CHSR Center for Health Services Research
Applying Research to Optimize Care©

What We Are Reading

Synopses of recent studies in health services research
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Comparison of Site Death, Health Care Utilization, and Hospital Expenditures for Patients Dying with Cancer in 7 Developed Countries

Take Away Points

- All seven developed countries in this study had high rates of hospital admissions and hospital days near end of life, with the U.S. having the lowest proportion of patients with cancer dying in the hospital, possibly due to patterns of care which promote the provision of palliative care and home hospice.
- Although decedents in the U.S. received care in acute care settings less often and for fewer days relative to other developing countries, they appeared to experience excessive utilization of high-intensity care, specifically ICU admission and stays as well as use of chemotherapy at end-of-life.
- Hospital expenditures near the end of life were highest in Canada, Norway and the U.S. This high cost of care combined with high resource-intensive care warrants future practice and policy consideration.

The Issue

Variability in health care cost and utilization at end-of-life among developed countries is of significant policy interest. The seminal report, *Dying in America*, published by the Institute of Medicine in 2014 found that U.S. healthcare for patients at the end of life was resource intensive, expensive, and insufficiently attentive to patients' needs and wishes.
More than 25% of Medicare's budget is spent on beneficiaries who die in that year while other developed countries spend less than the U.S., with a lower intensity of care at end of life.

Examining cross-national end-of-life care and its financial implications has been challenging due to insufficient data allowing for comparisons among developed countries.

Source
Bekelman, J.E. et al. (2016). Comparison of Site of Death, Health Care Utilization, and Hospital Expenditures for Patients Dying with Cancer in 7 Developed Countries. *JAMA*;315(3):272-283. doi:10.1001/jama.2015.18603.

http://jama.jamanetwork.com/article.aspx?articleid=2482325

The objective of this study was to conduct a systematic examination of patterns of care, health care utilization and expenditures for patients dying with cancer in seven developed countries. The focus of the study centered on cancer care for a number of reasons: cancer is a prominent cause of death, accounting for more than 20% of deaths in developed countries; data is easily obtainable through national registries or administrative data; and cancer is among the most resource-intensive diseases.

Study Methods and Design

A retrospective observational study was conducted of persons dying with cancer in 2010 from seven developed countries: Belgium, Canada, England, Germany, the Netherlands, Norway, and the U.S. These countries were selected based on the quality of data sources available as well as their provision of diverse modes of both health care delivery and financing for end-of-life care.

Cohorts of decedents were identified between January 1, 2010 and December 31, 2010 who had a diagnosis of cancer documented within 180 days prior to death. The U.S. cancer registry data set was restricted to decedents age 65 or older enrolled in fee-for-service Medicare, while other national registries covered all ages.

Specifically for examining patterns of care, site of death was classified by determining whether decedents died in an acute care hospital. For the U.S., deaths occurring in skilled nursing facilities were also examined as health care fiscal policies have promoted transfers to these locations from acute care settings. Health care utilization was assessed by examining admissions to intensive care units (ICU) and their duration as well as the outpatient measure of chemotherapy episodes. Health care expenditures paid by insurers (commercial or governmental) were calculated as costs associated with acute care hospital admissions, excluding outpatient, hospice, and other indirect medical expenditures. Observation included health care utilization and hospital expenditures determined during 180-day and 30-day periods prior to death.

Key Findings and Limitations

- **Patterns of Care/Site of Death:** Variability was noted between countries relating to deaths in acute care settings. In the U.S., 29.5% of decedents died in hospitals or skilled nursing facilities while other study countries demonstrated more hospital-centric care (i.e., higher rates of death in inpatient settings and other measures of inpatient utilization) ranging up to 52% in Canada.
- **Health care utilization:** The U.S. had the fewest mean per capita hospital days (10.7 [SD, 14.0]) in the last 180 days. Despite having the second lowest hospitalization rate among reporting countries, more U.S. cancer decedents had an ICU admission in the last 180 days of life (40.3% vs. 18% in other countries) and ICU stays were longer than in other countries (3.6 days vs. 1.5 days). This pattern remained consistent during decedents' last 30 days of life; ICU utilization of 27.2% in the U.S. vs. 11.0% elsewhere and longer ICU stays (mean 2.0 [SD 5.5] vs. 1.0 days).
- **Chemotherapy episodes:** Patients in the U.S. received higher rates of chemotherapy utilization at end-of-life, leading nations for its administration in the last 180 days and ranked second highest in administration in the last 30 days of life.
- **Healthcare expenditures:** In the last 180 days of life, mean per capita (for each person) hospital expenditures were highest in Canada (US $21840), Norway (US $19783) and the U.S. (US $18500), with the U.S. having the highest mean per day hospital expenditures (US $1729) compared to other reporting countries.
- **Limitations:** This study examined decedents dying with cancer rather than dying of cancer. Because the U.S. has a higher incidence of prostate cancer diagnosis, this may bias U.S. health care utilization and costs downward due to overdiagnosis, utilizing prostate-specific antigen screening (PSA), with the absence of clinical morbidity. Other limitations include the U.S. cohort being restricted to decedents in fee-for-service Medicare, with no information provided regarding privately insured patients, and health care expenditures ("hospital expenditures") being limited to acute care hospital admissions only, excluding outpatient, hospice, and other indirect medical expenditures. In addition, there was inconsistency among countries related to their data sources, with some countries only providing samples which may not be representative, and information provided regarding their health and financing policies for end-of-life care.

Final Thoughts

- It is important to examine the differences in health care utilization and costs of end-of-life care among developed countries in order to inform policy and gauge the impact of reforms.