

Clinical Implementation of Quality of Life Instruments and Prediction Tools for Localized Prostate Cancer: Results from a National Survey of Radiation Oncologists and Urologists

Simon P. Kim, R. Jeffrey Karnes, Paul L. Nguyen, Jeanette Y. Ziegenfuss, Leona C. Han, R. Houston Thompson, Quoc-Dien Trinh, Maxine Sun, Stephen A. Boorjian, Timothy J. Beebe and Jon C. Tilburt*

From the Department of Urology (SPK, RJK, RHT, SAB), Division of Health Care Policy and Research (LCH, TJB), Knowledge and Evaluation Unit (JCT) and Biomedical Ethics Research Unit (LCH, JCT), Mayo Clinic, Rochester, HealthPartners Institute for Education and Research (JYZ), Minneapolis, Minnesota, Department of Radiation Oncology, Dana Farber Cancer Institute, Harvard Medical School (PLN), Boston, Massachusetts, Vattikuti Urology Institute, Henry Ford Health System (QDT), Detroit, Michigan, Cancer Prognostics and Health Outcomes Unit (QDT, MS) and Department of Public Health, Faculty of Medicine (MS), University of Montreal Health Center, Montreal, Quebec, Canada

Abbreviations and Acronyms

PC = prostate cancer

QOL = quality of life

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* Correspondence: Department of Internal Medicine, Mayo Clinic, 200 First St. Southwest, Rochester, Minnesota 55905 (e-mail: tilburt.jon@mayo.edu).

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Purpose: Although clinical guidelines recommend assessing quality of life, cancer aggressiveness and life expectancy for making localized prostate cancer treatment decisions, it is unknown whether instruments that objectively measure such outcomes have disseminated into clinical practice. In this context we determined whether quality of life and prediction instruments for prostate cancer have been adopted by radiation oncologists and urologists in the United States.

Materials and Methods: Using a nationally representative mail survey of 1,422 prostate cancer specialists in the United States, we queried about self-reported clinical implementation of quality of life instruments, prostate cancer nomograms and life expectancy prediction tools in late 2011. The Pearson chi-square test and multivariate logistic regression were used to determine differences in the use of each instrument by physician characteristics.

Results: A total of 313 radiation oncologists and 328 urologists completed the survey for a 45% response rate. Although 55% of respondents reported using prostate cancer nomograms, only 27% and 23% reported using quality of life and life expectancy prediction instruments, respectively. On multivariate analysis urologists were less likely to use quality of life instruments than radiation oncologists (OR 0.40, $p < 0.001$). Physicians who spent 30 minutes or more counseling patients were consistently more likely to use quality of life instruments (OR 2.57, $p < 0.001$), prostate cancer nomograms (OR 1.83, $p = 0.009$) and life expectancy prediction tools (OR 1.85, $p = 0.02$) than those who spent less than 15 minutes.

Conclusions: Although prostate cancer nomograms have been implemented into clinical practice to some degree, the use of quality of life and life expectancy tools has been more limited. Increased attention to implementing validated instruments into clinical practice may facilitate shared decision making for patients with prostate cancer.

Key Words: prostate, prostatic neoplasms, nomograms, urology, radiation oncology

Prostate cancer remains the most commonly diagnosed male malignancy in the United States with an estimated 241,470 incident cases and 28,170 cancer related deaths in 2012.¹ Since the introduction of prostate specific antigen screening, approximately 90% of newly diagnosed men have organ confined PC.^{2,3} With limited high quality evidence to guide treatment decisions or critically evaluate the comparative effectiveness of different primary therapies,⁴ patients face difficult treatment decisions regarding optimal therapy. As a consequence, radiation therapy, radical prostatectomy and active surveillance in patients with low risk disease or limited life expectancy are each considered an acceptable primary treatment option for localized disease.^{5,6} Against this background, regional variations and racial disparities in primary therapy and outcomes as well as quality of care variations regarding management for localized PC are well recognized health care policy concerns for patients, providers and key stakeholders.^{7,8}

Clinical guidelines from the American Urological Association and NCCN (National Comprehensive Cancer Network) call for structural and process of care measures to improve the quality of care and facilitate better treatment decisions for patients diagnosed with PC.^{5,6} It is universally recommended that physicians and patients assess and incorporate PC risk stratification, functional outcomes and life expectancy to select treatments sensitive to the clinical characteristics and preferences of each patient. However, subjective assessment by physicians may be prone to bias or error,^{9,10} which is concerning since each primary therapy carries different health related QOL implications.^{4,11}

To that end, significant research has been dedicated to developing and validating evidence-based tools for QOL, PC risk stratification (ie nomograms) and life expectancy to incorporate these patient centered outcomes into treatment decisions for localized PC. For example, the NCCN clinical guidelines specifically endorse estimating life expectancy, such as with actuarial life tables, and nomograms to enumerate the risks of adverse oncological outcomes.^{5,12–15} Although widespread dissemination of these instruments into routine clinical practice has the potential to help tailor treatment decisions sensitive to patient preferences and decrease unwarranted variation in health care,¹⁶ it is unknown whether any or which of these tools have been implemented into clinical practice.

In this context we determined whether instruments for QOL and prediction tools or nomograms for PC risk or life expectancy have disseminated into

clinical practice using a nationally representative sample of radiation oncologists and urologists. We also identified physician characteristics and practice settings associated with the implementation of such tools.

MATERIALS AND METHODS

Survey

Sample. We selected a random sample of physicians who cited radiation oncology or urology as their primary specialty from the AMA (American Medical Association) Physician Masterfile. We limited our survey sample to physicians who had completed residency training as well as those 25 to 65 years old. We further restricted our sample to physicians who were directly involved in patient care and practiced in the United States.

Questionnaire and administration. We developed a survey questionnaire aimed at assessing the perceptions of radiation oncologists and urologists on shared decision making and decision aids in the context of counseling patients diagnosed with localized PC. The survey specifically queried each respondent on certain items, including “Do you currently use a QOL instrument in your clinic?” “Do you currently use a nomogram or prediction tool to determine risk of PC recurrence?” and “Do you currently use a prediction tool to determine overall 10-year life expectancy?” Framing variables obtained from the survey and AMA Masterfile included physician demographics, practice setting (academic or community), compensation structure (billing or salary with/without bonus), number of physicians in practice, average time spent counseling newly diagnosed patients on treatment decisions and region (Northeast, Midwest, South or West).

We initially pilot tested the mail survey in a random sample of 50 radiation oncologists and 50 urologists in June 2011. Survey items were then revised based on pilot survey responses. The final survey instrument was mailed to a separate representative sample of 1,422 physicians from late 2011 to early 2012. Each eligible respondent was mailed a cover letter, survey and token cash incentive. Nonresponders were mailed a reminder letter and another copy of the survey questionnaire for 2 successive waves approximately every 6 weeks.

Statistical Analysis

The primary study outcomes were physician reported use of QOL instruments, nomograms or prediction tools for PC recurrence and prediction tools to estimate 10-year life expectancy in the clinical setting in patients diagnosed with localized PC. Bivariate associations of physician characteristics and primary outcomes were tested by the Pearson chi-square test. We then fit multivariate logistic regression models to test whether physician characteristics were associated with the self-reported use of each outcome. Two-sided $p \leq 0.05$ was considered statistically significant. Stata®/MP, version 11.0 was used to perform all statistical analysis.

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