Health Care Integration and Quality among Men with Prostate Cancer

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Purpose: The delivery of high quality prostate cancer care is increasingly important for health systems, physicians and patients. Integrated delivery systems may have the greatest ability to deliver high quality, efficient care. We sought to understand the association between health care integration and quality of prostate cancer care.

Materials and Methods: We used SEER-Medicare data to perform a retrospective cohort study of men older than age 65 with prostate cancer diagnosed between 2007 and 2011. We defined integration within a health care market based on the number of discharges from a top 100 integrated delivery system, and compared rates of adherence to well accepted prostate cancer quality measures in markets with no integration vs full integration (greater than 90% of discharges from an integrated system).

Results: The average man treated in a fully integrated market was more likely to receive pretreatment counseling by a urologist and radiation oncologist (62.6% vs 60.3%, p=0.03), avoid inappropriate imaging (72.2% avoided vs 60.6%, p <0.001), avoid treatment when life expectancy was less than 10 years (23.7% vs 17.3%, p <0.001) and avoid multiple hospitalizations in the last 30 days of life (50.2% vs 43.6%, p=0.001) than when treated in markets with no integration. Additionally, patients treated in fully integrated markets were more likely to have complete adherence to all eligible quality measures (OR 1.38, 95% CI 1.27–1.50).

Abbreviations and Acronyms

ACO = Accountable Care Organization
HRR = hospital referral region
NQF = National Quality Forum
PCPI = Physician Consortium for Performance Improvement
SEER = Surveillance, Epidemiology, and End Results

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Conclusions: Integrated systems are associated with improved adherence to several prostate cancer quality measures. Expansion of the integrated health care model may facilitate greater delivery of high quality prostate cancer care.

Key Words: prostatic neoplasms; quality indicators, health care; delivery of health care, integrated; accountable care organizations; Medicare

THE quality of prostate cancer care in the U.S. varies widely.[1] Uncertainty surrounding how best to treat men with localized prostate cancer is fueled by the considerable morbidity of treatments and the associated decrements in quality of life. Without question, public pressure to improve is mounting. The recent release of surgeon specific complication rates and the associated media attention only further amplify calls for accountability and meaningful improvement.

While surgeons can hone their surgical skills through collaborative quality improvement and other self-learning methods to work toward better outcomes,[2,3] the best means to facilitate improvements in prostate cancer quality more broadly remain uncertain. Some believe that recent health reforms, which heighten the focus on stewardship of population health and accountable care, will inevitably drive quality improvement.[4] Enthusiasm for accountable care is based in part on successes in improving quality and efficiency by fully integrated delivery systems, such as Geisinger and Intermountain Healthcare.[5,6] By definition, integrated delivery systems are organized, collaborative networks that link health care providers who are clinically and fiscally accountable for patient populations across the continuum of care.[7] Integrated delivery systems are often typified by a focus on fully coordinated, evidence-based health care, and have systems in place to manage and improve clinical outcomes. However, whether such integration is associated with higher quality prostate cancer care is uncertain.

Therefore, we performed a study to better understand the implications of health care integration for prostate cancer quality. We hypothesized that higher levels of integration would be associated with better quality. Our findings will help stakeholders anticipate the implications of ACOs, the progeny of integrated delivery systems, for specialist managed diseases such as prostate cancer.

MATERIALS AND METHODS

Using SEER-Medicare data we performed a retrospective cohort study of 72,411 men age 66 or older with newly diagnosed prostate cancer between 2007 and 2011, with followup data through December 31, 2013. All men were followed for at least 1 year after diagnosis. Our study was limited to men continuously enrolled in Medicare Parts A and B throughout the study period, and excluded men participating in Medicare managed care plans.

Measuring Market Level Health Care Integration

We examined quality at the market level rather than the hospital or facility level in an effort to understand patterns in quality of care for all patients with prostate cancer. Only surgical patients routinely receive care in a hospital setting, where attribution to a hospital that is part of an integrated delivery system is straightforward. For the nearly 80% of patients with newly diagnosed prostate cancer who receive care outside of a hospital setting, understanding the affiliation of the treating physician with an integrated system is a necessary step and these relationships are currently poorly defined. For these reasons we elected to examine the effects of integration at the market level.

We measured the level of integration within a health care market by determining the proportion of discharges coming from a top 100 integrated delivery system in each market.[8] The designation of a top 100 integrated delivery system was determined by *Becker's Hospital Review* based on rankings provided by a health care analytics firm, IMS Health™, as well as an overall assessment of each health systems' financial, clinical and operations strength. Specifically, health systems are ranked based on their ability to operate as a unified organization among key domains, including integrated technology use, contractual capabilities, outpatient use, financial stability, services and access, hospital use and physicians.

Markets were defined by the boundaries of hospital referral regions as described in the Dartmouth Atlas of Health Care.[9] Each of the 306 HRRs in the U.S. consists of a collection of zip codes within which residing patients receive the bulk of their health care. Of these HRRs 105 are completely, or have a majority, located within SEER regions and, therefore, are included in this study to ensure capture of all health care services and clinical and pathological data.[10,11] The proportion of discharges from a top 100 integrated delivery system was measured at the level of the HRR. The corresponding proportions of market level integration were assigned to the patients of the cohort based on their HRR and served as the exposure. In an effort to overcome heterogeneity of integration at the hospital level within HRRs, we compared quality at the ends of the spectrum (ie no integration vs fully integrated) to ensure that the presence of integration is uniform for patients within the HRRs examined. Fully integrated markets were defined as those HRRs with at least 90% of discharges from a top 100 integrated delivery system.