A High Risk of Hospitalization Following Release from Correctional Facilities Among Medicare Beneficiaries

Emily A. Wang1, Yongfei Wang2, Harlan M. Krumholz1,2; 1. Yale School of Medicine, New Haven, CT, United States. 2. Yale-New Haven Hospital Center of Outcomes Research and Evaluation, New Haven, CT, United States.

Background: Healthcare is constitutionally guaranteed in correctional facilities, but not upon release, which could increase the risk of acute events. We studied the risk for hospitalizations among former inmates soon after their release from correctional facilities.

Methods: We conducted a retrospective cohort study using data from Medicare administrative claims for all fee-for-service beneficiaries who were released from a correctional facility from 2002 through 2010. Using McNemar’s test and condition logistic regression, we compared hospitalization rates after release among former inmates 7, 30, and 90 days after release to beneficiaries matched based on age, sex, race, Medicare status, and residential zip code. We also compared hospitalizations with the specified diagnosis codes between the two groups and examined whether being released from a correctional facility was associated with different risks for hospitalizations for ambulatory care-sensitive conditions compared with the matched control. We used Kaplan Meier survival analyses to compare time to the first hospitalization and death between the two matched groups after release. Data were censored at the time of death or the end of the observation period.

Results: Of 110,419 released inmates, 1559 individuals (1.4%) were hospitalized within 7 days after release; 4285 individuals (3.9%) within 30 days; and 9196 (8.3%) within 90 days. The odds of hospitalization was higher for released inmates compared with matched controls (within 7 days, odds ratio (OR) 2.5, 95% confidence interval [CI] 2.3, 2.8; 30 days, OR 2.1, 95% CI, 2.0, 2.2; and 90 days, OR 1.8, 95% CI 1.7, 1.9). Compared with matched controls, former inmates were more likely to be hospitalized for ambulatory care-sensitive conditions (within 7 days, OR 1.7, 95% CI 1.4, 2.1; 30-days, OR 1.6, 95% CI 1.5, 1.8; and 90-days, OR 1.6, 95% CI 1.5, 1.7). Mental health conditions were the most common reason for hospitalizations among former inmates 30 days post release (22.1%). Diseases of the circulatory system (14.0%), injury and poison (12.7%), and disease of the respiratory system (10.5%) were also common reasons for hospitalization among released inmates. In event-free analyses, former inmates were more likely to be hospitalized compared with the control group within a year following release.

Conclusions: About one in 70 former inmates are hospitalized for an acute condition within 7 days of release, and one in 12 by 90 days, a rate much higher than the general population. Transitions between correctional facilities and the community are a high-risk period; correctional and community healthcare systems should collaborate to reduce morbidity for this vulnerable population.
Communities IMPACT Diabetes Center’s Vision Health Toolkit: Utilizing Lay Health Social Service Providers as Messengers of Vision Health Information

Michelle A. Ramos¹, Ashley Fox¹, Brett Ives², Carol Horowitz¹; ¹. Health Evidence and Policy, Mount Sinai School of Medicine, New York, NY, United States. ². Division of Diabetes, Endocrinology and Bone Diseases, Mount Sinai School of Medicine, New York, NY, United States. ³. Medicine, Mount Sinai School of Medicine, New York, NY, United States.

Background: Racial and ethnic disparities in vision impairment are prevalent as are low rates for recommended eye screenings, such as annual dilated eye exams for people with diabetes (40-65%). A community-academic partnership aimed to improve vision screening in a low-income, minority neighborhood by developing a multi-component vision health toolkit for social service providers to promote comprehensive vision exams among their consumers.

Methods: The team developed and tested a bilingual toolkit that included posters, brochures, table tents and magnifier cards. Thirty-seven local social service agencies (i.e., senior centers, food pantries), faith-based organizations and health centers were recruited to adopt the toolkit and have at least one staff member or volunteer serve as a Vision Health Champion for that site. We surveyed a subset of consumers at 15 intervention and 3 control sites before and 6 months after disseminating the toolkits to assess receipt of comprehensive eye exams, vision knowledge and comorbidities, and surveyed Vision Health Champions to assess implementation and provider knowledge at these same times.

Results: The 156 consumers surveyed were largely female (68%), Black (55%) and had high diabetes (23%) and hypertension (33%) rates. At baseline, 72% reported an eye exam in the past year and vision knowledge was fairly high (91% correctly answered 3 or more out of 7 vision knowledge items). There was no baseline difference between intervention and control sites self-reported eye exam rates in the past year. Six month follow-up surveys were completed with 62% of consumers. People at intervention sites were more likely to report a comprehensive eye exam in the past 6 months (45% vs. 24%, p=0.06). Those with diabetes at intervention sites were also more likely to have had an eye exam in the past 6 months than those with diabetes at control sites (66% vs. 33%, p<0.01). With respect to 44 of 61 Vision Health Champions surveyed at follow-up (72% response rate), 80% stated that the toolkit was easy to implement, 32% integrated it into pre-existing programming and 90% planned to continue using it.

Conclusions: Even in a small pilot project, we demonstrated a significant increase in comprehensive eye examinations at intervention sites compared with control sites and among the targeted group - individuals with diabetes. We further demonstrated the feasibility of implementing a sustainable community-based intervention in a low-income setting at locations where people frequently congregate and interact with a range of social service providers. Novel, scalable approaches such as the use of Vision Health Champions in social service settings are a viable means of preventing and controlling diabetes complications, including vision loss.
Impact of Massachusetts Health Reform on Hospitalizations, Length of Stay and Costs of Inpatient Care: Does Safety-Net Status Matter?

Amresh D. Hanchate¹ ², Danny McCormick ³, Chen Feng ², Karen E. Lasser ², Nancy R. Kressin¹ ²; ¹. COLMR, VA Boston HealthcareSystem, Boston, MA, United States. ². General Internal Medicine, Boston University School of Medicine, Boston, MA, United States. ³. Department of Medicine, Harvard Medical School/Cambridge Health Alliance, Boston, MA, United States.

Background: There is widespread concern that large-scale insurance expansion – such as that anticipated from the Affordable Care Act – has the potential to cause sharp increases in health care utilization and costs. In the setting of Massachusetts’ landmark 2006 health care reform, we estimated pre-reform to post-reform changes in inpatient care volumes and costs, contrasting the experience of safety-net hospitals (SNH) as the predominant providers of care for targeted reform beneficiaries, with that of non-SNH.

Methods: We analyzed MA Hospital Inpatient Discharge Data on all non-federal MA hospital discharges from 2004-2010 for 2,636,326 non-elderly patients (age 18-64) – the population targeted by the reform – across all 66 short-term acute care hospitals. Safety-net hospitals were identified as those in the top quartile of hospitals (N=16) in the proportion of hospital admissions with Medicaid, Free Care (state-funded program for uninsured) and self-pay as the primary payer. Using the quarter as the unit of time, we examined longitudinal hospital-level changes in (a) number of admissions, (b) average length of stay (LOS; days), (c) average charge per day ($; 2010 prices) and (d) average charge per stay ($; 2010 prices), separately for SNH and non-SNH. We also examined changes for acute and non-acute admissions, and for subpopulations by race/ethnicity and socioeconomic status (SES; defined using patient zip code median income). We used linear regression models to estimate the average change between pre-reform (1/2004 to 6/2006) and post-reform (1/2008 to 6/2010) periods, adjusting for longitudinal changes in patient demographics and comorbidities at each hospital. To better isolate the impact of reform from secular state-wide trends, we treated the elderly (age 65+) as the “control” population and used a difference-in-differences model specification.

Results: There was no significant post-reform change in the number of admissions; quarterly number of admissions per hospital were 1,480 pre-reform and 1,520 post-reform (p=0.68). A similar pattern was found for admissions at hospitals by safety-net status, for acute and non-acute admissions, and for minority and low-income subpopulations. Average LOS increased by a smaller amount among SNH (0.20 days; 95% CI=[0.15, 0.25]) than among non-SNH (0.30 days; 95% CI=[0.27, 0.33]). Average charges per day decreased among SNH ($-198; 95% CI=[-$-251, $-145]) and increased among non-SNH ($249; 95% CI=[$215, $284]). A similar trend with a larger difference was found for average charges per stay (SNH=$-477; 95% CI=[$-768, $-187] and non-SNH=$1,442; 95% CI=[$1,248, $1,635]). Similar trends were found for both acute and non-acute admissions. Among blacks and Hispanics, none of the measures indicated larger increase in SNH compared to that in non-SNH; for low-income patients, increases in LOS and charges were smaller in SNH.

Conclusions: Following MA health reform, utilization of inpatient care did not increase at SNH, the predominant providers of inpatient care for populations targeted by the reform, compared to non-SNH. A similar trend was found for acute and non-acute admissions, and for minority and low-income subpopulations. Future analyses in the coming months will test robustness of these findings using the non-elderly patients from comparison states as the control population.
Where You Live Suggests How Well You Adhere: A National Cohort of Patients beginning Statin Therapy

Andrew M. Davis¹, Dima Qato³, Michael S. Taitel², Jenny Jiang², Elbert S. Huang¹; 1. General Internal Medicine, University of Chicago, Chicago, IL, United States. 2. Clinical Outcomes & Analytic Services, Walgreens, Deerfield, IL, United States. 3. Center for Pharmacoepidemiology and Pharmacoeconomic Research, University of Illinois College of Pharmacy, Chicago, IL, United States.

Background: Non-adherence to cardiovascular medications is associated with worse health and economic outcomes. A metric of medication adherence has been added to national CMS quality monitoring. Medication adherence is consistently lower among minorities, and is thought to be an important contributor to poorer risk factor control and higher cardiovascular morbidity and mortality in these populations. Studies of adherence typically are limited geographically and focus on insured populations. To our knowledge, no national studies have explored the association of neighborhood racial composition and medication adherence, data that could inform the design of local neighborhood and retail pharmacy programs in chronic disease management, as well as co-pay policies.

Methods: The study assessed patients in the national Walgreens database who began statin therapy for the first time during the first quarter of 2012. Individual patient adherence was defined as ‘patient days on therapy’ (PDOT) out of 180 days, dated from the initial prescription fill. Patients were linked to neighborhoods using their home addresses, with block group specific racial and socioeconomic variables from the 2010 U.S. census linked to each neighborhood. A typical block group (BG) has 1500 residents, five-fold finer than the zip code or census tract level. There were 332,193 patients with valid home addresses, and full plan and co-pay data existed for 328,130. Mean age was 60.2, and 49.5% were female. A generalized linear model for repeated measures quantified the association between patient statin adherence at 6 months and neighborhood racial composition, adjusting for individual factors of age, gender, payer (Medicaid, Medicare, private insurance, cash), co-pay amount, use of 30-day vs. 90-day refill, and mental health prescription use, as well as the neighborhood characteristics of urban vs. rural location, educational attainment (% with college degree), and median household income.

Results: The study cohort closely matched U.S. census distributions. As block groups became more racially or ethnically homogeneous, even controlling for multiple confounders, strong clinically significant (10-14 day) negative associations were seen in statin adherence for blacks and Hispanics. There was a strong inverse positive association for whites (13 days). No effect was seen for Asians (data not shown).

Conclusions: Clinically important disparities in statin adherence are associated with neighborhood racial and ethnic homogeneity, even controlling for age, co-pay, payer, and basic socioeconomic factors. Awareness and monitoring of national and local adherence patterns, and exploration of their relation to various neighborhood characteristics can inform pharmacy and neighborhood-based programs designed to improve adherence. This innovative approach also calls attention to the equity of national quality metrics for medication adherence.
**Improving Rates of Annual Colorectal Cancer Screening among Latino Patients**

David W. Baker1,2, Tiffany Brown1,2, David R. Buchanan3, Jordan Weit3, Kenzie A. Cameron1,2, Lauren Ranalli3, M. Rosario Ferreira4, Kate Balsley3, Shira N. Goldman1,2, Ji Young Lee1, Michael S. Wolf1,2; 1. Division of General Internal Medicine and Geriatrics, Department of Medicine, Northwestern University Feinberg School of Medicine, Chicago, IL, United States. 2. Center for Advancing Equity in Clinical Preventive Services, Northwestern University Feinberg School of Medicine, Chicago, IL, United States. 3. Erie Family Health Center, Chicago, IL, United States. 4. Division of Gastroenterology and Hepatology, Department of Medicine, Northwestern University Feinberg School of Medicine, Chicago, IL, United States.

**Background:** Only 61% of U.S. adults are adequately screened for colorectal cancer (CRC); rates are lower among Blacks, Latinos, and the poor. Fecal occult blood testing (FOBT) is one recommended screening modality; its effectiveness is contingent on repeating the test every 1-2 years. Many individuals in vulnerable groups face barriers to annual FOBT screening, including lack of a regular source of care, less frequent medical visits, frequent changes in residence, and lack of awareness of the need for annual screening. We describe interim results from a comparative effectiveness study of an intervention to maximize the rate of annual FOBT compared to usual care among vulnerable patients.

**Methods:** This is a randomized controlled trial conducted at an urban federally-qualified health center network serving a primarily poor, Latino population. At the start of the study, 42% of patients were up to date on CRC screening; the rate of annual (repeat) screening (within 18 months of the previous FOBT) was 23%. We excluded patients with medical conditions that would make CRC screening by FOBT inappropriate. All patients who had a negative FOBT in the previous year and were due for repeat FOBT were identified using electronic health records and randomized (with an IRB-approved waiver of informed consent) to receive either usual care or a multifaceted intervention. Usual care includes computerized reminders, standing orders for assistants to give out a fecal immunochemical test (FIT), and provider feedback on CRC screening rates. The intervention group also receives: 1) a mailed reminder letter to patients from their provider, including a free FIT, low-literacy instructions for completing the FIT, and a postage-paid return envelope, 2) automated phone and text messages after the initial mailing, 3) an automated phone and text reminder two weeks later for those who fail to return the FIT, and 4) outreach by a CRC screening coordinator to patients who fail to return the FIT within 3 months. The primary outcome is completion of FOBT within 6 months of the date due.

**Results:** 175 patients have been randomized to the intervention group; they are primarily Latino (87%), female (70%), and Spanish-speaking (83%), with a mean age of 60 years (SD=6.1). The mailing was returned to sender for 3%. For the initial automated calls, 57% were answered in person, 35% were answered by machine, and 9% were not completed. The initial text message was sent successfully to 51% of patients. To date, 134 (77%) intervention patients completed a repeat FOBT within 6 months; 16 (9%) completed the FIT prior to their due date (i.e., after a clinic visit); 54 (31%) completed it within 2 weeks of the mailing and initial call and text, 53 (30%) between 2 weeks and 3 months (following the reminder call and text), and 11 (6%) between 3 and 6 months (after the coordinator outreach). Six (5%) patients had positive FITs.

**Conclusions:** This multifaceted intervention has achieved rates of adherence to annual CRC screening far above pre-intervention levels. Moreover, adherence reached the high level needed for FOBT to reduce CRC mortality. Most of the screenings were achieved by the FIT mailing and the automated reminders without the need for the CRC screening coordinator. These interim data suggest that it is possible to dramatically improve annual CRC screening for vulnerable populations with relatively low-cost strategies that can be supported by increasingly available health information and consumer technologies.
The cycle of substance abuse, prostitution and psychological distress and its effect on health seeking behavior among HIV positive black women.

Jennifer L. Grant\textsuperscript{2, 1}, Loida Bonney\textsuperscript{1}, Judith C. Barker\textsuperscript{3}; 1. General Medicine, Emory University School of Medicine, Atlanta, GA, United States. 2. Health Policy & Management, Rollins School of Public Health, Atlanta, GA, United States. 3. Department of Anthropology, History, & Social Medicine, University of CA, San Francisco, San Francisco, CA, United States.

Background: Black women in the South have increasing rates of HIV infection and disproportionately high rates of adverse HIV-related outcomes. To explain these findings, several studies have reported the association of substance abuse, and gender related violence with increased risk for HIV infection. However, fewer have looked at how and why drug use interferes with engagement in HIV care following diagnosis. The objective of this analysis was to examine how the vulnerabilities of poverty, race, and gender influence drug abuse, prostitution and psychological distress, and their effects on health seeking behavior among HIV positive black women through the narratives of Black women.

Methods: Individual semi-structured in-depth interviews were conducted with 20 HIV-positive Black women residing in Atlanta, GA using a phenomenological approach. Participants were identified from an electronic medical record review of an HIV primary care clinic and recruited by telephone call or formal letter. Inclusion criteria specified that women identify as Black, had been aware of their HIV serostatus for at least two years, and had been linked to HIV care. Participants were asked about their racial, gender, and socioeconomic identities and how these affected treatment of their HIV. In addition, questions were directed to include experiences with substance abuse, criminal activity, and romantic relationships. Finally, participants were invited to disclose their experiences with the HIV health care system. Interviews were digitally recorded, transcribed and analyzed thematically.

Results: One hundred eleven black women were screened for eligibility during the initial chart review. 78 women were contacted. There was a high rate of non-response. Almost all 20 participants reported annual incomes below the federal poverty level. 10 participants admitted to prior substance abuse. Of the 10, 8 spoke of engaging in sex work to finance their addiction and an additional 2 entered into ongoing relationships with men in exchange for housing, money, or drugs. All 10 of these women stated their sex work or relationships lead to considerable amounts of violence and sexual exploitation, which lead to psychological distress and further drug abuse. All women reporting history of substance abuse stated that this cycle of addiction, specifically their preoccupation with obtaining drugs, low self worth and/or lack of desire to live, was their primary reason for not seeking HIV healthcare.

Conclusions: We conclude that there are low-income Black women with HIV-infection in the South who are trapped in a self-reinforcing cycle of drug abuse, prostitution, and psychological distress. Increasing mental health resources and harm reduction and empowerment programs may facilitate engagement in care for this highly vulnerable population. Intervention at multiple points in the cycle can lead to improved outcomes.