
SEER-MHOS: A New Federal Collaboration on Cancer Outcomes Research

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INTRODUCTION

In this issue of the *Health Care Financing Review*, we focus on the health-related quality of life (HRQOL) of cancer survivors who are enrolled in Medicare managed care (MMC). Over the past few years, NCI and CMS have been collaborating on the creation of a surveillance data set that links data from the Surveillance, Epidemiology, and End Results (SEER) cancer registry program with the enrollee-reported health status information from the Medicare Health Outcomes Survey (MHOS) program. The aim is to develop a data system that will enable both organizations to sponsor research programs to improve our understanding of the HRQOL of older cancer survivors, and to inform health policy on opportunities for managed care organizations to improve the health of Medicare enrollees.

BACKGROUND

Part of the genesis for developing this intra-agency collaboration was the potential contribution the data set could make to increase our knowledge about the HRQOL of older adults who survive one or more diagnoses of cancer. As described in the articles in this issue, older adults account for approximately 60 percent of all cancer diagnoses (Surveillance, Epidemiology, and End Results, 2007), yet little

comparative research exists to inform program policy on how their HRQOL differs from other Medicare beneficiaries. Moreover, the limited research available on cancer survivorship suggests these differences may be especially important to explore now. Evidence suggests many cancer survivors live with significant physical and emotional challenges that affect their overall HRQOL (Hewitt, Greenfield, and Stovall, 2006). As more effective therapies and earlier detection of certain cancers increase the length of survivorship among older adults, the number of cancer survivors in the Medicare Program will grow.

Another aim of this collaboration was to demonstrate that these data would be relevant, clinically meaningful, and actionable to health plans and providers in treating and planning programs for cancer survivors. A number of studies have indicated that MHOS data are useful for quality improvement and program planning purposes. Exploring the differential impact of coexisting conditions on the HRQOL of Medicare enrollees with heart disease, Bierman (2004) discovered wide variation in outcomes across groups of heart disease patients and challenged the health care community to implement and evaluate care programs that address the coexisting conditions as well as the heart disease. McDonald, Jifeng, and Dulabone (2004) described how they used MHOS data in a study of people with diabetes to engage providers in discussions about HRQOL, to evaluate care programs using robust and standardized measures, and

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to encourage providers and health plans to think critically about how to improve HRQOL. We believe that the contributions in this issue are an important step to apprise Medicare Advantage plans of these challenges in cancer and identify opportunities for improving the quality-of-care provided to enrollees who have been diagnosed with cancer. The goal is to provide sound outcomes data that plans may use in planning programs and interventions to maximize the health and functional status of their Medicare enrollees who are cancer survivors.

There are five articles in this edition of the *Review* that illustrate the potential for the SEER-MHOS program to fill some of these knowledge gaps and inform research and policy. The first article by Ambs, Warren, Bellizzi, Topor, Haffer, and Clauser provides an overview of the SEER-MHOS data set—its structure, content, and potential research applications. The data set represents the linkage of four cohorts of MHOS data, running from 1998-2003. It covers 12 States and approximately 27 percent of all Medicare Advantage program enrollment. More than 27,000 Medicare cancer survivors, and over 140,000 enrollees never diagnosed with cancer are included in the SEER-MHOS analytic data set. The SEER registries provide detailed clinical data on the cancer status of MMC enrollees (e.g., cancer histology, stage, and grade), and information on initial surgical and radiation treatment within 12 months of diagnosis. The MHOS contains HRQOL data as measured by the Medical Outcomes Study Short Form-36 (SF-36®) as well as a wealth of data on enrollee demographics, socioeconomic status, and self-reported comorbidities. As described by Ambs and colleagues, the strength of the SEER-MHOS is the ability to provide insights into the HRQOL of managed care enrollees, both across different types of

cancers and between enrollees with and without cancer. The authors indicate that SEER-MHOS analyses can serve as a useful planning and prioritization resource for Medicare Advantage plans with limited information on the HRQOL of enrollees who are cancer survivors.

The next two articles explore the impact on HRQOL within important subpopulations of MMC enrollees affected by cancer. The article by Clauser, Arora, Bellizzi, Haffer, Topor, and Hays examines the HRQOL of cancer survivors and other Medicare enrollees by cancer status, race/ethnicity, and other important sociodemographic factors. The authors find that HRQOL disparities (i.e., where differences in physical and mental health status are greatest) are largest for individuals with multiple primary cancer diagnoses and among cancer survivors who are under age 85, Hispanic, and have low education and income. Among survivors of the four most prevalent cancers—breast, prostate, colorectal, and lung cancer—individuals diagnosed with lung cancer have the greatest disparities in these vulnerable populations. These results suggest that managed care plans interested in addressing these disparities in HRQOL should have programs especially tailored to the most vulnerable groups. The authors also suggest that prioritizing managed interventions for enrollees with low education may be an especially promising strategy to explore.

Smith, Reeve, Bellizzi, Harlan, Klabunde, Amsellem, Bierman, and Hays investigate effects of comorbidity and cancer diagnosis. They note that MMC enrollees diagnosed with cancer have a higher prevalence of medical comorbidities, and that after these comorbid conditions and the time since the diagnosis are accounted for, cancer survivors have significantly more physical health limitations than MHOS respondents without a cancer diagnosis.

Further exploration of time since diagnosis showed that individuals who were diagnosed with cancer in the previous year and had two or more comorbid conditions, had the worst HRQOL across both physical and mental health domains. Results by cancer site indicated that individuals with lung cancer had the worst physical and mental health. The authors go on to suggest that managed care plans intending to mitigate declines in HRQOL should consider outreach strategies soon after treatment, with special attention to cancer patients exhibiting multiple medical comorbidities. They also suggest there may be a role for primary care to coordinate surveillance with specialty care in addressing these issues.

In the fourth article by Hays, Smith, Reeve, Spritzer, Marcus, and Clauser examine the impact of smoking on HRQOL in cancer survivors enrolled in MMC. Smoking is a major risk factor for several types of cancer and evidence suggests that a history of cigarette use is associated with poorer self-reported physical and mental health (Arday et al., 2003). Using questions from the MHOS on smoking history, they confirm that current smokers have significantly lower self-reported physical and mental health, and the observed differences between those individuals with and without a cancer diagnosis were not large. Physical and mental health among those who recently quit was similar to current smokers, although the reasons for these similarities were unclear. They suggest that MMC programs that sponsor smoking cessation programs may need to take physical and psychological features of withdrawal into account in assisting recent quitters with their efforts to refrain from tobacco smoking.

Lastly, Reeve, Smith, Arora, and Hays demonstrate some of the strengths of the SEER-MHOS as a data set to inform outcomes methods research. They evaluate

the utility of using propensity scoring as a way of matching controls to cases to reduce the statistical bias in examining group differences in observational research. This issue is especially relevant to the SEER-MHOS because of the need in certain HRQOL research applications to construct matched comparison groups between cancer types or between individuals with and without a cancer diagnosis. Unless these matches are handled carefully, the opportunity for bias due to possible group differences on demographic or clinical characteristics may substantially affect comparisons. The authors found that the large sample sizes available in the SEER-MHOS data set allow for the development of more powerful statistical designs using methods such as propensity score matching to develop more robust quasi-experimental research study designs. These research designs may be especially suitable for evaluating the SEER-MHOS longitudinal cohorts when study questions address determinants for change in HRQOL. This will enhance the ability to explore causal models of outcomes research that will inform the future directions of research using the SEER-MHOS data.

The articles in this issue of the *Review* point to several challenges facing the Medicare Advantage program in addressing the HRQOL of cancer survivors enrolled in their programs. Currently, HRQOL is lower for cancer survivors than for individuals who have never been diagnosed with cancer. Certain groups of cancer survivors, such as those recently diagnosed, tobacco smokers, those with multiple comorbidities, lung cancer survivors, enrollees with low income and education, and those with more than one primary cancer diagnosis, are especially vulnerable to poor HRQOL. The articles in this issue also highlight the need for additional research to understand

these problems and to better inform Medicare Advantage plans on opportunities for improving the health-related quality of life of cancer survivors for whom they are accountable.

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