Expanded hospice improves care but raises Medicare costs

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As hospice care has expanded to reach more people, care has improved, but at a net cost to Medicare. Credit: Michael Cohea/Brown University

A large new study in the *New England Journal of Medicine* examines the impact of growth in Medicare's hospice benefit among nursing home residents between 2004 and 2009. The researchers documented improvement in indicators of care quality, such as less reliance on intensive care and feeding tubes, but also found increased costs to

Medicare of $6,761 per patient on average.

Early in the history of the Medicare hospice benefit, care was most likely to be provided by nonprofit organizations and advocates to individuals dying in their community, said study lead author Pedro Gozalo, research associate professor of health services, policy and practice in the Brown University School of Public Health. Then it became more of a business.

"The number of providers doubled over the decade," Gozalo said. "The vast majority of the expansion was in the for-profit [sector]."

Policymakers have worried that Medicare costs due to hospice have been increasing, even though part of the original policy motivation was that hospice growth might save Medicare money by reducing expensive, aggressive end-of-life treatments such as hospital intensive care.

The new study uses a novel analysis of nursing home and Medicare data for more than 786,000 residents who died either in 2004, before the expansion, or in 2009, after the expansion. By statistically comparing differences among hospice and non-hospice users in those years, and by accounting for their apparent care preferences, the researchers were not only able to measure how the expansion has affected care and costs but also to identify why net hospice costs have been increasing.

For more about the design of the research, see the sidebar below.

Care and costs

With data on their comparison groups assembled, the researchers analyzed differences in the kind of care the patients received and what it cost. They controlled their analyses for a wide variety of possibly confounding factors such as age, gender, race, marital status, diagnosis,

comorbidities, Do Not Resuscitate and Do Not Hospitalize orders (as proxies for preferences for aggressive end-of-life care), and the patients' patterns of care utilization in the year before death, as well as various characteristics of their nursing home.

The study confirmed that not only did hospice use increase (to 39.8 percent of patients in 2009 from 27.6 percent of patients in 2004), but also the average length of time in hospice care increased (to 92.6 days in 2009 from 72.1 days in 2004).

That increase in palliative care was associated with a significant reduction in several indicators of aggressive, ultimately futile medical intervention at end-of-life: Intensive care utilization dropped by 7.1 percent, hospital transfers fell 2.4 percent, and feeding tube use declined by 1.2 percent.

To calculate the net inflation-adjusted cost impact that hospice expansion has had on Medicare, the researchers looked at the changes over time within each comparison group and then examined how those differences compared between the groups.

For example, among people who did not elect hospice in both years the average per patient hospitalization cost grew by $2,656 between 2004 and 2009. Meanwhile among those who likely wanted hospice in 2004 but didn't get it and similar individuals in 2009 who used hospice, hospitalization costs increased only $596 over time. By comparing those cost differences, the researchers showed that hospice expansion was associated with significantly slower growth in hospitalization costs by about $2,000 per patient on average.

In fact, hospice expansion was associated with savings for Medicare in every cost category, except for the cost of hospice itself. But hospice costs rose $10,191 per patient. Subtracting all the cost savings from that

figure yielded a total average net cost to Medicare of $6,761.

Why so expensive?

The study offers some explanation for why hospice costs have soared faster than savings. A big one is the increased length of stay in hospice. Part of the reason for that is medical: In 2009 a greater proportion of hospice users than in 2004 carried terminal diagnoses such as dementia or congestive heart failure, which have more difficult-to-predict survival trajectories than cancer, the traditional mainstay of hospice care.

The study shows that patients who had cancer without dementia were associated with the smallest rise in net cost associated with hospice expansion ($2,180) while patients with dementia but not cancer produced the largest net cost increase ($8,592).

"The way [hospice] is being implemented does come with a price," Gozalo said.

By clarifying the costs and how they arise, the study can help policymakers evaluate the economics of hospice, the authors said. It appears to be achieving the goal of improving care for those that prefer a palliative rather than curative approach, but it is not saving Medicare money.

"This study raises important concerns regarding the efficiency of hospice services," Gozalo and his co-authors concluded. "With the current payment policy based on a flat per-diem payment rate and considering the increase in long hospice stays, Medicare hospice may not achieve cost savings."

Co-author Michael Plotzke, a health economist with Abt Associates, said the timing of hospice use has to be appropriate.

"Hospice care should be provided at the right time and for the right duration if we are to avoid driving up costs for end-of-life care," he said.

The paper's other authors are Vincent Mor, Susan Miller, and Joan Teno of Brown University. The study was funded by a contract from the Centers for Medicare and Medicaid Services (HHSM-500-2005-000881), with additional support from an NIH/NIA-funded Program Project (AG027296).

More about the design of the research

Prior "observational" studies have attempted to estimate—with mixed results—whether hospice increases Medicare costs by comparing costs for nursing home residents who elected hospice and those who didn't in the same timeframe or cohort. But that approach is flawed, said Brown University public health researcher Pedro Gozalo, because it doesn't account for patients' preferences regarding care.

When the goal is to measure the net additional cost of increased hospice use, what must be compared is the cost incurred by someone who wanted hospice and got it, with the cost incurred by someone who did not want aggressive end-of-life care but didn't get hospice.

After hospice became more widely available, as it did after expansion, patients that did not elect hospice in a given year probably had a higher preference for aggressive care. They therefore are not an ideal group to compare to those that elected hospice that year. Going back in time to 2004, when hospice was not as pervasive an option, gave the researchers a "natural experiment." They could find individuals who did not want aggressive end-of-life care but did not get hospice and comparing them to individuals in 2009 who also did not want aggressive care but got hospice.

So the researchers amassed data to yield a group of "new" hospice users consisting of decedents who used hospice in 2009 but would not have been likely to elect hospice in 2004, and compared their outcomes to those of similar decedents in 2004 who did not use hospice but likely would have done so had it been more readily available. To account for changes over time due to other trends rather than due to changes in hospice election, the researchers compared the changes in outcomes over time for this new hospice comparison group to those that occurred for a group of decedents who did not use hospice, and likely didn't want to, in either year.

The result was a view of how service use and costs rose in groups of patients with comparable care preferences. As hospice expanded, costs rose as more patients who wanted palliative care, but did not want intensive care, received what they preferred.

Provided by Brown University