**Patient Activation and Improved Outcomes in HIV-infected Patients**

Rebecca Marshall, Mary Catherine Beach, Somnath Saha, Tomi Mori, Mark O. Loveless, Judith H. Hibbard, Jonathan A. Cohn, Victoria L. Sharp, Todd Korthuis, Department of Psychiatry, Oregon Health & Science University, Portland, OR, United States. Division of General Internal Medicine, Johns Hopkins University School of Medicine, Baltimore, MD, United States. Section of General Internal Medicine, Portland VA Medical Center, Portland, OR, United States. Division of General Internal Medicine, Oregon Health & Science University, Portland, OR, United States. Department of Public Health & Preventive Medicine, Oregon Health & Science University, Portland, OR, United States. Department of Planning, Public Policy & Management, University of Oregon, Eugene, OR, United States. Division of Infectious Diseases, Wayne State University, Detroit, MI, United States. Center for Comprehensive Care, St. Luke’s-Roosevelt Hospital Center, New York, NY, United States. (Control ID: 1332545)

**Background:** Patient activation, the knowledge, skill, and confidence to manage one’s own healthcare, is associated with improved health behaviors that may improve outcomes, but has not been studied in HIV primary care, where healthy behaviors such as medication adherence are essential to treatment success. The objective of this study was to determine 1) patient characteristics associated with patient activation and 2) associations between patient activation and HIV outcomes.

**Methods:** The design was a cross-sectional survey conducted in 4 HIV clinics in Baltimore, Detroit, New York, and Portland. Participants were 433 HIV-infected patients, age 18 or greater receiving care from 45 HIV providers. Patient activation was measured using the 13-item Patient Activation Measure (PAM) (possible range 0-100). HIV outcomes included CD4 cell count > 200 cells/mL and HIV-1 RNA < 400 copies/mL (viral suppression), abstracted from medical records, and patient-reported adherence (100% antiretrovirals taken as prescribed).

**Results:** Overall, patient activation was high (mean PAM=72.3 [SD 16.5, range 34.7 – 100]). Activation was lower among those without vs. with a high school degree (68.0 vs. 74.0, p<.001), and greater depression (77.6 lowest, 70.2 middle, 68.1 highest tertile, p<.001). In multivariable models, every 10-point increase in PAM was associated with greater odds of CD4 count > 200 cells/ml (aOR 1.22 [95% CI 1.02, 1.46]), adherence (aOR 1.32 [95% CI 1.07, 1.62]), and HIV-1 RNA suppression (aOR 1.18 [95% CI 1.00, 1.38]). The association between PAM and viral suppression was mediated through adherence.

**Conclusions:** Higher patient activation was associated with more favorable HIV outcomes. Interventions to improve patient activation should be developed and tested for their ability to improve HIV outcomes.
HIV Conspiracy Beliefs among Racial/Ethnic Minorities in Chicago: Implications for HIV Testing and Participation in Research

Ryan Westergaard¹, Mary Catherine Beach², Somnath Saha³, Elizabeth Jacobs¹

¹Department of Medicine, University of Wisconsin School of Medicine & Public Health, Madison, WI, United States. ²Department of Medicine, Johns Hopkins University, Baltimore, MD, United States. ³Department of Medicine, Oregon Health & Science University, Portland, OR, United States. (Control ID: 1340669)

Background: Conspiracy beliefs about the origin of HIV and the government’s role in HIV research have been reported among African-Americans in the United States. We hypothesized that endorsing such beliefs would be associated with decreased willingness to undergo physician-initiated screening for HIV infection or to participate in HIV research.

Methods: We conducted a cross-sectional, computer-adapted survey of a convenience sample of African American (n=208), white (n=198), and Latino or Hispanic (n=195) adults shopping at one of 12 supermarkets located within a socioeconomically diverse group of Chicago neighborhoods. Using a 5-point Likert scale, participants rated their level of agreement with 6 statements reflecting HIV conspiracy beliefs (Figure). Respondents then indicated whether they would agree to be tested for HIV infection if it was recommended by a doctor and rated their willingness to participate in an HIV vaccine study. Ordinal logistic regression models were used to assess the influence of holding conspiracy beliefs on willingness to undergo HIV testing or participate in research while adjusting for race/ethnic group, gender, age, family income and education level.

Results: African-American and Hispanic/Latino respondents were more likely to agree or strongly agree with at least one HIV conspiracy belief compared to white/Caucasian respondents (60.4% and 59.0% vs. 38.8%, respectively, p<0.001). African-Americans were significantly more likely to report they would accept HIV testing if recommended by a doctor (82.9%) than whites (73.9%, p<0.05), and expressed greater willingness to participate in an HIV vaccine study (58.9% “very willing” or “probably willing”) than whites (39.3%) or Hispanic/Latino respondents (49.5%, p<0.001 for trend). In adjusted models, level of agreement with HIV conspiracy beliefs showed no association with either report of HIV test acceptance or willingness to participate in HIV research. Of the variables analyzed, racial/ethnic group was the only significant predictor of HIV test acceptance: African-Americans had 75% increased odds of reporting they would accept an HIV test compared to whites (adjusted OR=1.75, 95% CI=1.0 - 3.1).

Conclusions: HIV conspiracy beliefs remain common and are disproportionately held by racial/ethnic minorities. Endorsing such beliefs, however, does not appear to influence reported willingness to undergo HIV testing in health care settings or to participate in HIV research.
On the Wrong Side of the Digital Divide: Access, Interest, and Attitudes Toward Internet-Based Communication for Health Among Patients in the Safety Net

Adam Schickedanz1, David Huang1, Andrea Lopez1, Tom Bodenheimer1, Urmimala Sarkar1 1 University of California, San Francisco, San Francisco, CA, United States. (Control ID: 1326469)

Background: Communication between patients and their health care team via email or a patient portal with secure web messaging has been shown to increase patient satisfaction, enhance provider productivity, and improve health outcomes. We sought to characterize access to and interest in web-based communication in a diverse group of patients from a large urban safety net clinic network.

Methods: A cross-sectional, survey of English, Spanish, and Cantonese-speaking adults attending an ambulatory clinic visit in the San Francisco Community Health Network, a large group of urban community and hospital-based clinics. The primary outcomes were the level of patients’ use of web-based communication and interest in web-based communication for health care related. Self-reported sociodemographic characteristics (age, gender, language, race/ethnicity, educational level) were collected.

Results: Participants were generally representative of the overall clinic network patient population. Among the participants, 54% were female, 79% were under 60 years old, and 68% had income less than $20,000 per year. Eighty-one percent did not identify as white, only 55% were primarily English speaking, and 25% reported poor English proficiency or no English proficiency at all. 60% of our study participants used email regularly, and 59% of those who used email accessed it in their home. Demographic characteristics associated with greater access to and use of email included younger age (especially age less than 40 years old), income over $20,000 per year, being housed, some college education, white race, speaking primarily Spanish or English, and higher English proficiency. Cantonese language and Asian descent were negatively associated with email use. Seventeen percent of patients were already using email to communicate with their medical providers. Eighty-two percent agreed that email would improve the clinical communication with their doctor or nurse.

Conclusions: Our data show racial and ethnic disparities in email use and interest in electronic health-related communication among patients in the safety net. We found an unmet demand for technology for health communication among patients in the safety net. Furthermore, most of patients have access to the web, and most agreed it would likely improve clinical communication and efficiency. Usability testing and tailoring of these technologies in vulnerable populations will be critical to ensure that patients in disadvantaged populations benefit equally. Moreover, patients in resource-poor communities, especially those with limited health literacy and lower educational attainment, may require training in the use of these technologies to achieve the greatest benefit.
Subjective and Objective Socioeconomic Status and Control of Hypertension and Diabetes

Jose Delgado\textsuperscript{1}, Alicia Fernandez\textsuperscript{2}, Nancy E. Adler\textsuperscript{3}, Keegan Korthauer\textsuperscript{4}, Elizabeth Jacobs\textsuperscript{5}.\textsuperscript{1} Medicine, Georgetown University Hospital, Washington, DC, United States. \textsuperscript{2} Medicine, University of California, San Francisco, San Francisco, CA, United States. \textsuperscript{3} Psychiatry, University of California, San Francisco, San Francisco, CA, United States. \textsuperscript{4} Biostatistics and Medical Informatics, University of Wisconsin School of Medicine and Public Health, Madison, WI, United States. \textsuperscript{5} Medicine & Health Innovation Program, University of Wisconsin - Madison, Madison, WI, United States. (Control ID: 1336272)

Background: Poor control of diabetes and hypertension is common among minority and low-income populations compared to higher income and white populations. Objective measures of social status, such as income and education, have been shown to account for some of this disparity. Subjective social status (SSS) defined as an individual's perception of where they stand in society, has been related to general health status and the presence of diabetes and hypertension. It is not clear if SSS might also be related to disparities in diabetic and hypertensive control. Our objective was to investigate whether SSS was significantly related to control of these chronic illnesses in a diverse, vulnerable population.

Methods: Data was obtained from the Immigration, Culture and Health Care Study (ICHHC), a large survey and data abstraction study of a convenience sample of patients with diabetes seeking care for diabetes in safety-net clinics in Chicago and the San Francisco Bay Area. Subjective social status was measured by showing participants a drawing of two ladders. Participants were told one represents their community and the other represents the overall US society. In each ladder participants were asked to choose the step of the ladder that better represents their current position within the ladders’ respective group. The most recent blood pressure measurement and hemoglobin A1c values were obtained from the participant’s electronic medical record. We defined hypertensive control as systolic blood pressure below 130mmHg and a diastolic blood pressure below 80 mmHg. Diabetes control was defined as having a hemoglobin A1c lower than 8%. Univariate chi-square analyses were used to determine racial/ethnic differences in SSS while sequential multivariate logistic regression models were used to assess the association of SSS with diabetes and blood pressure control. Additionally we examined the interaction between each measure of subjective social status and race/ethnicity a final multivariate model. Multivariate models were adjusted for age, gender, income, education, marital status and medication adherence.

Results: Participants included 107 whites, 200 black and 404 Mexican Americans. Hypertension was controlled in 46.5% of participants, while 52% met our criterion for glycemic control. Neither measure of SSS nor race/ethnicity was significantly associated with blood pressure or diabetes control in the overall population. However, in the final model for glycemic control, there was a significant interaction between SSS and race/ethnicity when participants compared themselves with the overall US society indicating that it did matter in some racial/ethnic groups compared to others: the odds ratio for diabetes control of Mexican Americans was 2.07 (p>0.05) and African Americans 1.10 (p>0.05) for each unit increase in SSS when compared with whites, while the odds for diabetes control among African Americans was 0.50 (p=0.02) compared to Mexican Americans.

Conclusions: In this population of diabetes patients who seek care in safety net clinics, we found that one measure of SSS was significantly related to difference in diabetic control across racial ethnic groups but that neither measure of SSS was associated with hypertensive control. This suggests that measures of SSS may contribute to disparities above and beyond objective social status.
The Medicare Part D Low-Income Cost Subsidy (LICS) and Adherence to Medications for Secondary Prevention of Cardiovascular Disease

O. Kenrik Duru¹, Sarah Edgington¹, Carol Mangione¹, Norman Turk¹, Chi-hong Tseng¹, Lindsay Kimbro¹, Susan Ettner¹
University of California, Los Angeles, Los Angeles, CA, United States. (Control ID: 1320374)

Background: Out-of-pocket costs are an important barrier to medication adherence. High copayments can be a major obstacle for patients who have already experienced a cardiovascular event, and are taking medications which are quite expensive but also critical for secondary prevention of recurrent events. Medicare Part D includes a low-income cost subsidy (LICS) for eligible low-income patients that reduces the out-of-pocket costs for chronic maintenance medications. To date, there have been few studies examining the association between LICS enrollment and medication adherence among Medicare beneficiaries.

Methods: We used 2006 and 2007 administrative data from diabetic patients within Medicare Advantage Prescription Drug (MAPD) plans offered by a large, national Part D insurer. The analytic sample was limited to patients with ICD-9 and/or CPT codes for a myocardial infarction (MI), coronary stent, or coronary artery bypass graft (CABG) in 2006, who had at least one post-event fill for a statin (MI, CABG), or clopidogrel (stent). We classified patients who were enrolled in LICS at any point during the 12-months post-event as the sample of interest, and we used nearest neighbor propensity score matching to identify a comparison group of non-LICS patients for each of the three events. We matched on age, gender, institutionalization, comorbidities, days’ supply of the last medication fill in the study window, and median poverty level in the provider billing zip code. We then constructed three multivariate logistic regression models (MI, stent, CABG) with these covariates to examine the associations between LICS status and the likelihood of good adherence over the 12-month window, as defined by a Proportion of Days Covered (PDC) of >80%. In a separate multivariate regression model, we evaluated the association between LICS status and premature discontinuation of clopidogrel after coronary stent placement, defined as the absence of clopidogrel fills for 120 days between the end of the previous days’ supply and the end of the 12 month window. We expressed results as differences in predicted probabilities.

Results: Our sample after propensity score matching (n=5,332) included 2,405 LICS patients and 2,208 non-LICS patients with an MI, stent, and/or CABG. Among post-MI patients (n=2,764), LICS patients had a higher likelihood of good adherence to statins compared to non-LICS patients (35.8% vs. 28.3%, p<0.001). Among post-stent patients (n=1,971), LICS patients had a higher likelihood of good adherence to clopidogrel (54.2% vs. 45.2%, p<0.001) and a lower likelihood of premature clopidogrel discontinuation (15.9% vs. 23.5%, p<0.001), compared to non-LICS patients. We did not find a significant association between LICS status and statin adherence among post-CABG patients.

Conclusions: We found that among Medicare patients with diabetes, the LICS benefit is associated with a higher likelihood of good adherence to medications for secondary prevention after an MI or stent. This differential in adherence may translate into lower rates of recurrent MIs, less stent thrombosis, and fewer readmissions among LICS patients. Although clopidogrel and most statin medications are now off-patent, there are other very expensive drugs for which good adherence is important to prevent adverse cardiovascular outcomes. Our work underscores the need for ongoing efforts to identify and enroll eligible Medicare beneficiaries with diabetes and cardiovascular disease in the LICS benefit.
The Effect of Improvements to Race/Ethnicity Data Collection Practices on the Racial/Ethnic Distribution of Hospitalized Patients

Rosette Chakkalakal, Jeremy C. Green, Harlan M. Krumholz, Brahmajee K. Nallamothu

1 Internal Medicine, Robert Wood Johnson Foundation Clinical Scholars Program, Yale University School of Medicine, New Haven, CT, United States. 2 Internal Medicine, University of Michigan, Ann Arbor, MI, United States. 3 School of Public Health, Yale University, New Haven, CT, United States. (Control ID: 1340440)

Background: Hospitals collect and report data on patient race/ethnicity that researchers and policymakers commonly use to identify and track healthcare disparities. However, substantial variation in the categories and procedures used by individual hospitals to obtain this information may make these data unreliable, particularly for smaller minority groups. In 2007, New Jersey hospitals adopted “Guidelines for Systematic Collection of Data on Patient Race and Ethnicity” throughout the state. This program sought to improve the process of collecting race/ethnicity data by: (1) requiring all New Jersey hospitals to use uniform categories for race/ethnicity and (2) training healthcare workers to solicit self-identified race/ethnicity data from patients using standard procedures. The purpose of our project was to determine if and how the racial/ethnic distribution of patients hospitalized for congestive heart failure (CHF), pneumonia, and acute myocardial infarction (AMI) in New Jersey changed as a result of this program.

Methods: We used the Healthcare Utilization Project (HCUP) State Inpatient Databases (SID) to compare the racial/ethnic distribution of patients 18 years and older hospitalized with CHF, pneumonia, and AMI in New Jersey before (2005-2006) and after (2008-2009) implementation of the data collection changes relative to New York, a state with a similar racial/ethnic distribution of patients that has not implemented changes to data collection. Multinomial logistic regression was used to fit a difference-in-differences (DD) model where race/ethnicity was estimated as a function of the state in which the patient was hospitalized, the time period, the interaction of state and time period, and patient age and gender. Coefficients from the fitted model were used to predict racial/ethnic distributions for each diagnosis before and after implementation of the New Jersey program for 5 categories: non-Hispanic white, non-Hispanic black, Hispanic, Asian/Pacific Islander, and other. The percent change was calculated as the DD divided by the 2005-2006 proportions for New Jersey. Statistical significance was tested using bootstrap standard errors.

Results: See Table 1: Percent Change in Proportion of Individuals Identified in each Racial/Ethnic Group by Diagnosis

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>CHF (n=406,326) Percent Change (95% CI)</th>
<th>Pneumonia (n=341,891) Percent Change (95% CI)</th>
<th>AMI (n=227,487) Percent Change (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Hispanic White</td>
<td>3.03*** (2.28, 3.78)</td>
<td>1.20** (0.28, 2.12)</td>
<td>0.98** (0.04, 1.93)</td>
</tr>
<tr>
<td>Non-Hispanic Black</td>
<td>-4.15*** (-6.55, -1.75)</td>
<td>2.71 (-0.55, 5.98)</td>
<td>5.60** (0.08, 11.12)</td>
</tr>
<tr>
<td>Hispanic</td>
<td>-7.71*** (-11.48, -3.93)</td>
<td>-10.10*** (-15.04, -5.16)</td>
<td>-1.25 (-8.28, 5.77)</td>
</tr>
<tr>
<td>Asian/Pacific Islander</td>
<td>16.50** (1.38, 31.62)</td>
<td>35.61*** (23.71, 47.5)</td>
<td>31.53*** (14.72, 48.34)</td>
</tr>
<tr>
<td>Other</td>
<td>-45.83*** (-57.09, -34.56)</td>
<td>-45.74*** (-56.83, -34.64)</td>
<td>-55.67*** (-65.7, -45.64)</td>
</tr>
</tbody>
</table>

Analysis restricted to adults age 18 and over. ***p<0.01, **p<0.05

Conclusions: The racial/ethnic distribution of patients hospitalized for CHF, pneumonia, and AMI in New Jersey changed significantly as a result of a statewide effort to improve hospital data collection practices. Changes were most evident in the increased proportion of patients identified as Asian/Pacific Islander and decreased proportion of patients identified as other for all 3 diagnoses. More widespread adoption of standardized data collection strategies within hospitals could substantially improve our understanding of healthcare needs in smaller minority groups, including Asians and Pacific Islanders, by improving the identification of these groups within healthcare data.