The Role of Provider Continuity in Racial Disparities in Chronic Care Outcomes

Rose M. Kakoza¹, Thomas D. Sequist¹,²; ¹. Department of Medicine, Brigham and Women's Hospital, Boston, MA, United States. ². Department of Health Care Policy, Harvard Medical School, Boston, MA, United States.

Background: Racial and ethnic minorities achieve worse health outcomes for chronic illnesses; and these groups may also receive more fragmented primary care. We analyzed the contribution of primary care continuity to racial disparities in quality of care for hypertension and diabetes.

Methods: We used electronic health record data to identify 14,413 adults with diabetes and 36,882 adults with hypertension cared for by 225 primary care physicians across 15 health centers in a multispecialty group practice. Eligible patients were white, black, or Hispanic and had an assigned primary care physician with at least one primary care visit between 2009 and 2012. We measured primary care continuity during 2009-2011 and assessed quality of care in 2012. Continuity was measured using the Usual Provider Continuity (UPC) index, defined as the ratio of visits made to the assigned primary care physician to the total number of primary care visits including those to nurse practitioners, physician assistants, and covering physicians. The index ranges from 0 (low continuity) to 1 (high continuity). For diabetics, we assessed rates of control of HbA1c (<7.0%), LDL cholesterol (<100 mg/dL), and blood pressure (<130/80 mmHg). For patients with hypertension, we assessed rates of blood pressure control (<140/90 mmHg). We fit multivariable logistic regression models adjusting for age, gender, and insurance status to analyze 1) the association between each chronic care outcome and primary care continuity (UPC); 2) the association between each chronic care outcome and patient race/ethnicity and 3) the impact of primary care continuity on racial/ethnic disparities in each chronic care outcome.

Results: The majority of the study cohort was male (51%) and commercially insured (66%), with a mean age of 58 years. The majority of patients were white (74%), with the remainder black (21%) and Hispanic (4%). The mean UPC index was 0.54 for patients with diabetes and 0.57 for patients with hypertension, and did not vary according to patient race/ethnicity. Among all diabetics, UPC index was significantly associated with achieving control of HbA1c (OR 1.19; 95% CI 1.06-1.34), LDL cholesterol (OR 1.14; 95% CI 1.00,1.30) and blood pressure (OR 1.28; 95% CI 1.13-1.44). Among all patients with hypertension, UPC index was significantly associated with achieving blood pressure control (OR 1.28; 95% CI 1.05-1.57). Among patients with diabetes, blacks (OR 0.90; 95% CI 0.83-0.98) and Hispanics (OR 0.74; 95% CI 0.62-0.89) were less likely than whites to achieve HbA1c control; and blacks were less likely than whites to achieve control of LDL cholesterol (OR 0.79; 95% CI 0.68-0.90) and blood pressure (OR 0.74; 95% CI 0.63-0.87). Among patients with hypertension, blacks were less likely than whites to achieve blood pressure control (OR 0.86; 95% CI 0.75-0.98). These significant racial disparities in diabetes and hypertension outcomes were not significantly changed after adjusting for primary care continuity.

Conclusions: We identified relatively high rates of primary care continuity, which were associated with improved outcomes for patients with diabetes and hypertension. Significant racial disparities in chronic care outcomes were not related to the degree of primary care continuity. Programs including patient-centered medical homes may need to focus on more than pairing patients and physicians to impact existing racial disparities in quality of chronic care.
National trends in opioid prescribing among patients at risk of opioid misuse: 2001-2010

Marc Larochelle1, Fang Zhang1, Dennis Ross-Degnan1, James F. Wharam1; 1. Department of Population Medicine, Harvard Medical School, Boston, MA, United States.

Background: Rates of opioid prescribing, overdose, and overdose-related mortality are all increasing in the United States. Previously reported risk factors for opioid misuse include younger age, white race, coexisting mental health disorders, and concomitant use of benzodiazepines. Recent guidelines recommended caution in prescribing opioids to patients at high risk of misuse; however, it is not known if physicians responded by reducing prescribing to such patients.

Methods: We used the National Ambulatory Care Survey (NAMCS) and analyzed visits of patients with a complaint of musculoskeletal pain annually from 2001 through 2010. The outcome was prescription of an opioid pain medication. We analyzed four risk factors for opioid misuse: age less than 45 years, white race, concomitant antidepressant prescription, and concomitant benzodiazepine prescription. We analyzed trends in the rate of opioid prescribing overall and among patients at risk of opioid misuse using the Cochran-Armitage trend test. We included the four opioid misuse risk factors as candidate predictors of opioid prescription in a multivariable logistic regression. We controlled for gender, payer, region, and indicators of the patient-physician relationship. We used SAS with SAS-callable SUDAAN to account for the complex survey design.

Results: We analyzed 29,103 visits for musculoskeletal pain over the decade. The estimated number of visits nationally increased from 102 million in 2001 to 119 million in 2010. Opioids were prescribed in 10.8% of visits in 2001, increasing to 17.9% in 2010 (p<0.0001). From 2001 to 2010, the prevalence of opioid prescribing increased among each group at risk of misuse (p<0.0001 for each risk factor; Figure). Young patients and white patients were no less likely to receive opioids than older and non-white patients (OR 1.0; 95% CI 0.9-1.1, and OR 1.2; 95% CI 1.0-1.4 respectively). Patients being treated with an antidepressant had significantly higher odds of being prescribed an opioid (OR 1.9; 95% CI 1.6-2.2) as did patients receiving a benzodiazepine (OR 4.0; 95% CI 3.3-4.9).

Conclusions: Opioid prescribing for musculoskeletal pain increased by more than 50% in the last decade and increased among patients with risk factors for opioid misuse. Research is needed to determine if these patterns are driving the increase in opioid-related mortality nationwide. Policy- and practice-level interventions are needed to improve patient safety.
Inviting Patients to Read their Doctor’s Notes: Who reads them and what happens over time?

John N. Mafi1, Roanne Mejilla1, Henry J. Feldman1, Jan Walker1, Long Ngo1, Jonathan Darer2, Christina C. Wee1, Tom Delbanco1; 1. Medicine, Beth Israel Deaconess Medical Center, Boston, MA, United States. 2. Medicine, Geisinger Health System, Danville, PA, United States.

Background: Helping patients engage more actively in managing their health and healthcare represents one of the most important challenges of modern medicine. In the OpenNotes project, primary care physicians (PCPs) invited those patients registered to use secure patient portals to read their notes by e-mail once the note was signed, and initial findings suggest enormous patient enthusiasm with little effect on PCP workflow. We evaluated factors that might predict patients viewing their notes and examined to what degree their interest in viewing notes persisted over time.

Methods: Using data from the Geisinger Health System cohort of the OpenNotes trial, we designed a repeated-measures analysis to evaluate predictors of viewing notes during the 12 month period from 7/1/10-7/1/11. Our unit of analysis was the patient visit, and our primary outcome was notes viewed, defined as patients reading their PCP's note within 30 days of receiving an electronic notification inviting the patient to read the note. Using a generalized linear model, we evaluated age, sex, time (in months) since the start of the OpenNotes trial, the lag time between the visit and when the PCP signed the note, and the number of visits prior to a given visit under analysis. We also accounted for clustering by patient visits. In addition, we conducted a separate analysis of those patients who responded to our baseline survey (44% response rate) in order to adjust for (self-reported) race, education, employment status, and perceptions of general health.

Results: We analyzed 14,323 visits (23 PCPs, 5,816 patients) over 12 months. The mean patient age was 53 years, and 55% were female. The median number of visits per patient was 2 (IQR 1, 3). PCPs signed their notes a mean of 2 days after the visit (median=1). Among patients with more than one visit (62%), the unadjusted rate of viewing notes declined by 1% between the first and last note available, and patients who read at least one note tended to read subsequent notes (R=43%). Our table summarizes significant predictors of viewing notes. Female and older patients were more likely to view notes, while a more than 2 week delay in PCPs signing their notes reduced the probability of note viewing by nearly 8%. Patients were also slightly less likely to view their notes with each subsequent visit. In our sub-analysis of survey respondents, we observed similar results, except that visit count’s effect on viewing notes no longer reached statistical significance, RR 0.989 [0.978, 1.001]. Patients with fair to poor health were also less likely to read their notes, RR of 0.951 [0.910, 0.994].

Conclusions: Illness burden and delay in physician note signing independently reduced the likelihood of patients viewing their notes. Although patients in our study were less likely overall to read their doctor’s notes with each successive visit, the magnitude of decline was remarkably small, suggesting that patients have a durable interest in accessing their clinical notes.
National trends in processes and outcomes of care for elderly patients hospitalized for pneumonia

Jonathan S. Lee¹, Wato Nsa², Leslie R. Hausmann¹,³, Amal N. Trivedi⁴, Dale W. Bratzler⁵, Dana Auden², Kate Goodrich⁶, Fiona M. Larbi⁶, Michael J. Fine¹,³; ¹. Department of Internal Medicine, University of Pittsburgh Medical Center, Pittsburgh, PA, United States. ². Oklahoma Foundation for Medical Quality, Oklahoma City, OK, United States. ³. VA Center for Health Equity Research and Promotion, VA Pittsburgh Healthcare System, Pittsburgh, PA, United States. ⁴. Department of Health Services, Policy and Practice, Alpert Medical School of Brown University, Providence, RI, United States. ⁵. Colleges of Medicine and Public Health, Oklahoma University Health Sciences Center, Oklahoma City, OK, United States. ⁶. Centers for Medicare and Medicaid Services, Baltimore, MD, United States.

Background: Measuring and reporting performance rates for disease-specific processes of care are important features of Medicare quality improvement and pay for performance initiatives. Our aim was to assess secular trends in performance rates of processes and outcomes of care for elderly patients hospitalized for community-acquired pneumonia (CAP).

Methods: We studied elderly patients (age ≥ 65) hospitalized for CAP in U.S hospitals participating in the Centers for Medicare and Medicaid Services (CMS) Inpatient Quality Reporting program during calendar years 2006 to 2010, who met eligibility criteria for the CMS inpatient pneumonia process measures. Our outcomes were performance rates for these 7 publicly-reported pneumonia process measures (i.e., timely initiation and appropriate selection of antibiotics, performance of blood cultures in the emergency department and for intensive care unit patients, smoking cessation counseling, and pneumococcal and influenza vaccination); an all-or-none composite of all process measures; and 2 medical outcomes (i.e., all-cause mortality and hospital readmission at 30 days). We used linear regression analyses to assess changes in these outcomes by study year.

Results: From 2006 to 2010, 1,818,979 elderly patients with CAP were hospitalized (range 326,956 to 399,243 per year) at 4,740 unique hospitals (range 4,353 to 4,504 per year). As shown in the Figure, performance of all 7 processes of care and the all-or-none composite increased significantly over the 5-year study period (p< 0.01 for trend, all measures). In 2010, each individual process of care was performed in more than 90% of all patients, with the largest increases in performance rates over time occurring for pneumococcal (+19.1%) and influenza (+21.9%) vaccinations, the 2 process measures performed least frequently in 2006 (75.5% and 71.6%, respectively). Performance of the all-or-none composite measure showed the greatest 5-year improvement (+28.5%), from 58.9% to 87.4%. Among all patients, mortality was 10.4% (range 9.2 to 11.4% per year) and readmission was 20.4% (range 19.5 to 20.7% per year), with neither outcome demonstrating a significant change (p>0.2 for trend, both outcomes) over time.

Conclusions: National performance rates for all pneumonia processes of care improved significantly from 2006 to 2010, with current rates exceeding 90% for all publicly-reported measures. Despite these improvements in pneumonia processes of care, no significant changes in patient mortality or readmission were observed during this 5-year period.
A randomized controlled trial of a community health worker post-hospital care transitions intervention for low socioeconomic status patients

Shreya Kangovi1,6, David Grande2,3, Nandita Mitra4, Jeffrey Sellman1, Mary L. White6, Sharon McCollum6, Richard Shannon2, Judith A. Long5,2; 1. Department of Medicine, Philadelphia Veterans Affairs Medical Center, Philadelphia, PA, United States. 2. Department of Medicine, Perelman School of Medicine, University of Pennsylvania, Philadelphia, PA, United States. 3. Leonard Davis Institute of Health Economics, University of Pennsylvania, Philadelphia, PA, United States. 4. Department of Biostatistics and Epidemiology, University of Pennsylvania, Philadelphia, PA, United States. 5. Center for Health Equities Research and Promotion, Philadelphia Veterans Affairs Medical Center, Philadelphia, PA, United States. 6. Spectrum Health Services, Inc., Philadelphia, PA, United States.

Background: The post-hospital transition is a focus of national policy attention. Low socioeconomic status (SES) patients are more likely to report poor quality of discharge planning, lack of social support during recovery and inability to access outpatient follow-up after hospitalization. Low-SES patients have an elevated risk of all-cause readmission and post-hospital death. Existing post-hospital transition interventions often employ clinical personnel and neglect socioeconomic factors that are important to low-SES patients. To address these issues, we performed a randomized controlled trial comparing a community health worker (CHWs) intervention (IMPaCT - Individualized Management towards Patient-Centered Targets) to usual discharge care.

Methods: Participants were recruited from two academically affiliated hospitals in Philadelphia, PA. Eligible patients were: 1) admitted to the General Medicine service; 2) uninsured or insured by Medicaid; 3) 18-64 years old and 4) residents of low-income ZIP codes. Eligible patients were randomized to receive usual discharge care or IMPaCT. Patients randomized to IMPaCT received structured CHW social support, advocacy and health system navigation from the time of hospitalization until post-hospital primary care follow-up. CHWs were recruited through a network of community-based organizations, underwent a month-long training and were paid $15 per hour. The primary outcome of the trial was the proportion of patients who completed primary care follow-up within two weeks of hospital discharge. Secondary outcomes, which each ranged from 0-100, were: self-rated health (SF-12), quality of discharge communication (Consumer Hospital Consumer Assessment of Healthcare Providers and Systems - HCAHPS - discharge communication items), patient activation (Patient Activation Measure score) and readmission rate at 14, 30, 60 and 90 days. Patient-reported outcomes were measured by a blinded assessor two weeks after index discharge. We compared outcomes between control and intervention groups using an intention to treat analysis.

Results: 442 patients were enrolled from May 15th, 2011 to December 1st, 2012. 86.6% of participants completed the trial. The intervention group had a higher proportion of patients who engaged in post-hospital primary care than the control group (59.4% vs. 48.4%, p=0.03). Patients in the intervention group had higher self-rated health mental component summary scores (49.2 vs. 46.3, p=0.02), were more likely to report high-quality discharge communication (91.3% vs. 78.3%, p=0.002) and had higher levels of patient activation (64.0 vs. 60.3, p=0.04). At 14 days readmission rates were not different between groups (9.9% vs. 7.2%, p=0.60). 30, 60 and 90-day readmission rates are pending.

Conclusions: A brief transitions intervention performed by CHWs can improve a variety of post-hospital outcomes for low-SES patients. 14-day rates of readmission are low and not different between groups. CHWs, who are inexpensive and rapidly trained, are well-suited to provide post-hospital support to a high-risk, underserved population.
Medical Education in Health Policy Before and After the Affordable Care Act

Mitesh Patel1, Monica L. Lypson2, Matthew M. Davis2; 1. University of Pennsylvania, New York, NY, United States. 2. University of Michigan, Ann Arbor, MI, United States.

Background: The Affordable Care Act is one of the most important pieces of health policy reform to be enacted in US in decades. Meanwhile, our previous work has found that less than 50% of graduating medical students felt appropriately trained in topics relating to health policy such as medical economics and health care systems.

Methods: The objective of this study is to determine if medical education in health policy has changed since the Affordable Care Act was passed. The Medical Student Graduation Questionnaire (MSGQ) was obtained from the Association of American Medical Colleges (AAMC) for national data from 2006 to 2012. Responses for perceptions of training relating to topics in health policy were compared to clinical care and clinical decision making using classification methods from our prior work. Pearson chi square statistics were conducted to evaluate changes between 2008 (before) to 2012 (after).

Results: From 2006 to 2012, the percentage of graduating medical students that reported appropriate training was stable for clinical care (83 – 85%) and clinical decision making (89 – 90%). During that same period, perceptions of training in health policy steadily rose from 58.0% to 63.9%. Compared to 2008, chi square analysis found statistically significant changes in 2012 for all 13 components of health policy except medical economics (36.4 to 37.2%) and law and medicine (48.9 to 48.9%). The most significant increases were in public health (64.0 to 75.9%), managed care (47.4 to 57.9%), and biostatics (72.3 to 79.4%).

Conclusions: While the aggregate perceptions of training in health policy increased slightly after the Affordable Care Act was passed, the overall rate of 64% is still quite low when compared to clinical care or clinical decision making. More study is necessary to evaluate whether these small changes are due to improvements in medical school curricula or other reasons.