Original Article

The Cost-Effectiveness of the Decision to Hospitalize Nursing Home Residents With Advanced Dementia

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Abstract

Context. Nursing home (NH) residents with advanced dementia commonly experience burdensome and costly hospitalizations that may not extend survival or improve quality of life. Cost-effectiveness analyses of decisions to hospitalize these residents have not been reported.

Objectives. To estimate the cost-effectiveness of 1) not having a do-not-hospitalize (DNH) order and 2) hospitalization for suspected pneumonia in NH residents with advanced dementia.

Methods. NH residents from 22 NHs in the Boston area were followed in the Choices, Attitudes, and Strategies for Care of Advanced Dementia at the End-of-Life study conducted between February 2003 and February 2009. We conducted cost-effectiveness analyses of aggressive treatment strategies for advanced dementia residents living in NHs when they suffer from acute illness. Primary outcome measures included quality-adjusted life days (QALD) and quality-adjusted life years, Medicare expenditures, and incremental net benefits (INBs) over 15 months.

Results. Compared with a less aggressive strategy of avoiding hospital transfer (i.e., having DNH orders), the strategy of hospitalization was associated with an incremental increase in Medicare expenditures of $5972 and an incremental gain in quality-adjusted survival of 3.7 QALD. Hospitalization for pneumonia was associated with an incremental increase in Medicare expenditures of $3697 and an incremental *reduction* in quality-adjusted survival of 9.7 QALD. At a willingness-to-pay level of $100,000/quality-adjusted life years, the INBs of the more aggressive treatment strategies were negative and, therefore, not cost effective (INB for not having a DNH order, −$4958 and INB for hospital transfer for pneumonia, −$6355).

Conclusion. Treatment strategies favoring hospitalization for NH residents with advanced dementia are not cost effective. J Pain Symptom Manage 2013;46:640−651.

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Key Words
Advanced dementia, nursing home residents, cost-effectiveness analysis, quality of life, health care expenditures

Introduction

Dementia is a leading cause of death among Americans;[1] yet, patients dying with this disease may not receive optimal end-of-life care.[2–4] Approximately 16% of U.S. decedents dying from dementia die in hospitals.[5] Nationwide, 20% of nursing home (NH) residents with advanced dementia experience a health care transition, such as a hospitalization, near the end of life.[6] Recent work emphasizes the need to avoid unnecessary and costly hospitalizations of NH residents with advanced dementia.[6–10] However, cost-effectiveness analyses (CEAs) of hospitalization have not been reported.

High-quality advanced dementia care includes decision making for hospitalizations that are informed and goal directed from a patient perspective and cost effective from a societal perspective. NH residents with advanced dementia have profound cognitive and functional disability (i.e., bedbound, cannot recognize family members, speech limited to less than five words, and incontinent of urine and stool). It is estimated that 75% of hospitalizations for these residents may be avoidable because hospital-level care is either inconsistent with the goals of care or unnecessary.[11] More than 90% of proxies of NH residents with advanced dementia state that maximizing comfort is the primary goal of care.[12,13] Hospitalization seldom achieves this goal, except when the NH cannot provide for adequate palliative care or the level of treatment needed to relieve discomfort (i.e., hip fracture). Prior work has shown that hospitalizations are associated with worse end-of-life outcomes for NH residents with advanced dementia[6,14] and are distressing for their families.[15] Moreover, the most common conditions precipitating hospitalization in advanced dementia can often be treated in the NH with similar clinical outcomes.[16–19] Furthermore, hospitalizations and posthospitalization skilled nursing facility care account for 30% and 10% of Medicare expenditures for these NH residents, respectively.[20]

CEA ascertains the value of added benefits from treatment relative to incremental expenditures. Although applying CEA to terminally ill patients is challenging, empirical information about what constitutes cost-effective end-of-life care is essential for improving the health care system.[21]

Leveraging data from a prospective cohort study of NH residents with advanced dementia, the Choices, Attitudes, and Strategies for Care of Advanced Dementia at the End-of-Life (CASCADE) study,[22] we conducted CEAs of two hospital-related treatment decisions. The first evaluated the cost-effectiveness of a do-not-hospitalize (DNH) order, an advance directive to avoid hospitalization for acute illnesses. The second considered hospitalization for pneumonia, the most common diagnosis precipitating hospitalization.[11] These analyses explored whether reducing hospitalization can promote a higher quality end-of-life experience without substantially increasing Medicare expenditures.

Methods

Sample

Subjects included NH residents with advanced dementia who participated in CASCADE, a prospective cohort study conducted between 2003 and 2009, the details of which are provided elsewhere.[13,22] Residents were recruited from 22 Boston-area NHs. Eligibility criteria included the following: 1) age older than 60 years, 2) dementia (any type), 3) Global Deterioration Scale score of 7,[23] and 4) available English-speaking health care proxy. At Global Deterioration Scale Stage 7, residents have profound memory deficits, virtually no verbal communication, incontinence, and cannot walk. Proxies provided informed consent. The institutional review board of Hebrew SeniorLife approved the study's conduct.

Data Collection

Resident assessments were conducted at baseline and quarterly for up to 18 months.