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Short Report

Hospitalizations for ambulatory care sensitive conditions and unplanned readmissions among Medicare beneficiaries with Alzheimer's disease

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Abstract

Introduction: Medicare beneficiaries with Alzheimer's disease and related dementias (ADRDs) may have more potentially avoidable hospitalizations and readmissions than people without dementia. These hospitalizations may be indicative of access barriers, problems in continuity of care, inefficient resource use, and poor patient outcomes.
Methods: We examined national frequency and costs of ambulatory care sensitive condition hospitalizations and unplanned, all-cause, and condition-specific 30-day readmissions in >2.7 million fee-for-service ADRD patients using 2013 Medicare claims data.
Results: In 2013, 410,000 Medicare ADRD patients had ambulatory care sensitive condition hospitalizations or unplanned 30-day readmissions costing $4.7 billion. One in 10 ADRD patients were hospitalized for a potentially avoidable condition. Almost one in five hospitalized ADRD patients had an unplanned 30-day readmission. Readmission rates were highest among ADRD patients initially hospitalized for heart failure (22%) and chronic obstructive pulmonary disease (21%).
Discussion: Our findings may suggest potential deficiencies in ambulatory care and postdischarge care related to managing comorbidities among Medicare fee-for-service ADRD patients.
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Keywords: Hospitalizations; Ambulatory care sensitive conditions; Readmissions; Alzheimer's disease; Health care costs

1. Introduction

Alzheimer's disease and related dementias (ADRDs) can complicate the management of some comorbidities, increasing hospitalization risks and health care costs [1–5]. Some hospitalizations are expected as part of the natural course of treatment, whereas others may not need to happen if patients' medical conditions are being managed properly in outpatient settings. Individuals with ADRD are not only at higher risk for potentially avoidable hospitalizations (PAHs), but some patients may return to the hospital within a short period of time (e.g., 30 days) after discharge [6]. Furthermore, PAHs and unplanned readmissions may endanger the health of individuals with ADRD, such as causing delirium and "post-hospital syndrome" that may increase the risk of cognitive decline, institutionalization, and death [7–9].

This short report examined the frequency and costs of PAHs and unplanned 30-day readmissions in the entire Medicare fee-for-service population with ADRD. We measured PAHs for ambulatory care sensitive conditions (ACSCs) using the Agency for Healthcare Research and Quality Prevention Quality Indicators Version 5.0 [10]. We examined all-cause and condition- and procedure-specific readmissions defined by the Centers for Medicare and Medicaid Services (CMS) quality indicators [11].

2. Methods

Our sample included 2,749,172 Medicare fee-for-service beneficiaries age ≥65 with a claims-based ADRD diagnosis

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(as defined by the CMS Chronic Conditions Data Warehouse Condition Categories) who were continuously enrolled in Medicare Parts A and B in 2013. We analyzed their Medicare Provider Analysis and Review files. Of these patients, 1,035,127 were admitted to an inpatient hospital or a postacute skilled nursing facility during 2013.

We measured PAHs for ACSCs, including acute (i.e., bacterial pneumonia, urinary tract infection, and dehydration) and chronic (i.e., diabetes, hypertension, heart failure [HF], angina without a cardiac procedure, and asthma/chronic obstructive pulmonary disease [COPD]) conditions [10]. By definition, an inpatient admission for any of the ACSCs is considered potentially "*avoidable*" had timely and effective care been received in an ambulatory care setting [12].

We used the 2015 CMS readmission measures to identify all unplanned rehospitalizations occurring within 30 days of discharge, including (1) all-cause readmissions; (2) five condition-specific readmissions, including acute myocardial infarction, HF, pneumonia, COPD, and stroke; and (3) two procedure-specific readmissions, including elective primary total hip arthroplasty and/or total knee arthroplasty, and isolated coronary artery bypass graft surgery [11]. We measured readmissions due to any cause and for the same principal discharge diagnosis as the index hospital stay.

We reported the frequency of ACSC hospitalizations and 30-day readmissions separately and jointly. When combining the two sets of measures, we removed duplicates to avoid double counting. We calculated average lengths of stay (LOSs), average Medicare payment per stay, and total Medicare expenditures for these hospitalizations (all in 2013 US dollars).

3. Results

Of 2,749,172 eligible ADRD beneficiaries, 280,547 (10%) had at least one ACSC hospitalizations in 2013 (Table 1). Of 2,696,129 hospital stays in the ADRD population, we identified 369,165 ACSC hospitalizations (13,428 ACSC stays per 100,000 population), suggesting that 14% of hospitalizations for ADRD patients may be potentially avoidable. Of these stays, 180,307 were for chronic conditions and 188,870 were for acute illnesses, with infections (i.e., bacterial pneumonia and urinary tract infection) being the most frequent cause. Average LOS of an ACSC hospitalization for someone with ADRD was 7 days, with an average cost of $7000 per stay, totaling $2.58 billion in the ADRD population.

We identified 940,185 ADRD patients with at least one index hospitalization in 2013 [11]. Of these patients, 170,676 (18%) were readmitted to the hospital within 30 days of discharge (Table 2). Most patients (73%) had one all-cause 30-day readmission, whereas 18% were readmitted twice and 9% were readmitted three or more times. These patients had 1,581,889 index hospitalizations in 2013, of which 16% (or 245,218 stays) were followed by an unplanned, all-cause 30-day readmission. The proportion of ADRD patients with a readmission varied by diagnosis of the index hospitalization: 22% for HF; 21% for COPD; 19% for acute myocardial infarction; 18% for coronary artery bypass graft; 15% for pneumonia; 12% for stoke; and 9% for total hip arthroplasty/total knee arthroplasty. Most patients were readmitted for a cause that did not match their index hospitalization, whereas some patients were readmitted for the same

Table 1
Frequency and Medicare expenditures of potentially avoidable hospitalizations for ambulatory care sensitive conditions among Medicare ADRD beneficiaries, 2013

Ambulatory care sensitive conditions	No. of patients	No. of stays	Rate per 100,000 population*	Average Medicare expenditures per stay	Total Medicare expenditures
Overall composite	280,547	369,165	13,428	$6979	$2.58 B
Chronic conditions	134,629	180,307	6559	$7554	$1.36 B
Diabetes, overall	20,639	24,383	887	$10,048	$245.0 M
Diabetes short-term complications	2925	3415	124	—	—
Diabetes long-term complications	14,476	16,430	598	—	—
Uncontrolled diabetes	2338	2485	90	—	—
Lower extremity amputation	2938	3237	118	—	—
Cardiovascular diseases, overall	76,847	99,375	3615	$7465	$741.8 M
Hypertension	10,098	10,980	399	—	—
Heart failure	66,128	86,843	3159	—	—
Angina without a cardiac procedure	1514	1552	56	—	—
Asthma/COPD	43,921	56,561	2057	$6639	$375.5 M
Acute conditions	163,580	188,870	6870	$6431	$1.21 B
Infections, overall	123,793	142,654	5189	$6558	$935.5 M
Bacterial pneumonia	57,523	64,470	2345	—	—
Urinary tract infection	69,394	78,184	2844	—	—
Dehydration	43,646	46,216	1681	$6042	$279.2 M

Abbreviations: ADRD, Alzheimer's disease and related dementia; COPD, chronic obstructive pulmonary disease.
*Number of stays divided by the number of eligible ADRD patients (n = 2,749,172).

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