ANTICOAGULATION-RELATED PROCESSES OF CARE AND SHORT-TERM OUTCOMES IN ELDERLY PATIENTS WITH ACUTE VENOUS THROMBOEMBOLISM

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BACKGROUND: Whether recommended anticoagulation-related processes of care are associated with improved clinical outcomes in elderly patients with acute venous thromboembolism (VTE) remains uncertain.

METHODS: We studied 991 in- and outpatients aged ≥65 years with acute VTE in a prospective multicenter Swiss cohort study (09/2009-03/2012). We assessed the performance of the following processes of care recommended by the American College of Chest Physicians: use of low-molecular-weight heparin or fondaparinux rather than unfractionated heparin in patients with deep vein thrombosis or non-massive pulmonary embolism, parenteral anticoagulation (PAC) ≥5 days, start of oral anticoagulation (OAC) within 24 hours of VTE diagnosis, and achievement of an international normalized ratio (INR) ≥2.0 for ≥24 hours before stopping PAC. Outcomes were overall mortality, VTE-recurrence, and major bleeding at 6 months and the length of hospital stay. We assessed the association between processes of care and clinical outcomes using Cox regression models, and the association between processes of care and length of hospital stay using the lognormal survival model, adjusting for multiple patient baseline characteristics.

RESULTS: Overall, 9% of patients died, 2% had VTE-recurrence, and 7% had major bleeding at 6 months after the index VTE. The median length of hospital stay was 8.0 days (interquartile range 5.0; 11.0). Starting OAC within 24 hours of VTE diagnosis was associated with a lower risk of overall mortality (adjusted hazard ratio [HR] 0.44, 95% confidence interval [CI] 0.21-0.92) and major bleeding (adjusted HR 0.35, 95% CI 0.18-0.66) and a decreased length of stay (adjusted time ratio [TR] 0.77, 95% CI 0.69-0.85). While the use of low-molecular-weight heparin or fondaparinux significantly decreased the length of stay (adjusted TR 0.87, 95% CI 0.77-0.97), the achievement of an INR ≥2.0 for ≥24 hours before stopping PAC increased the length of stay (adjusted TR 1.20, 95% CI 1.08-1.34). None of the processes of care were associated with VTE recurrence. We found no association between PAC for ≥5 days and outcomes.

CONCLUSIONS: In elderly patients with acute VTE, two out of four recommended processes of care were associated with improved clinical outcomes and/or a decrease in length of hospital stay. These processes should be implemented when treating elderly patients with acute VTE.
CMS PAYMENT REFORM AND THE INCIDENCE OF HOSPITAL-ACQUIRED PULMONARY EMBOLISM OR DEEP VEIN THROMBOSIS

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BACKGROUND: The Centers for Medicare & Medicaid Services (CMS) has historically provided larger reimbursement to hospitals for inpatient stays in which a patient complication developed post-admission (a hospital-acquired condition). This manner of reimbursement financially rewarded hospitals that may have provided poor-quality care to their patients. In October 2008, CMS stopped reimbursing hospitals for the marginal cost of treating certain preventable hospital-acquired conditions. We evaluated whether CMS's refusal to pay for hospital-acquired pulmonary embolism (PE) or deep vein thrombosis (DVT) resulted in a lower incidence of these conditions.

METHODS: This analysis employed difference-in-difference regression modeling. Difference-in-difference modeling is a quasi-experimental approach used when it is infeasible to conduct a randomized controlled trial, and when there is one group that is exposed to the intervention, another group that is unexposed to the intervention, and a single start date to the intervention. Comparing pre-post data in the exposed group to pre-post data in the unexposed group serves to remove biases that may be due to systematic differences across the unexposed and exposed groups and well as biases that may be due to larger trends in the environment. In this analysis, the intervention is CMS payment reform, the exposed group is Medicare patients receiving hip or knee surgery, the unexposed group is non-Medicare patients receiving hip or knee surgery, and the outcome of interest is the incidence proportion of PE or DVT. We limited the cohort to Medicare patients aged 65-69 and non-Medicare patients aged 60-64 to minimize the impact of age on developing PE or DVT. A hierarchical regression model was used to account for correlation between discharges within a single hospital. The model was populated using 2007-2009 data from the Nationwide Inpatient Sample, an all-payer database of inpatient discharges in the United States.

RESULTS: There were 136,634 encounters for hip or knee replacement surgery from 2007 to 2009 in patients aged 60-69. At baseline, PE/DVT occurred in 0.81% of all hip or knee replacement surgeries for Medicare patients aged 65-69. After adjusting for race, sex, hospital region, teaching hospital status, elective admission, rural hospital status, and median household income quartile for patient zip code, the CMS policy change was associated with a 32% reduction, or a 0.26 percentage point reduction, in the incidence proportion of hip or knee encounters with PE or DVT. The incidence of PE or DVT in these orthopedic encounters increased from the pre-intervention to the post-intervention period for non-Medicare patients aged 60-64, while it declined in that same period for Medicare patients aged 65-69. Results were robust to changes in model specification.

CONCLUSIONS: As the U.S. healthcare system increasingly moves from fee-for-service to fee-for-value reimbursement, it becomes important to evaluate whether fee-for-value-based reimbursement has a desired effect. Our administrative-data based analysis of CMS hospital-payment reform indicates payment modification had the desired effect of reducing hospital-acquired PE or DVT amongst patients with hip or knee replacement surgeries. After controlling for other variables, the policy change was independently associated with a 32 percent reduction in the incidence of hospital-acquired PE or DVT. While regression models indicate the 0.26 percentage point reduction was statistically significant, it remains the purview of policy makers and clinicians to decide whether a reduction in the incidence of these conditions from 0.81 percent to 0.55 percent is clinically significant. To our knowledge, this represents the first analysis of the effect of CMS payment reform on the incidence of hospital-acquired pulmonary embolism or deep vein thrombosis.
CHOOSING WISELY: DO PHYSICIANS AND PATIENTS AGREE ON WHAT CONSTITUTES HIGH-VALUE MEDICAL CARE?

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BACKGROUND: Healthcare delivery systems focus on the concept of value delivery as a way of optimizing patient experience and outcomes while containing costs. Value, patient health outcomes per dollar spent, is a concept that providers, patients and policymakers embrace. Although the Choosing Wisely campaign targets physicians and patients to promote high-value care, there is little data on whether there is concordance between physicians' and patients' interpretation of value, particularly for care that has been identified as wasteful, such as unindicated imaging and antibiotic use.

METHODS: To assess physicians' and patients' perceptions of the value of care we conducted a cross-sectional survey of 201 primary care patients and 150 primary care physicians at 3 academic medical centers. The first vignette described a patient with symptoms of a tension headache who is concerned about a brain tumor, but initially denied imaging. The second vignette described a patient with three days of symptoms consistent with a viral infection who requests and is denied antibiotics. Respondents rated the care provided in each vignette on a 5-point Likert scale (see Table 1). Descriptive statistics were used to describe frequencies. Chi-square and Fisher's exact tests were used to compare proportions between patients and physicians. Univariate regression analysis was used to assess predictors of patients' rating care as high value. Multivariable regression analysis is ongoing.

RESULTS: The response rate was 63% (201/319) for patients and 53% (150/283) for physicians. Among patients, 37% were men, 63% were white. Physicians more often reported that imaging for a tension headache represented low-value care than patients (77% vs. 38%, p <0.001), and more often reported that denying antibiotics for a viral infection represented high-value care (95%, vs. 66%, p <0.001). Patients improved their rating of care after they were told about the potential harms of radiation, and after receiving information about potential side effects and reasons for not providing antibiotics or imaging (15% increase in positive ratings for both scenarios). Patients who were concerned about receiving too few tests, treatments and medications were less likely to give a high rating to Part 1 of the headache vignette (OR 0.42 (0.23–0.78) p < 0.006), while patients who rated their own health higher were more likely to rate it favorably (p < 0.01). Patients who had seen their physicians more often were more likely to rate Part 1 of the URI vignette highly (p < 0.03). More educated and white patients were more likely to rate Part 1 of both vignettes highly (p <0.01).

CONCLUSIONS: There is significant disagreement between physicians' and patients' perceptions of the value of care. Patients are more likely to favorably rate care withholding antibiotics than care withholding imaging. Patients are likely to improve their rating of care if they are informed about potential side effects, reasons for not providing antibiotics or imaging, or national guidelines consistent with their doctor's care. Addressing these topics in clinical settings will be critical to our ability to contain healthcare costs and deliver high value care.

<table>
<thead>
<tr>
<th>Vignette</th>
<th>201 Patients</th>
<th>150 Physicians</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Upper Respiratory Infection: Patient B has a</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>sinus infection, headache, and anosmia.</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Part 1: Physician does not prescribe antibiotics</td>
<td>132 (65%)</td>
<td>143 (95%)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Part 2: Physician explains American Academy of Family Physician guidelines, which do not recommend antibiotics for sinus infections</td>
<td>163 (81%)</td>
<td>143 (95%)</td>
<td>0.013</td>
</tr>
<tr>
<td><strong>Headache: Patient A has a headache and is worried about brain tumors, asks PCP for CT scan.</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Part 1: Physician does not recommend or order a CT scan</td>
<td>72 (36%)</td>
<td>123 (81%)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Part 2: Physician explains potential harms of CT radiation exposure</td>
<td>103 (52%)</td>
<td>96 (64%)</td>
<td>0.013</td>
</tr>
<tr>
<td><strong>Part 3: Patient A seeks a second opinion from a different doctor who orders a CT scan.</strong></td>
<td>59 (30%)</td>
<td>8 (5%)</td>
<td>&lt;0.001</td>
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</table>
RECEIPT OF ALCOHOL-RELATED ADVICE AND QUALITY OF CARE AMONG VETERAN OUTPATIENTS WITH UNHEALTHY ALCOHOL USE
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BACKGROUND: Brief intervention, including advice to reduce or abstain from drinking, is widely recommended for primary care patients with unhealthy alcohol use, but rarely implemented. One cited barrier to implementation is providers' assumptions that patients do not want to discuss their drinking or may react negatively to such interventions. However, among primary care patients with unhealthy alcohol use who participated in an intervention trial to address their drinking, those who reported receipt of alcohol-related advice rated their care as higher quality than those not reporting advice. It is unknown whether a similar association exists among a more general sample of outpatients. Our aim was to determine whether receipt of alcohol-related advice was associated with perceptions of quality of care among a general sample of Veteran outpatients who screened positive for unhealthy alcohol use and responded to a mailed survey.

METHODS: This retrospective, cross-sectional study included Veteran outpatient respondents to the VA Survey of Healthcare Experiences of Patients (Fiscal Year 2010, response rate 53%) who screened positive for unhealthy alcohol use on the 3-item Alcohol Use Disorders Identification Test (AUDIT-C) included in the survey (score >3 for women, >4 for men), responded to a question regarding receipt of alcohol-related advice from a VA provider in the past year (yes/no), and to two questions assessing patient ratings of their VA provider and overall VA health care. We used logistic regression to assess the association between receipt of alcohol-related advice and two patient-reported outcomes: patient ratings of their VA provider and their overall VA health care (range 0-10, dichotomized ≥9 to indicate high quality). Models were adjusted for age, gender, race, education, and self-reported health status and were clustered to account for correlation of outcomes at the facility level.

RESULTS: Among 21,912 Veterans who completed the 2010 survey, 3,760 screened positive for unhealthy alcohol use and had complete data. Overall, the mean age of the study sample was 64.4 years; 96.3% were male, 79.7% were non-Hispanic White, 91.8% completed high school and 28.3% reported their health status as very good or excellent. Nearly half (44.3%) of the study sample reported receiving alcohol-related advice in the past year, and 68.8% and 56.2% of respondents rated their providers and VA health care as high quality, respectively. In adjusted models, patients who reported receipt of alcohol-related advice were more likely than those who did not to rate their provider (OR 1.38; 95% CI 1.16-1.64) and VA health care (OR 1.29; 95% CI 1.11-1.51) as high quality.

CONCLUSIONS: Results from this cross-sectional analysis among Veterans with unhealthy alcohol use demonstrate that receipt of alcohol-related advice—a key component of efficacious brief intervention—is associated with patient-reported indicators of high quality care. These findings are consistent with those of a previous study in a more limited population, and are in opposition to provider concerns that delivering such advice may adversely affect patients' perceptions of their care.
ARE PATIENTS A RELIABLE SOURCE FOR ADVERSE EVENT REPORTING? SURVEY SAYS...
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BACKGROUND: Learning from adverse events is an important way to improve healthcare quality and safety. However, events are underreported by healthcare providers. We sought to determine whether patient comments on the post-discharge Healthcare Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey reliably identify adverse events or errors that occur during the hospital stay.

METHODS: HCAHPS surveys with negative comments returned during a 7 month period were reviewed. Comments that described a specific adverse event or error were then analyzed by two independent raters. The patient's medical record was reviewed to corroborate the event. A coding scheme was developed iteratively from the data to categorize the types of adverse events reported by patients. One patient comment could receive multiple codes. We assigned a four-tier harm score for each adverse event: significant harm and/or need for additional treatment, potential harm but outcome unknown, emotional distress/inconvenience, and no harm.

RESULTS: Ninety comments were reviewed, 20 of which were adjudicated as complaints which did not identify quality issues leaving 70 comments for analysis. Of these, 29 (41%) were corroborated in the medical record. An additional 35 (50%) were not corroborated by the medical record but were deemed credible based on the level of detail within the patient's report or when the described event was unlikely to be documented (i.e. delays in care). Communication errors were most common and found in 27 events. These included communication between healthcare providers and patients as well as among providers. Other frequent event types were patient education deficits (13), delays in clinical care (13), and medication errors (8). Patients also identified procedural complications (3) and lapses in infection control (2). Ten events (14.2%) resulted in significant patient harm and/or required additional treatment. Examples include a failure to recognize an abscess resulting in emergent surgery and a patient developing apnea following administration of a medication. Three of these significant harm events were deemed credible but not documented in the medical record. An additional 10 described situations that were potentially harmful but the impact on the patient was unknown. The remainder of the adverse events or errors resulted in either emotional distress/inconvenience (30) or no harm (20).

CONCLUSIONS: Patient comments on the HCAHPS post-discharge survey are a reliable source for insight into the quality of care patients receive. They may also identify significant issues that are not captured by other safety reporting mechanisms.
COMPARING CLINICIANS' PERCEPTION OF THEIR OWN AND THEIR PEERS' ANTIBIOTIC PRESCRIBING TO ACTUAL ANTIBIOTIC PRESCRIBING FOR ACUTE RESPIRATORY INFECTIONS IN PRIMARY CARE

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BACKGROUND: Primary care clinicians often prescribe inappropriate antibiotics for acute respiratory infections (ARIs). Inappropriate prescribing may be a result of differences in clinicians' perceptions of their own antibiotic prescribing rates, perceptions of their peers' antibiotic prescribing rates, and actual antibiotic prescribing rates.

METHODS: Using a mixed methods approach, we first surveyed 269 primary care clinicians in the Partners Primary Care PBRN about their agreement with antibiotic prescribing guidelines for non-specific upper respiratory infections (URIs), pharyngitis, acute bronchitis, and sinusitis. For each of these diagnoses, the survey asked clinicians to estimate ARI antibiotic prescribing rates for themselves and their peers in five categories: 0%-20%, 21%-40%, 41%-60%, 61%-80%, or 81%-100%. We then calculated respondents' actual ARI antibiotic prescribing rates between May 2011-April 2012 using billing and electronic health record data and grouped them using the same five antibiotic prescribing rate categories as the survey. We used the Kruskal-Wallis test to compare respondents' estimates of their own antibiotic prescribing rates to that of their peers.

RESULTS: 169 of 269 (63%) primary care clinicians in 23 practices responded to our survey. Mean respondent age was 49 years, 60% were women, and 85% were physicians. We linked respondents to 20,025 ARI visits. Clinicians overwhelmingly agreed with antibiotic treatment guidelines for non-specific upper respiratory infections (100% of clinicians), pharyngitis (95%), acute bronchitis (92%), and sinusitis (98%). For non-specific URIs, the proportion estimating antibiotic prescribing rates in the five categories (i.e., 0%-20%, 21%-40%, 41%-60%, 61%-80%, or 81%-100%) for themselves was 72%, 19%, 7%, 2%, and 0%, respectively, and for their peers was 37%, 41%, 17%, 5%, and 0%, respectively (p < 0.001). The actual non-specific URI antibiotic prescribing rate was 34%; 75% underestimated and 3% overestimated their own rate. For pharyngitis, the proportion estimating antibiotic prescribing rates in the five categories for themselves was 81%, 13%, 2%, 2%, and 1%, respectively, and for their peers was 63%, 26%, 8%, 3%, 0%, respectively (p < 0.001). The actual pharyngitis antibiotic prescribing rate was 59%; 71% underestimated and 0% overestimated their own rate. For acute bronchitis, the proportion estimating antibiotic prescribing rates in the five categories for themselves was 48%, 31%, 14%, 6%, and 1%, respectively, and for their peers was 21%, 40%, 27%, 10%, and 2%, respectively (p < 0.001). The actual acute bronchitis antibiotic prescribing rate was 76%; 76% underestimated and 1% overestimated their own rate. For sinusitis, the proportion self-reporting antibiotic prescribing rates in the five categories for themselves was 35%, 41%, 19%, 3%, and 2%, respectively, and for their peers was 13%, 40%, 33%, 13%, 1%, respectively (p < 0.001). The actual sinusitis antibiotic prescribing rate was 88%; 86% underestimated and 2% overestimated their own rate.

CONCLUSIONS: Clinicians agree with ARI antibiotic treatment guidelines. Clinicians think their peers prescribe antibiotics at higher rates than themselves. Clinicians' estimates of their own and their peers' prescribing rates are lower than actual prescribing rates. To reduce inappropriate antibiotic prescriptions for ARIs, future interventions might correct clinicians' misperceptions of their own and their peers' antibiotic prescribing rates.