VARIATION IN INTENSITY OF CARE AND HOSPICE USE AT THE END OF LIFE IN MASSACHUSETTS

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INTRODUCTION

How people with serious illnesses engage with the health care system at the end of life has important implications for quality and cost. Health care spending in the last year of life represents about 25 percent of all Medicare spending in the U.S. [1]

High quality serious illness care includes access to palliative care that supports symptom management and emotional needs, with patients receiving care based on their individual preferences and priorities. However, consistent with U.S. findings, Massachusetts survey results indicate a need for improvement: 35% of people with a loved one who died in the past 12 months said that heath care providers did not fully follow their loved one's wishes.[2]

Variation in intensity of service use at the end of life can have implications for patient quality of care, as studies show that intensity of service use varies widely by region within the U.S. and is not explained by patient preferences.

- While individual preferences vary, a national survey of family members of individuals who died in high versus low intensity of care settings found that respondents from high intensity hospital service areas reported lower satisfaction with the quality of care that relatives had received at the end of life.[3]
- Furthermore, studies conclude that health system characteristics and provider practice patterns are strongly predictive of the care people receive at the end of life, with differences in patient characteristics being less influential.[4]

RESEARCH OBJECTIVES

The Massachusetts Health Policy Commission (HPC) investigated healthcare spending and intensity of service use at the end of life among Medicare beneficiaries in Massachusetts, in particular:

- Hospice enrollment and length of stay
- Total health care spending
- Intensity of hospital service use
- Regional variation in hospice use and health care spending

STUDY DESIGN

Using Medicare fee-for-service data from Massachusetts All-Payer Claims Database, we examined hospice use, inpatient hospital days, intensity of hospital procedures, and a variety of spending measures in the six months prior to death. The HPC also looked at variation in end of life care by demographic and by region of the state.

The study population included 27,137 Massachusetts Medicare beneficiaries that died in 2012. The decedents included in the sample had been continuously enrolled in Medicare parts A and B in the 12 months prior to death. To ensure that the sample was representative, HPC excluded decedents with total health care spending in the last year of life above the 95th percentile or below the fifth.

To better understand variation, we also examined a more homogenous subpopulation of decedents who had a poor prognosis cancer diagnosis. Almost one third of our study sample had a diagnosis of a poor prognosis cancer during the year preceding death (N = 8,550). This group was identified using a set of ICD-9 codes published by Obermeyer et al.[5]

1. Hogan C, Lunney J, Gabel J, Lynn J. Medicare beneficiaries' costs of care in the last year of life. Health affairs. 2001;20(4):188-95.
2. University of Massachusetts Medical School. Appears in: Freyer FJ. "When you die, will your wishes be known?" Boston Globe. May 12, 2016.
3. Teno JM, Mor V, Ward N, Roy J, Clarridge B, Wennberg JE, et al. Bereaved Family Member Perceptions of Quality of End-of-Life Care in US Regions with High and Low Usage of Intensive Care Unit Care. Journal of the American Geriatrics Society. 2005;53(11):1905-11.
4. Obermeyer Z, Powers BW, Makar M, Keating NL, Cutler DM. Physician Characteristics Strongly Predict Patient Enrollment In Hospice. Health Affairs (Millwood). 2015;34(6):993-1000.
5. Obermeyer Z, Makar M, Abujaber S, Dominici F, Block S, Cutler DM. Association Between the Medicare Hospice Benefit and Health Care Utilization and Costs for Patients With Poor-Prognosis Cancer. JAMA. 2014;312(18):1888-1896. doi:10.1001/jama.2014.14950

RESULTS

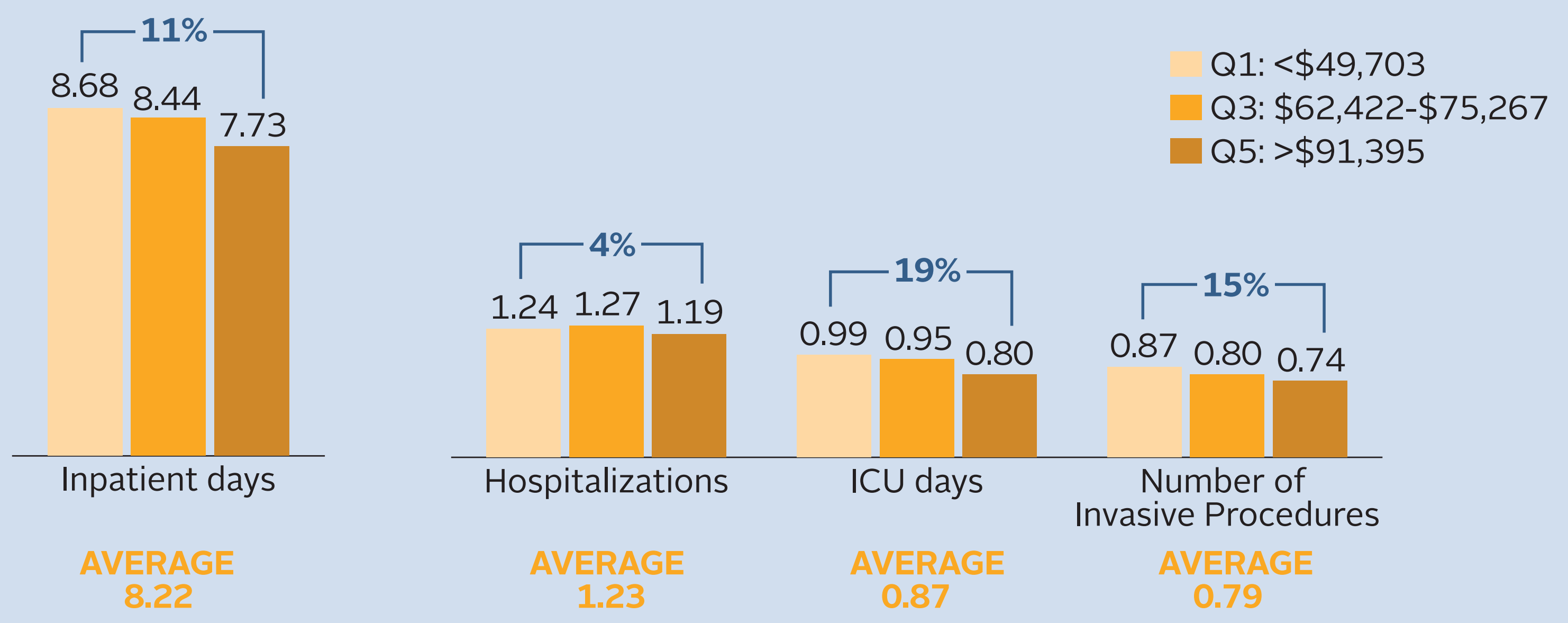
Medicare spending in the last six months of life totaled over $1 billion in Massachusetts in 2012. Total health care spending averaged $39,194 in the last six months of life, with hospital spending representing the largest expenditure category (42%). Sixty-eight percent of the decedents in the sample were hospitalized at least once in the last six months of life, and those that were hospitalized spent an average of 12.1 days in the last six months of life in the hospital.

Nearly half of the study population enrolled in hospice (49%), but 25% of hospice users were enrolled for six or fewer days before death. Intensity of service use at the end of life differed by income and region of the state. Across all decedents, including those who did not have a hospital stay in the last six months of life, lower income populations had a higher average number of hospitalizations, inpatient days, and ICU days in the last six months of life, as well as more inpatient and ICU days per hospitalization. Patterns were similar for decedents with poor prognosis cancer. The difference in the highest and lowest regions by average days spent hospitalized was 4.9 days.

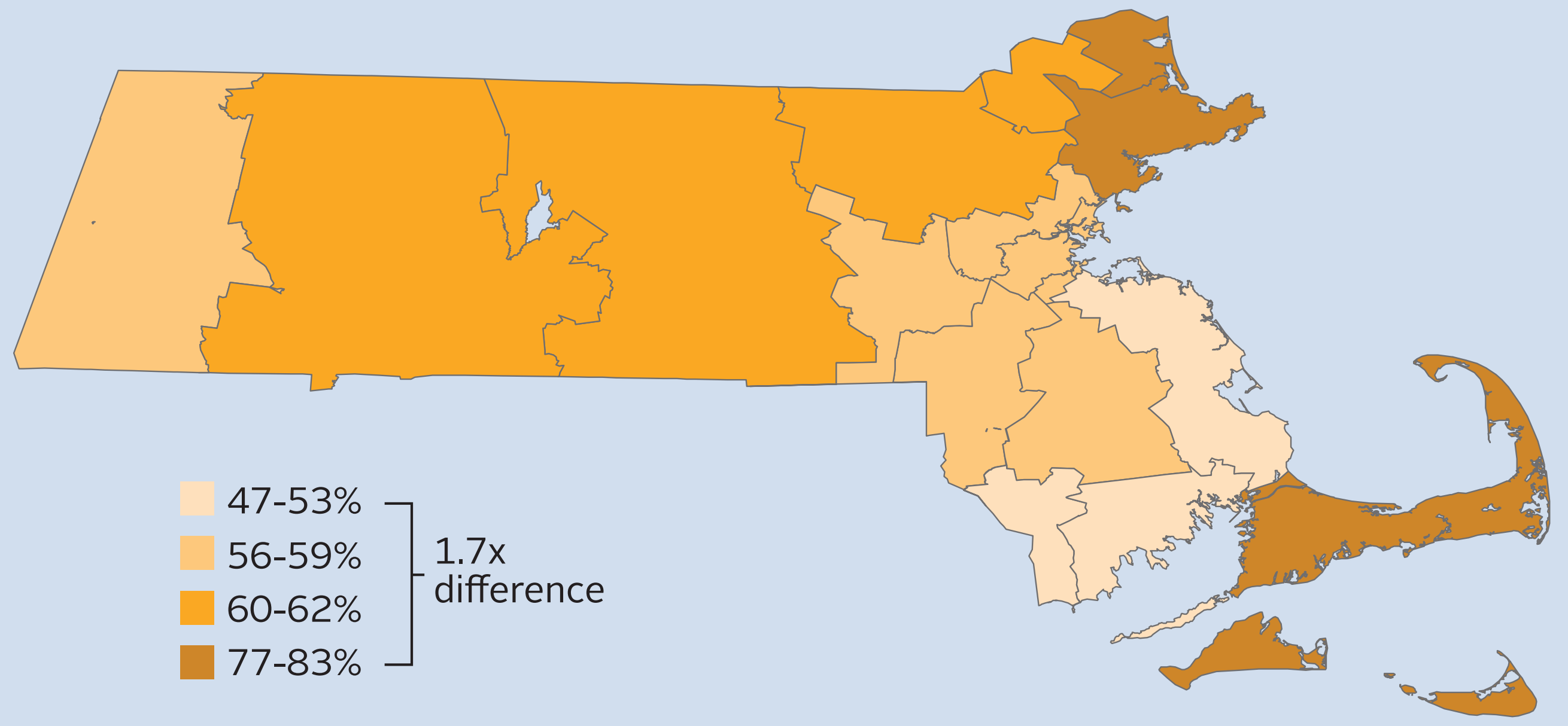
The poor-prognosis subsample had higher total health care spending, averaging $67,611 in the last six months of life. On average, decedents with poor prognosis cancer were more likely to have enrolled in hospice (61% enrollment among poor prognosis cancer patients). Among these patients, enrollment in hospice varied widely by region of Massachusetts, from 47% to 83%. Regional differences persisted when controlling for age, sex, and income.

We also analyzed the regional association between total medical expenses and days spent in hospice for poor prognosis cancer patients in the last six months of life. We found an inverse relationship between the regional average length of stay in hospice and average per decedent spending by region.

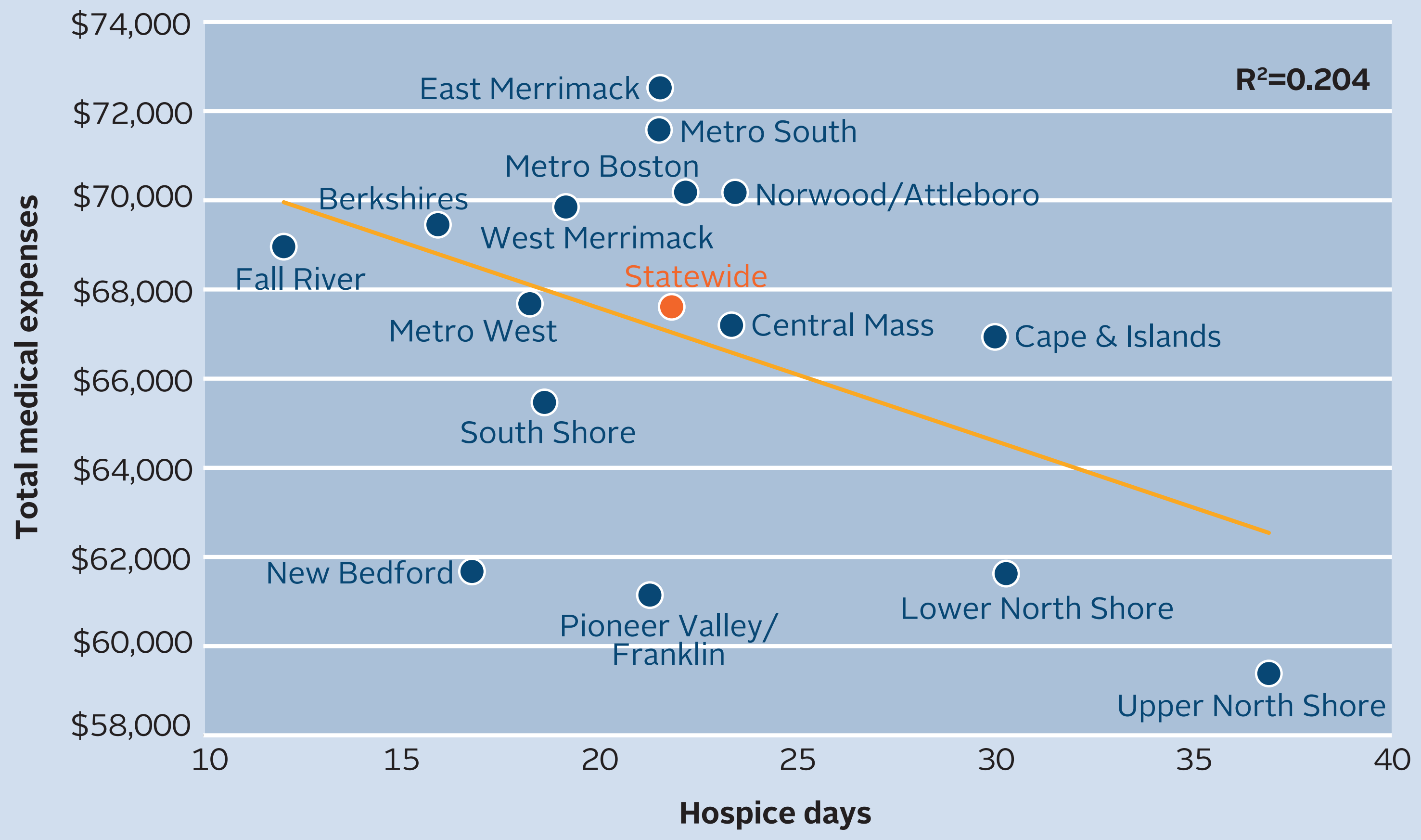
Intensity of hospital service use in the final six months of life by income among all Massachusetts Medicare decedents, defined as median income of patient zip code, 2012



Regional hospice enrollment in last year of life among Medicare decedents with poor prognosis cancer, 2012



Average hospice days and total medical spending in last six months of life for Massachusetts Medicare decedents with poor prognosis cancer, 2012



CONCLUSIONS

Consistent with national trends, Massachusetts Medicare decedents have intensive engagement with the health care system at the end of life. Despite the benefits of palliative care and hospice, use of such care varied in Massachusetts. Even among decedents who used hospice, many beneficiaries only enrolled shortly before death, limiting the benefit they can receive from these services.

Variation both by income and by region of the state suggests a need to ensure that patients receive care at the end of life consistent with their goals and preferences.

POLICY IMPLICATIONS

- Differential hospice use by population and region in Massachusetts as well as late enrollment trends suggest a need for enhanced patient and provider engagement around end of life care, particularly promoting early conversations about preferences and shared decision making.
- As with variation across the U.S., substantial regional variation within Massachusetts highlights the need for further research on the influence of local practice patterns and the opportunity to improve care at the end of life for all beneficiaries.
- These findings emphasize the need for improvement in the Commonwealth, including continued support for current initiatives being led by the Massachusetts Coalition for Serious Illness Care and other key stakeholders.

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