Shared Decision Making and Use of Decision Aids for Localized Prostate Cancer
Perceptions From Radiation Oncologists and Urologists

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IMPORTANCE The current attitudes of prostate cancer specialists toward decision aids and their use in clinical practice to facilitate shared decision making are poorly understood.

OBJECTIVE To assess attitudes toward decision aids and their dissemination in clinical practice.

DESIGN, SETTING, AND PARTICIPANTS A survey was mailed to a national random sample of 1422 specialists (711 radiation oncologists and 711 urologists) in the United States from November 1, 2011, through April 30, 2012.

MAIN OUTCOMES AND MEASURES Respondents were asked about familiarity, perceptions, and use of decision aids for clinically localized prostate cancer and trust in various professional societies in developing decision aids. The Pearson χ² test was used to test for bivariate associations between physician characteristics and outcomes.

RESULTS Similar response rates were observed for radiation oncologists and urologists (44.0% vs 46.1%; P = .46). Although most respondents had some familiarity with decision aids, only 35.5% currently use a decision aid in clinical practice. The most commonly cited barriers to decision aid use included the perception that their ability to estimate the risk of recurrence was superior to that of decision aids (7.7% in those not using decision aids and 26.2% in those using decision aids; P < .001) and the concern that patients could not process information from a decision aid (7.6% in those not using decision aids and 23.7% in those using decision aids; P < .001). In assessing trust in decision aids established by various professional medical societies, specialists consistently reported trust in favor of their respective organizations, with 9.2% being very confident and 59.2% being moderately confident (P = .01).

CONCLUSIONS AND RELEVANCE Use of decision aids among specialists treating patients with prostate cancer is relatively low. Efforts to address barriers to clinical implementation of decision aids may facilitate greater shared decision making for patients diagnosed as having prostate cancer.

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Prostate cancer is the most common cancer among males and the second most common reason for cancer-related deaths in US men. Among the 238,000 patients diagnosed with prostate cancer each year, most men are diagnosed as having localized disease because of the widespread use of prostate-specific antigen screening. Men diagnosed as having clinically localized prostate cancer have multiple disease management options, including active surveillance, surgery, or radiotherapy. Patients, physicians, and key stakeholders are currently confronted with a paucity of high-quality evidence to effectively guide treatment decisions. As a result, clinical practice guidelines recommend radical prostatectomy, radiotherapy, or active surveillance based on the patient’s prostate cancer risk stratification, life expectancy, and patient preferences. Because each treatment carries significant adverse effects on health-related quality of life (QOL), it is well recognized that high-quality treatment decisions incorporate patient preferences and values into the treatment decision and require adequate patient knowledge about prostate cancer and all relevant treatments.

Prostate cancer treatment decisions embody shared decision making (SDM) because of the uncertainty about an optimal primary treatment, treatment-related QOL implications, and importance of incorporating patient preferences. Indeed, most patients with prostate cancer prefer to be involved in treatment decision making and have better outcomes when they perceive a shared role in the treatment decisions. However, many patients with prostate cancer are not receiving adequate information regarding all treatment options and QOL implications. In an effort to facilitate SDM in clinical practice, decision aids (DAs) have been developed and evaluated for a variety of common malignant neoplasms, including prostate cancer. Decision aids increase patient knowledge and involvement in decision making and lower patient anxiety and uncertainty. Moreover, easily accessible DAs developed by organizations such as the Agency for Healthcare Research and Quality are readily available to patients and physicians. Studies to date, however, reveal that widespread adoption of DAs in clinical practice remains lacking. Several studies have reported that perceived lack of clinical applicability or lack of physician familiarity with DAs represent key barriers to their clinical implementation. However, little is known about physician attitudes and perceptions about DAs and their use in clinical practice, specifically for prostate cancer treatment decisions. Efforts to identify key knowledge gaps and barriers to the clinical implementation of DAs offered the first tangible steps in promoting SDM and improving the quality of care for this common malignant neoplasm. We therefore performed a national survey of radiation oncologists and urologists to evaluate physician familiarity and use of DAs for prostate cancer treatment and determine barriers to DA adoption.

Methods

Survey Sample and Development
On Mayo Clinic Institutional Review Board approval, we acquired a random sample of radiation oncologists and urologists from the American Medical Association (AMA) Physician Masterfile in June 2011. The survey sample was limited to physicians who designated their primary specialty as radiation oncology or urology, completed residency training, were younger than 65 years, were involved primarily in patient care, and practiced in the United States. To ascertain attitudes of radiation oncologists and urologists regarding current controversies in SDM, we developed a pilot questionnaire aimed at assessing current use of and attitudes toward DAs specifically for treatment decisions in localized prostate cancer. The pilot survey instrument was initially tested in a random sample of 50 radiation oncologists and 50 urologists from a single mailing in July 2011. On completion, the pilot survey was revised according to a review of the response items on the pilot survey and finalized with 9 items for the purposes of this study (Appendix in the Supplement).

In the revised survey, the introduction to the section regarding DA use began with the following statement: “Decision aids are tools developed to support patients’ decision-making by including evidence for all viable treatment options, a balanced presentation of the risks and benefits of those options, and clarifying patient values. Please select only one answer for each question.” The final survey had the following domains: use of DAs in clinical practice, familiarity and usefulness of DAs, perceptions of possible barriers toward DAs, and trust in other organizations in promoting DAs for prostate cancer. The first item then asked, “How familiar are you with decision aids for prostate cancer?” Respondents were asked to select only one of the following options: very familiar, somewhat familiar, or not familiar. The next item on the survey queried the following: “Do you currently use a decision aid for prostate cancer in your clinic?” Respondents were allowed to select yes or no. The survey items also assessed perceptions in the use of and confidence in DAs for their patients with localized prostate cancer. Respondents were asked to select one of the following: very useful/confident, moderately useful/confident, moderately not useful/confident, or not useful/confident at all.

For the following survey items, we focused on the clinical implementation of DAs and the possible barriers in use among patients. In this section, respondents were asked the extent to which they agree or disagree with the following statements: “Decision aids are applicable to my patients;” “Decision aids lead patients to choose less effective treatment options;” “The average patient in my clinic could not process the information from a decision aid;” and “My estimation of my patient’s risk of recurrence is more accurate than what the currently available decision aids would predict.” For these 4 survey items, respondents could select only one of the following responses: strongly agree, moderately agree, moderately disagree, or strongly disagree.

To investigate whether sponsorship by national organizations or professional societies would facilitate the clinical implementation of DAs into routine clinical practice, the survey included the following item: “For each of the following professional societies, would you trust them to provide balanced, reliable decision aids about localized prostate cancer treatment options?” Among the professional organizations listed in the survey were the American Cancer Society, American Society of Clinical Oncology, American Society of Radia-
The primary outcomes of this study were the response items regarding whether radiation oncologists and urologists routinely used DAs in clinical practice, their attitudes and perceptions about DAs, and trust in various professional societies or national organizations. The Pearson χ² test was used to assess for bivariate associations between physician characteristics and primary outcomes. We also evaluated whether attitudes and perceptions about possible barriers toward DAs varied by respondents’ use of DAs in routine clinical practice for prostate cancer. Multivariable logistic regression analyses were performed to test for associations between physician characteristics and primary outcomes from the response items. A 2-sided P ≤ .05 was used to determine statistical significance. STATA MP statistical software, version 11.0 (Stata Corp) was used to perform all statistical analyses.

**Results**

Among the 1422 physicians, 641 respondents completed the survey for an overall response rate of 45.1%. Similar response rates were observed for radiation oncologists and urologists (44.0% vs 46.1%, P = .46). Among respondents, radiation oncologists tended to be younger, female, races other than white, and practicing in academic medical centers compared with urologists (Table 1).

Overall, only 35.5% of radiation oncologists and urologists stated that they currently used a DA in their clinical practice, whereas 21.5% of specialists reported that they were very familiar with DAs (Table 2). Furthermore, only 16.5% of respondents viewed DAs to be very useful, and 9.2% were very confident that DAs improve treatment decisions. However, as indicated in Table 3, 22.2% and 59.2% of specialists, respectively, strongly and moderately believed that DAs were applicable to their patients with prostate cancer. Moreover, most respondents held the view that DAs would help patients choose effective treatment options (85.7%). In addition, 8.2% and 37.4% of those not using DAs and 3.9% and 21.2% of those using DAs, respectively, strongly and moderately agreed to some extent that the average patient would not be able to process information from DAs regarding prostate cancer recurrence is more accurate than the risk estimated by DAs (40.9% vs 27.6%; P = .01).

In assessing differences in attitudes and perceptions about possible barriers toward DAs, respondents who reported using them in routine clinical practice responded more favorably toward SDM in prostate cancer compared with those who did not use DAs across all survey items (Table 4; all P < .001). For instance, specialists who used such tools were more likely to strongly agree that DAs were applicable to their patients than those who did not (45.6% vs 7.8%). Furthermore, greater proportions of physicians who reported not using DAs also strongly or moderately agreed that their patients could not process information from DAs (45.6% vs 25.1%) or that their estimation of cancer risk was more accurate (41.5% vs 23.8%) than their counterparts. On multivariable analysis, however, there were minimal differences in physician characteristics, including practice setting and reimbursement structure, and attitudes about possible barriers to use of DAs in clinical practice.

**Table 1. Characteristics of the 641 Survey Respondents**

<table>
<thead>
<tr>
<th>Feature</th>
<th>No. (%) of Respondents</th>
</tr>
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<tbody>
<tr>
<td><strong>Age, y</strong></td>
<td></td>
</tr>
<tr>
<td>&lt;40</td>
<td>113 (17.6)</td>
</tr>
<tr>
<td>40-55</td>
<td>315 (49.1)</td>
</tr>
<tr>
<td>&gt;55</td>
<td>213 (33.3)</td>
</tr>
<tr>
<td><strong>Sex</strong></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>544 (84.9)</td>
</tr>
<tr>
<td>Female</td>
<td>97 (15.1)</td>
</tr>
<tr>
<td><strong>Race</strong></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>77 (12.0)</td>
</tr>
<tr>
<td>White</td>
<td>564 (88.0)</td>
</tr>
<tr>
<td><strong>US Census region</strong></td>
<td></td>
</tr>
<tr>
<td>Northeast</td>
<td>123 (19.2)</td>
</tr>
<tr>
<td>Midwest</td>
<td>164 (25.6)</td>
</tr>
<tr>
<td>South</td>
<td>218 (34.0)</td>
</tr>
<tr>
<td>West</td>
<td>136 (21.2)</td>
</tr>
<tr>
<td><strong>Practice setting</strong></td>
<td></td>
</tr>
<tr>
<td>Academic</td>
<td>484 (79.1)</td>
</tr>
<tr>
<td>Community</td>
<td>128 (20.9)</td>
</tr>
<tr>
<td><strong>Salary structure</strong></td>
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</tr>
<tr>
<td>Billing</td>
<td>226 (37.5)</td>
</tr>
<tr>
<td>Salary</td>
<td>376 (62.5)</td>
</tr>
<tr>
<td><strong>Primary specialty</strong></td>
<td></td>
</tr>
<tr>
<td>Radiation oncologists</td>
<td>306 (50.0)</td>
</tr>
<tr>
<td>Urologists</td>
<td>306 (50.0)</td>
</tr>
</tbody>
</table>
In evaluating the degrees of trust placed in various professional societies in establishing or sponsoring DAs for prostate cancer treatment decisions, both specialties tended to place a high degree of trust in the National Comprehensive Cancer Network, American Cancer Society, and American Society of Clinical Oncology (Figure; all >60% for both specialties). However, both specialties placed less trust in the professional society from the other specialty. For example, 90.8% of radiation oncologists reported trusting DAs developed by the American Society of Radiation Oncology compared with 42.1% of urologists (P < .001). Conversely, only 43.3% of radiation oncologists reported trust in DAs developed by the American Urological Association compared with 95.3% of urologists (P < .001).

**Discussion**

In this national survey of prostate cancer specialists, we sought to assess the current use of DAs in routine clinical practice and investigate the attitudes toward these tools for facilitating treatment decision making in patients with localized prostate cancer. Our findings are particularly relevant given the need to promote SDM for men diagnosed as having this prevalent malignant neoplasm, especially when considering that many specialists may be biased when discussing the risks and benefits of radiation therapy, surgery, and active surveillance.22,23 First, only a third of the specialists in the survey sample currently use DAs for prostate cancer in clinical practice. To some extent,
degree, our study is similar to previous studies that have reported a relatively low adoption of DAs among other chronic disease specialists. The low use of DAs among radiation oncologists and urologists is concerning given that the benefits in improving patient knowledge and satisfaction with treatment decisions from DAs are well documented in prostate cancer. Increased adoption of DAs to promote SDM for patients with newly diagnosed prostate cancer is needed given the uncertainty about optimal primary therapy because of the lack of consensus from clinical practice guidelines and mixed evidence from the available, albeit few, clinical trials. Manypatientsundergoingeitherradicalprostatectomyorradiotherapywillexperiencelong-termQOLcomplicationsinregardtoerectiledysfunction,urinaryincontinence,orrectalpain. Furthermore, overtreatment of low-risk prostate cancer has increasingly been an area of concern, especially at a time when new advanced treatment technologies from robotic surgery to new forms of radiotherapy are affecting national trends in treatment. Decision aids represent one viable strategy to inform patients about the uncertainty of different treatments for survival and QOL implications and to elicit patient preferences and values.

Second, our study elucidates possible reasons behind the relatively low adoption of DAs in the clinical setting of prostate cancer. To the best of our knowledge, this study is the first to examine the attitudes of specialists toward DAs specifically aimed at facilitating treatment decision making for localized prostate cancer. Although respondents from both specialties tended to view DAs positively in general, the lack of strong familiarity with DAs may partly explain their low use in the clinical setting. Few stated that they were “very familiar” or “very confident” with DAs for treatment decisions in localized prostate cancer. Only a small proportion of specialists also were “very confident” in the use of DAs in improving treatment decisions among men diagnosed as having prostate cancer. Furthermore, differences in the attitudes toward DAs were magnified when stratified by whether they were used by prostate cancer specialists. Few respondents who reported not using DAs in practice “strongly agree” that DAs are “applicable to my patients,” whereas more agreed that their estimation of cancer risk was superior to the existing tools or that their patients could not process information from DAs. However, most radiation oncologists and urologists did not agree that DAs would lead patients to choose less effective treatment. Taken together, our study suggests a possible disconnect between the well-documented benefits of DAs in improving the knowledge and quality of treatment decisions for prostate cancer and the perceptions of physicians regarding the usefulness and ability of DAs to effectively improve communication with patients. One plausible reason explaining the low use of DAs for prostate cancer may be that radiation oncologists and urologists are uncomfortable with the efficacy of DAs in processing information and communicating prostate cancer severity. These findings suggest the need for physician-targeted interventions in addressing these possible knowledge gaps, especially with regard to their documented effectiveness in improving the treatment decision process for patients and physicians. Furthermore, specialists
who treat prostate cancer should also be made aware of different DA resources that are readily available to patients and physicians.4,16,33,34 For instance, the Agency for Healthcare Research and Quality released a publicly available, web-based DA for localized prostate cancer treatment decisions titled Knowing Your Options: A Decision Aid for Men With Clinically Localized Prostate Cancer.16 This evidence-based DA is designed for the previsit setting to help patients acquire knowledge about the natural history of prostate cancer, risk stratification, and all available treatment options.

Third, our study investigated whether sponsorship from a variety of professional societies or national organizations would be helpful in facilitating broader adoption of DAs. It is essential to recognize that several different clinical practice guidelines for localized prostate cancer from organizations such as the American Cancer Society, American Urological Association, and National Comprehensive Cancer Network urge the use of SDM for helping patients make treatment decisions.6,7 However, we found that radiation oncologists and urologists placed a different level of trust in national organizations associated with a specialty other than their own respective specialty. One possible inference is that radiation oncologists and urologists may have competing interests and view the other specialty organization with more distrust about defining best clinical practices for localized prostate cancer. As a result, a partnership between the American Society of Radiation Oncology and the American Urological Association would offer an opportunity to more effectively promote the clinical implementation of DAs than guideline endorsement from each society alone. An example of such collaboration is the American Society of Radiation Oncology and American Urological Association guidelines for adjuvant and salvage radiotherapy for margin-positive or high-risk prostate cancer after radical prostatectomy.35 Given that more than 90% of radiation oncologists and urologists expressed trust in their respective society, collaborations across specialty societies may receive greater acceptance about the role of DAs in facilitating SDM for patients diagnosed as having localized prostate cancer who are considering primary therapy. Another consideration is that better engagement in the feasibility of implementing clinical practice guidelines in regard to DAs and SDM would achieve more broad adoption of DAs by physicians. It is also necessary to acknowledge that none of the existing clinical practice guidelines endorse a specific DA but rather generally recommend incorporating SDM into the clinical encounter when discussing treatment options. How physicians interpret this recommendation is an important health policy question that warrants further study.

Fourth, our findings suggest that a significant percentage of specialists, in particular urologists, believe that their risk recurrence estimation is superior to that estimated by DAs. Such perceptions may therefore limit the adoption of DAs in routine practice. These findings are concerning in light of results from previous studies36,37 that have clearly indicated that physicians are biased and often do a poor job in estimating the risks of prostate cancer mortality and life expectancy. As a consequence, DAs provide the platform to incorporate objective and evidence-based estimates of prostate cancer progression or mortality and life expectancy. Accurate estimates of prostate cancer risk stratification and life expectancy, along with balanced views regarding expected health-related QOL consequences of various treatment options, are particularly important because they represent the cornerstone to informed treatment decisions regarding localized prostate cancer.

We acknowledge several limitations of this study. First, the response rate may have introduced nonresponse bias. However, our response rate was relatively robust and similar to other physician surveys.38,39 Moreover, there were no appreciable differences in physician characteristics between respondents and nonresponders from the information available from the AMA Masterfile. Second, we also recognize that the survey may have failed to include other domains about physician perceptions and attitudes that may affect the use of DAs. For example, we may have failed to examine other health care provision factors that may facilitate the clinical implementation of DAs because our study used a survey rather than a qualitative approach. Third, we acknowledge that this survey examined attitudes and perceptions about DAs and SDM, but these findings may not reflect actual clinical practice. Fourth, our survey about the use of DAs and perceptions about them assumed that respondents had some knowledge of SDM and DAs. It is plausible that specialists may have considered other types of patient educational tools, such as risk calculators, when completing response items about SDM and DAs. We also acknowledged that the survey used for this study was not a validated instrument because the lack of validated instruments that serve our purpose necessitated that we self-develop the survey. Fifth, we recognize that our study did not assess other possible factors that are likely associated with clinical implementation of DAs, including time constraints of using such tools in practice or developing incentives to promote their adoption.

Conclusions

The use of DAs among urologists and radiation oncologists treating patients with prostate cancer remains relatively low in part because of a lack of familiarity with such tools. Our study has important implications in health care because treatment decisions for localized prostate cancer represent the classic paradigm that embodies SDM. Moreover, the Patient Protection and Affordable Care Act highlights SDM as a potential means of improving the quality of care.40 It is also essential to recognize that DAs ensure that patients remain actively involved in the treatment decision making with their physicians and may be a key component in decreasing unnecessary or inappropriate treatment by educating patients on the relative benefits and risks of all available management options. Previous studies31,41-43 have consistently reported that patients desire more active roles in the treatment decision-making process. Furthermore, DAs may also provide the basis to facilitate evidence-based discussions about prostate cancer treatment options for patients and physicians, especially considering that radiation oncologists and urologists may be biased about perceiving treatments they provide as superior for patient-centered
outcomes. Increased attention is needed to address the key barriers to promoting SDM for clinically localized prostate cancer and ensure greater adoption into clinical practice. By engaging physicians in developing DAs that are user-friendly, creating incentives for their use, and facilitating collaborations across specialty organizations, SDM may become a more integral part of treatment decision making for clinically localized prostate cancer.

REFERENCES


For most medical treatment decisions, there is more than one reasonable choice. Although bacterial meningitis needs antibiotics, decisions about treatments for conditions such as clinically localized prostate cancer have many options, including observation, radiation therapy, and surgery. In turn, each of these broad treatment categories has variants: watchful waiting, active surveillance, brachytherapy, external beam radiotherapy, open surgery, and laparoscopic robotic-assisted surgery. Evidence about comparative effectiveness of these treatments is available but limited, and the preferences of informed patients vary. For such preference-sensitive decisions, geographic practice variation is the rule, reflecting physician more than patient preferences. For example, in a report from the Dartmouth Atlas of Health Care, population-based rates of radical prostatectomy for prostate cancer among men in 306 US hospital referral regions ranged almost 10-fold from 2007 to 2012, from a low of 0.5 to a high of 4.7 per 100 male Medicare beneficiaries aged 65 to 75 years. Shared decision making, in which patients and physicians collaborate to make decisions about preference-sensitive treatments, has been proposed as an approach to reduce unwanted practice variation, but maintain desirable variation, by tailoring decisions to patients’ clinical characteristics and informed preferences.

In this issue, Wang and colleagues report on a national survey of US radiation oncologists and urologists, the specialists who largely treat men with localized prostate cancer, regarding their attitudes toward and use of decision aids in their practices. Patient decision aids are tools to make shared decision making more practical in clinical practice but are not shared decision making themselves. In a recent Cochrane systematic review, across 115 randomized trials, use of decision aids was associated with increased knowledge, more accurate risk perceptions, greater value concordance with decisions, lower decisional conflict, and less passivity in decision making. Despite these positive effects on the quality of medical decisions, decision aids are underused. This report helps explain some of the barriers to their widespread use.

The fact that roughly a third of respondents in both disciplines said they were using decision aids is encouraging, but, of course, one cannot be sure what materials they were actually using and whether they would really count as decision aids. Approximately 84% of respondents thought decision aids were at least somewhat useful, and approximately 78% were at least moderately confident that they improve treatment decisions. Moreover, most respondents in both specialties thought decision aids were applicable to their patients, did not lead to less effective choices, could be processed by average patients, and could estimate risks of recurrence at least as well as the physicians themselves. Reassuringly, decision aid users among these specialists were even more positive in responding to these questions than nonusers, although one cannot be sure whether decision aid use is the chicken or the egg in this relationship.

The results of the Cochrane review and these physicians’ generally positive ratings of decision aids contrasted to the relatively low use rates, which presents a paradox: if these tools are so good, why aren’t they used more often and what can be done to increase their use? One key issue is that decision aids do not fit easily into the workflow of clinical care. Decision aids are best initially deployed outside a physician visit so patients can get up to speed about their condition and the treatment options, particularly when the condition and the options are complex, as is the case for localized prostate cancer. Family members can be invited into the deliberations if de-

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