

to recruit 150 older (>55 years) participants through the African Immigrant Health Study and community-based organizations serving African immigrants. We will use the PROMIS physical function measure to assess functional disability, the Everyday Discrimination scale and the Psychological Acculturation scale will be used to measure discrimination and acculturation respectively. Higher scores indicate greater severity. RESULTS/ANTICIPATED RESULTS: We have recruited 12 participants so far. The mean age is 57 years and mean length of stay in the United States is 23 years. Mean disability score is 6.5 (range 1–38). Mean discrimination is 8.2 (range 4–15). The prevalent acculturation strategy of these participants (7) is marginalization (neither identified with the American nor African cultures). DISCUSSION/SIGNIFICANCE OF IMPACT: Preliminary results indicate pervasive discrimination and marginalization of study participants. Exploring these experiences can inform preventive strategies of coping and health behaviors that can decrease the negative effects of discrimination, acculturation and functional disability in African immigrants.

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Factors associated with dual use of VA and civilian healthcare among U.S. National Guard and Reserve soldiers

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OBJECTIVES/SPECIFIC AIMS: Approximately 25%–45% of veterans are dual users of VA and civilian healthcare. In order to maximize patient outcomes, understanding factors related to dual use is important. This study examined mental and physical health factors related to dual use of VA and civilian healthcare among U.S. National Guard and Reserve (NG/R) soldiers. METHODS/STUDY POPULATION: NG/R soldiers and their partners ($n=411$ couples) participated in an electronic survey assessing health and health behaviors. Logistic regression models were used to examine the relationship between mental health (anxiety, depression, PTSD, anger), general health, and VA disability status at baseline, with usage of both VA and civilian healthcare among male soldiers ($n=109$) at the second year follow-up, controlling for age and race. RESULTS/ANTICIPATED RESULTS: In the final adjusted models, of the mental health conditions, only anxiety was related to dual use (OR: 1.08, 1.01–1.16, $p < 0.05$). Having a VA disability rating (OR: 4.00, 1.22–13.18; $p < 0.05$) was also related to being a dual user. General health was not related to dual use. DISCUSSION/SIGNIFICANCE OF IMPACT: While research has identified demographic characteristics (e.g., rurality, race, income) related to dual healthcare use, our results indicate that mental health, particularly anxiety, may also be related to dual use. Further study is needed to tease out the prime drivers of dual use to identify future care delivery mechanisms that will maximize treatment outcomes and minimize duplicative care.

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How have characteristics of end-of-life family caregiving changed from 1999 to 2015? Preliminary results from two waves of nationally representative data

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OBJECTIVES/SPECIFIC AIMS: Family members are often critical in the delivery of hands-on care and decisions about care for persons approaching end-of-life (EOL). Prompted by concerns about the poor quality and high costs of care at the EOL, recent delivery reform efforts—such as the growth of hospice and palliative care—have been directed at improving EOL care for both patients and family. Trends of the characteristics of EOL family caregivers and care recipients over time have not been well described. The goal of this study is to evaluate changes in EOL family caregiving from 1999 to 2015. METHODS/STUDY POPULATION: This study uses reconciled data from two nationally representative surveys and their linked caregiver surveys: the 1999 wave of the National Long-Term Care Survey (NLTC) and the Informal Care Survey (ICS), and the 2015 wave of the National Health and Aging Trends Study (NHATS) and the National Survey of Caregiving (NSOC). RESULTS/ANTICIPATED RESULTS: Crude analysis shows that older adults living in the community and receiving help from family caregivers in the last year of life were significantly better educated (72% with greater than 12 years of education vs.

46%), and more diverse (78% White vs. 89%) in 2015 compared with 1999. Family caregivers in the last year of life were less likely to be female in 2015 compared with 1999 (74% vs. 68%, NS) and significantly less likely to be spouses (45% vs. 38%) in 2015. In 2015, a significantly greater proportion of older adults received help with five or more activities of daily living (47% vs. 34%), but family caregivers reported significantly lower levels of caregiving-associated distress: financial strain (80% reporting none in 2015 vs. 53%), emotional (51% vs. 39%), and physical strain (70% vs. 45%). In addition, a significantly greater proportion of EOL family caregivers used respite care in 2015 compared to 1999 (15% vs. 4%). DISCUSSION/SIGNIFICANCE OF IMPACT: Changes in the experience of EOL family caregiving may be impossible to capture in studies of single interventions, but tracking nationally representative trends can be used as an indicator of broader changes that take place cumulatively over time. Although studies of this nature cannot identify causal mechanisms of change, they are important to monitor long-term impact of program implementation and to guide future research, policy, and resource allocation.

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Impact of primary care physician gatekeeping on medication prescriptions for atrial fibrillation

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OBJECTIVES/SPECIFIC AIMS: Atrial fibrillation (AF) is the most commonly encountered arrhythmia in clinical practice, and has widely varying treatments for stroke prevention and rhythm management. Some of these therapies are increasingly being prescribed by primary care physicians (PCPs). We therefore sought to investigate if healthcare plans with PCP gatekeeping for access to specialists are associated with different pharmacologic treatment strategies for the disease. In particular, we focused on oral anticoagulants (OACs), non-vitamin K-dependent oral anticoagulants (NOACs), rate control, and rhythm control medications. METHODS/STUDY POPULATION: We examined a commercial pharmaceutical claims database (Truven MarketScan™) to compare the prescription frequency of OAC, rate control, and rhythm control medications used to treat AF between patients with PCP-gated health plans (where the PCP is the gatekeeper to specialist referral—i.e., HMO, EPO, POS) and patients with non-PCP-gatekeeper health plans (i.e., comprehensive, PPO, CHDP, HDHP). To control for potential confounders, we also used multivariable logistic regression models to calculate adjusted odds ratios which accounted for age, sex, region, Charlson comorbidity index, CHADS2Vasc score, hypertension, diabetes, stroke/transient ischemic attack, prior myocardial infarction, peripheral artery disease, and antiplatelet medication use. We also calculated median time to therapy to determine if there was a difference in time to new prescription of these medications. RESULTS/ANTICIPATED RESULTS: We found only small differences between patients in PCP-gated and non-PCP-gated plans regarding prescription proportion of anticoagulants at 90 days following new AF diagnosis (OAC 44.2% vs. 42%, $p < 0.01$; warfarin 39.1% vs. 37.1%, $p < 0.01$; NOAC 5.9% vs. 6.0%, $p = 0.64$). We observed similar trends for rate control agents (76.4% vs. 73.4%, $p < 0.01$) and rhythm control agents (24.4% vs. 24.6%, $p = 0.83$). We found similar odds of OAC prescription at 90 days following new AF diagnosis between patients in PCP-gated and non-PCP-gated plans (adjusted OR for PCP-gated plans relative to non-gated plans: OAC 1.006, $p = 0.84$; warfarin 1.054, $p = 0.08$; NOAC 0.815, $p = 0.001$; dabigatran 0.833, $p = 0.004$; and rivaroxaban 0.181, $p = 0.02$). We observed similar trends for rate control agents (1.166, $p < 0.0001$) and rhythm control agents (0.927, $p = 0.03$). Elapsed time until receipt of medication was similar between PCP-gated and non-gated groups [OAC 4 ± 14 days (interquartile range) vs. 5 ± 16 days, $p < 0.0001$; warfarin 4 ± 14 vs. 5 ± 14, $p < 0.0001$; NOAC 7 ± 26 vs. 6 ± 23, $p = 0.2937$; rhythm control 13 ± 35 vs. 13 ± 34, $p = 0.8661$; rate control 10 ± 25 vs. 11 ± 30, $p < 0.0001$]. DISCUSSION/SIGNIFICANCE OF IMPACT: We found that plans with PCP gatekeeping to specialist referrals were not associated with clinically meaningful differences in prescription rates or delays in time to prescription of oral anticoagulation, rate control, and rhythm control drug therapy. In some cases, PCP gatekeeping plans had very small but statistically significant lower odds of being prescribed NOACs. These findings suggest that PCP gatekeeping does not appear to be a major structural barrier in receipt of medications for AF, although non-PCP-gated plans may vary slightly favoring facilitating the prescription of NOACs. Our findings that overall OAC prescriptions did not differ by PCP gating status may suggest completion of the rapid dissemination and uptake phase for most AF treatments. The small but statistically significant odds ratios favoring the non-PCP-gated populations in NOACs further suggests that in this newer drug group, the process is ongoing, with more specialists representing early adopters. Interestingly,

the low primary care odds ratio of rivaroxaban use, relative to dabigatran, may be indicative of a gradient of uptake of later-generation NOACs, although interpretability is limited by the small number of patients in the rivaroxaban group.

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Improving ClinicalTrials.gov compliance: A coordinated effort for success

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OBJECTIVES/SPECIFIC AIMS: ClinicalTrials.gov (CTgov) compliance has received much international attention as a significant regulatory, scientific, and ethical responsibility. Compliance rates for both industry and academia are held up for scrutiny by transparency advocates, but solutions for achieving compliance in academia have proven to be—because of its focus on innovation and multiple disciplines—significantly more complex than those employed by industry. Added challenges for academic medical centers (AMCs) are both increased researcher responsibilities under the new NIH Policy on Clinical Trial Dissemination and system-wide changes to requirements for “clinical trial only” Funding Opportunity Announcements. At Stanford University, a multifaceted approach toward improving CTgov outreach, education, and reporting led to a dramatic turnaround in compliance over 17-month period. **METHODS/STUDY POPULATION:** Stanford University School of Medicine’s Senior Associate Dean for Research and PI of Stanford’s CTSA applied a 3-part strategy to address unacceptable rates of results reporting. The strategy included (1) regular compliance reports to department chairs, (2) establishment of a central office, Clinical Research Quality (CRQ), to provide consistent training and support, and (3) interdepartmental cooperation across the school and university. Compliance reports, identifying all studies late for results reporting were sent monthly to all department chairs, with heightened focus on departments that conduct the most clinical trials. Senior leadership described the process in executive meetings and set improvement goals. Reports included multiple data points to help departments mobilize resources and identify trends; half-way through the period, soon-to-be late study records were included. CRQ hired 2 fulltime employees tasked with all aspects of managing the CTgov process and designed a portfolio of activities including: (1) a master list of all Stanford studies in the CTgov system; (2) a process for generating and distributing monthly reports; (3) an education program; and (4) support services, including an administrator working group. **RESULTS/ANTICIPATED RESULTS:** Since December 2015, Stanford has had the second-highest compliance rate improvement out of the 20 schools of medicine that receive the most NIH funding (+ 62%). **DISCUSSION/SIGNIFICANCE OF IMPACT:** Managing ClinicalTrials.gov compliance requires a high degree of technical knowledge of regulations, NIH policy, and the CTgov system. But without an equally high degree of engagement from senior leadership, results would not have been achieved. Central resources are critical to set policy and establish consistent processes, but without regular and repeated interactions between faculty, a multitude of administrators and staff, more central resources would have been required. By working simultaneously “down from the top” and “up from the bottom,” communication and education expanded rapidly, ineffective efforts were quickly transformed, and what began as an irritating and cumbersome problem became an occasion for collaboration and celebration of increased transparency.

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Integrating ethics support as culture change in a translational science environment

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OBJECTIVES/SPECIFIC AIMS: To outline 4 categories of ethics needs identified at a translational science center. To map how research ethics has been further integrated into the center’s culture in response to these needs. To provide insights into how research ethics can be integrated into the translational team science environment. **METHODS/STUDY POPULATION:** The Institute for Translational Sciences (ITS) at the University of Texas Medical Branch is studied on an organizational level using polyphonic organizational theory and the results of an ethics needs assessment completed in 2010. **RESULTS/ANTICIPATED RESULTS:** The results will be a map indicating how research ethics has been further integrated into the culture of the ITS in response to the needs identified to ensure the responsible practice of translational science. **DISCUSSION/SIGNIFICANCE OF IMPACT:** Successful translational science requires shared understanding of communication and values. Achieving agreement in

these areas requires the development of strategies for communicating and reinforcing common goals. Research ethics has often been considered an “add on” rather than a “part of” science. Through integrating ethics into various aspects of translational science, the ITS has taken important steps toward achieving the goal of culture change. The map of how the ITS has integrated ethics into organizational activities and structures will serve as a model for other organizations and institutions.

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Is less more? Examining the relationship between food assistance generosity and childhood obesity

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OBJECTIVES/SPECIFIC AIMS: In combination with 3 waves of individual-level data on children age 5–18 from the Panel Study of Income Dynamics, we exploit exogenous variation at the level of the state to determine whether SNAP generosity modifies the effect of SNAP participation on overweight/obesity status. We do so using a newly created and powerful data set including information on state-level SNAP generosity between the years 1996 to 2011. **METHODS/STUDY POPULATION:** Data and sample. We drew individual-level data from the Child Development Supplements of the Panel of Income Dynamics (PSID), a nationally representative longitudinal study gathering data since 1968 on US individuals and the families in which they reside. Aged 0–12 years in 1997, these children of PSID sample members were surveyed roughly every 5 years through 2007. The total number of observations over the study period is just over 8093, representing 3563 children. We drew state-level data from the State Welfare Generosity Index. This is a decomposable index of State welfare generosity capturing state policy variation across 4 programs (TANF, SNAP, Unemployment Insurance and Medicaid/CHIP) and 2 dimensions (eligibility requirements and benefit levels). Measures. Child weight status was determined using the Center for Disease Control (CDC) body mass index (BMI)-for-age gender-specific growth charts: underweight (BMI <5th percentile), healthy weight (BMI >5th percentile and BMI <85th percentile), overweight (BMI >85th percentile and BMI <95th percentile) or obese (BMI >95th percentile). From this, we constructed an indicator for overweight/obese Versus normal or underweight status. SNAP participation is a dichotomous indicator based on the head-of-households or their spouses reported receipt of SNAP benefits during the previous calendar year from the interview. SNAP generosity is scored on a scale of 0–100, with more generous states receiving higher scores than less generous states. Covariates include sex, race, age, head-of-household years of education and a continuous measure of household income adjusted for family size. Estimation techniques. We merged the child, parent/caregiver, family and main PSID files to obtain the most comprehensive data on each sample child. We first generated, descriptive statistics for the Wave 1 sample of 3563 children. We then present the mean, standard deviation and the ratio of the 2 (coefficient of variation) for state-level variables. We present χ^2 tests of difference for non-SNAP compared to SNAP participants in terms of overweight/obesity, and pairwise correlation coefficients among the 3 state-level variables. Next, we conducted a series of simple and multivariate logistic regressions estimating the odds of being overweight or obese. As we are assessing the risk of adverse weight status, those of normal or underweight status are the reference group for all regression analysis. Because height and weight reports are known to be unreliable below the age of 5, regression analyses impose an age restriction of greater than 5 years old. We include adjustment for the clustered nature of data. **RESULTS/ANTICIPATED RESULTS:** The individual-level statistics indicate that roughly one-third of the CDS sample is overweight or obese at Wave 1 in 1997. About a fifth of them live in families receiving SNAP. The mean SNAP generosity score is 10 on a possible range of 0 to 1 (observed range of 0.037 to 0.290 not shown). Variation across state-years is greatest for the SNAP participation variable, as reflected by the coefficient of variation. In the period 1997–2007, the proportion of children who are overweight or obese is 5% higher among those in families receiving SNAP program benefits than among those in families not receiving SNAP benefits. Similarly, SNAP participation is positively, moderately and significantly (with an α of 0.05) correlated with overweight/obesity. Examines the relationship between overweight/obesity and the SNAP measures using individual-level data on overweight/obesity and SNAP participation and state-level data on SNAP generosity. Model 1 estimates and exponentiates the log odds of overweight/obesity based on individual-level SNAP participation. Model 2 does the same using state-level SNAP generosity as the predictor. Results indicate that both variables are positively associated with a child’s chance of being overweight/obese. But only in the case of SNAP participation is the SNAP