRB approval for recruitment.

INTERPRETATION: Study findings will inform future development of an intervention to improve implementation of pharmacogenomic testing for

clopidogrel therapy among African American patients, which has potential to reduce disparities in MACE after PCI.

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Examining Health Care Transition for Emerging Adults Living with Sickle Cell Disease within a Sociocultural Context

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BACKGROUND: The mortality rate increases among emerging adults living with sickle cell disease (SCD) after they have transitioned from pediatric to adult health care. Mortality rates increased from 0.60 in the 15- to 19- year-olds group to 1.40/100,000 in the 20- to 24-year-olds group. In addition to high mortality rates, this population is more likely to experience a higher incidence of health disparities due to lack of adequate health insurance and limited access to private insurance, lack of access to subspecialty care, poorly defined management approaches and poor preparation during health care transition, negative psychological coping responses, negative experiences with health providers, and stigma. The purpose of the current study is to examine the health care transition experiences of emerging adults living with (SCD) within a sociocultural context.

METHODS: A descriptive qualitative design was used for the current study. Participants were recruited from an adult sickle cell clinic located in an urban hyper segregated city. After obtaining informed consent, participants completed demographic surveys and responded to semi-structured questions using an interview guide to capture health care transition experiences. Thirteen emerging adults completed one semi-structured interview (mean age = 21.7 years). Of the 13 participants, ten were female and three were male. Inclusion criteria for participants included (a) diagnosis of SCD, (b) English speaking, (c) between the ages of 19

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and 25 years. Interviews were audiotaped and transcribed verbatim and NVivo 11 was used for analysis. Data from interview transcripts were categorized, coded, and analyzed using thematic analysis.

FINDINGS: During the transition from pediatric to adult health care, these emerging adults expressed the need for accessible support (social and community support systems) and early assistance with goal setting (for care, for life). Their experiences also included a lack of preparedness for the transition, spiritual distress, caring providers, stigma (general, internal), need for greater collaboration (between families, pediatric providers, and adult providers), and feeling isolated.

INTERPRETATION: Consideration of the socio-cultural milieu for emerging adults living with SCD is significant for addressing racial/ethnic health disparities. Results of this study may contribute to development of culturally appropriate interventions to promote transition readiness and optimize self-management behaviors for adolescents and emerging adults as they transition to adult health care.

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