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Has Public Reporting of Hospital Readmission Rates Affected Patient Outcomes?

Analysis of Medicare Claims Data

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ABSTRACT

BACKGROUND In 2009, the Centers for Medicare & Medicaid Services (CMS) began publicly reporting 30-day hospital readmission rates for patients discharged with acute myocardial infarction (MI), heart failure (HF), or pneumonia.

OBJECTIVES This study assessed trends of 30-day readmission rates and post-discharge care since the implementation of CMS public reporting.

METHODS We analyzed Medicare claims data from 2006 to 2012 for patients discharged after a hospitalization for MI, HF, or pneumonia. For each diagnosis, we estimated trends in 30-day all-cause readmissions and post-discharge care (emergency department visits and observation stays) by using hospitalization-level regression models. We modeled adjusted trends before and after the implementation of public reporting. To assess for a change in trend, we tested the difference between the slope before implementation and the slope after implementation.

RESULTS We analyzed 37,829 hospitalizations for MI, 100,189 for HF, and 79,076 for pneumonia from >4,100 hospitals. When considering only recent trends (i.e., since 2009), we found improvements in adjusted readmission rates for MI (−2.3%), HF (−1.8%), and pneumonia (−2.0%), but when comparing the trend before public reporting with the trend after reporting, there was no difference for MI ($p = 0.72$), HF ($p = 0.19$), or pneumonia ($p = 0.21$). There were no changes in trends for 30-day post-discharge care for MI or pneumonia; however, the trend decreased for HF emergency department visits from 2.3% to −0.8% ($p = 0.007$) and for observation stays from 15.1% to 4.1% ($p = 0.04$).

CONCLUSIONS The release of the CMS public reporting of hospital readmission rates was not associated with any measurable change in 30-day readmission trends for MI, HF, or pneumonia, but it was associated with less hospital-based acute care for HF. (J Am Coll Cardiol 2016;67:963–72) © 2016 by the American College of Cardiology Foundation.

Reducing hospital readmissions has become a national priority for patients, providers, and policy makers. Nearly 1 in 5 Medicare beneficiaries discharged from a hospital is readmitted within 30 days, and the associated estimated costs of unplanned readmissions is >$17 billion annually (1). In response to this high number of readmissions, the Centers for Medicare & Medicaid Services (CMS)

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ABBREVIATIONS AND ACRONYMS

CMS = Centers for Medicare & Medicaid Services

COPD = chronic obstructive pulmonary disease

ED = emergency department

HF = heart failure

ICD-9-CM = International Classification of Disease-9th Revision-Clinical Modification

MI = myocardial infarction

adopted a number of policy changes aimed at improving patients' outcomes. One significant change occurred in June of 2009 (2), when the CMS began to report risk-standardized hospital readmission rates publicly for patients discharged with acute myocardial infarction (MI), heart failure (HF), or pneumonia on the Hospital Compare website (3). The reasons the CMS opted for public reporting were to increase transparency for consumers and to provide an additional incentive for hospitals to improve transitional care and reduce hospital readmissions.

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Although increased transparency was anticipated to improve outcomes, limited data are available to assess the impact of this policy objectively (4–6). Our study was designed to assess for temporal changes in 30-day readmission rates and to evaluate whether these outcomes improved after the implementation of public reporting. We also evaluated for improvements in post-discharge care by assessing changes in outpatient visits, emergency department (ED) visits, and observation stays without readmission. Finally, we evaluated the potentially unintended impacts of this policy by assessing for temporal changes in post-discharge mortality rates.

METHODS

DATA SOURCE. We used research-identifiable administrative claims data from a 5% nationally representative sample of Medicare beneficiaries from 2005 to 2012. These data include inpatient claims, outpatient claims, carrier claims, and the associated denominator files. Inpatient files contain institutional claims submitted for facility costs associated with inpatient stays. Outpatient files contain similar institutional claims for outpatient services. Carrier files contain noninstitutional provider and other professional claims for services across all settings. Denominator files include beneficiary identifiers, date of birth, sex, race or ethnicity, date of death (if present), and information about program eligibility and enrollment.

STUDY SAMPLE. We analyzed Medicare-enrolled patients ≥65 years of age who were discharged home from a hospitalization for acute MI, HF, pneumonia, chronic obstructive pulmonary disease (COPD), or diabetes between July 1, 2006 and June 30, 2012. These dates were chosen to permit analysis 3 years before and after the public reporting of risk-standardized hospital readmission rates in June 2009 (2). Because the Medicare public reporting program did not include COPD or diabetes, these hospitalizations served as comparator conditions. Both COPD and diabetes were selected as comparator conditions because neither disorder was directly affected by the impact of public reporting during this time period and both are common causes of 30-day all-cause readmissions among Medicare beneficiaries (1). Patients were allowed to be represented multiple times in the analysis if subsequent hospitalizations fit the inclusion and exclusion criteria and occurred >30 days after another hospitalization of the same type.

Hospitalizations of interest were identified on the basis of their primary discharge diagnoses: acute MI (International Classification of Disease-9th Revision-Clinical Modification [ICD-9-CM] codes 410.x0, 410.x1), HF (402.x1, 404.x1, 404.x3, 428.x), pneumonia (480.x, 481, 482.x, 483.x, 485, 486, 487.0, 488.11), COPD (491.21, 491.22, 491.8, 491.9, 492.8, 493.2x, 496, or a primary ICD-9-CM code of 518.81, 518.82, 518.84, 799.1 combined with a secondary ICD-9-CM code of acute exacerbation of COPD: 491.21, 491.22, 493.21, or 493.22), and diabetes (250.x). We excluded planned hospitalizations for all study groups and hospitalizations for acute MI that resulted in same-day discharges. We also excluded hospitalizations for patients who did not have fee-for-service Medicare coverage for ≥12 months before admission, to allow characterization of medical history, and for the 30 days after discharge, to allow complete ascertainment of outcomes.

OUTCOME MEASURES. The primary outcome of interest consisted of unplanned all-cause 30-day hospital readmissions. These readmissions were identified using inpatient claims data. Planned readmissions were defined similar to previous analyses (5,6). Other assessments of interest included all-cause mortality, ED visits, outpatient evaluation and management visits, and observation stays without readmission in the 30 days after discharge. Mortality was determined from the denominator file. ED visits were identified from inpatient and outpatient claims having any of the following revenue center codes: 0450 (emergency room - general classification), 0451 (emergency room - Emergency Medical Treatment & Labor Act emergency medical screening services), 0452 (emergency room - emergency room beyond Emergency Medical Treatment & Labor Act screening), 0456 (emergency room - urgent care), 0459 (emergency room - other), or 0981 (professional fees - emergency room). Outpatient evaluation and management visits were identified from carrier claims classified into any of the following

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