The 30-Day Economic Burden of Newly Diagnosed Complicated Urinary Tract Infections in Medicare Patients

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Background
• Complicated urinary tract infections (cUTIs) are among the most frequent bacterial infections in the community and were the 14th ranked principal diagnosis for hospital admissions in the 2018 Healthcare Cost and Utilization Project.
• Elderly patients are at an increased risk for cUTIs and the spectrum of disease severity ranging from a mild illness with limited or no systemic symptoms to severe sepsis.
• Treatment of cUTIs, including acute pyelonephritis (AP), due to multi-drug resistant (MDR) Gram-negative uropathogens (e.g., extended-spectrum β-lactamase (ESBL) producing and fluoroquinolone-resistant strains) is associated with poor outcomes and increase costs of care.
• The ESBL rates among community-acquired UTIs rose by 10.4% per year between 2012 and 2017.
• Despite the frequency of cUTIs in elderly patients, most U.S. burden of illness studies have focused on younger patient cohorts and scant data are available on the financial burden associated with incident cUTIs episodes in a cohort of predominantly elderly patients.

Objective
• This study sought to examine total and cUTI-related 30-day Medicare spending, a proxy for healthcare costs, among Medicare beneficiaries who resided in the community with newly diagnosed cUTIs.

Methods

Study Design and Data Source
• A retrospective multicenter cohort study of adult beneficiaries in the Medicare fee-for-service (FFS) database with a cUTI between 2017 and 2018 was performed. cUTI diagnoses were identified using an algorithm from peer-reviewed literature.
• Medicare spending was considered related to the cUTI if the claim(s) included any diagnosis (i.e., primary or secondary) of a UTI. Data aggregation, analysis, and visualization were performed using Tableau 2021.4 and Microsoft Excel.

Inclusion Criteria
• Enrolled in Medicare FFS and Medicare Part D from 2018-2019
• Not enrolled in Medicare Advantage
• cUTI first diagnosis in 2017-2018
• No evidence of any UTI diagnoses in 2016
• No residence in a long-term care facility in 2016-2018

Outcomes
• Overall and cUTI-related 30-Day Medicare spending
• Overall and cUTI-related 30-Day Medicare spending in each service category
• Average overall and cUTI-related 30-Day Medicare Spending per beneficiary
• Average overall and cUTI-related 30-Day Medicare spending per encounter in each service category
• Average overall and cUTI-related number of encounters per beneficiary
• Average overall and cUTI-related number of encounters per beneficiary in each service category
• Average overall and cUTI-related number of inpatient hospital days per encounters

Results

Table 1. Baseline characteristics

Table 2. Top 10 Comorbidities ≥1% Prevalence rates

50-Day Diagnoses

Spontaneous Heart Arrhythmias
Valvular Disease
Diseases with Chronic Complications
Depressive Heart Failure
Chronic Obstructive Pulmonary Disease
Anxiety Related Disorders
Inflammatory Bowel Disease
Diabetes without Complication
Obesity/Obesity-related Disoders
Dementia without Complications

50-Day Spending per Beneficiary

Mean $10,261

Table 3. 30-Day Expenditures by Setting of Care: Overall vs cUTI

Mean $7,900

Figure 2. 30-Day Spending Per Event & Average Event Per Person by Setting of Care: Overall vs cUTI

Mean overall service per person: $5,565
Mean cUTI service per person: $2,1

Conclusions
• Thirty-day Medicare spending for beneficiaries who resided in the community with incident cUTIs were substantial, with overall and cUTI-related expenditures costing the Medicare program $5.7 billion and $3.2 billion, respectively.
• cUTI-related Medicare spending accounted for 56% of the total expenditures.
• Acute care hospitalizations was the major cost driver and accounted for 75% of 30-Day Medicare spending.
• Given the spending associated with acute care hospitalizations, even modest reductions in hospitalization rates will have a meaningful impact on Medicare spending.
• For instance, if hospital admissions were reduced by 5% to 15%, this would save the Medicare program approximately between $180 to $450 million annually.
• Additional treatment options, such as new antibiotics that overcome antimicrobial resistance, are needed to offset the efficiency of healthcare delivery for beneficiaries who can be safely and effectively managed in the outpatient setting.

References
8. Carasso LA. Lancet 2018; 29. (Data available on request)

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