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Improving the Quality of Decision-Making Processes for Prostate Cancer Screening: Progress and Challenges

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Guidelines recommend that patients be informed about potential benefits and harms from prostate cancer screening and that screening decisions involve a discussion between patients and their physicians.^{1,2} Despite this consensus, achieving high-quality decision-making processes in practice is difficult. Clinicians function in a time-constrained environment and know that ordering a prostate-specific antigen (PSA) blood test is simple, whereas ensuring that patients fully understand the potential ramifications of entering a screening program is far more difficult and time-consuming. Explaining such concepts as biopsy threshold, false-positive results, overdiagnosis, and uncertainty about magnitude of benefit is challenging and cannot be done quickly.

Given this complexity and the competing demands in primary care, it is not surprising that real-world decision-making processes are often suboptimal.³ Indeed, in a nationally representative survey of men who faced the decision about prostate cancer screening, 30% reported having no discussion with a physician before undergoing PSA testing. Even when the decision was discussed, 71% reported that providers communicated the benefits of screening; only 32% said that downsides were addressed. Although a majority felt well informed about screening, 48% failed to correctly answer any of the 3 knowledge questions about prostate cancer risk or predictive value of PSA testing, suggesting problems with misinformation and overconfidence.³

Decision aids are potentially valuable tools that can help improve decision-making processes by ensuring that patients receive accurate information and can incorporate their values into the medical plan.⁴ Previous studies of PSA decision aids have shown that they can increase knowledge about prostate cancer, reduce decisional conflict, and improve satisfaction.⁵ However, the studies have generally been small and short duration and have had mixed results regarding the effect of decision aids on screening test completion. Few have directly compared different formats, such as print vs web-based designs.

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In this issue of JAMA Internal Medicine, Taylor and colleagues⁶ present findings of, to our knowledge, the largest clinical trial of a PSA decision aid to date. They randomized 1893 men to receive a print-based decision aid, a web-based decision aid, or no decision aid (usual care) and observed them for 13 months. They found that men who viewed either the print or web-based decision aid demonstrated modestly higher knowledge scores regarding prostate cancer and had less decisional conflict 1 month following the intervention. Importantly, they also found that these effects persisted at 13 months, suggesting that men retained the knowledge gained by viewing the decision aids and internalized a reduced sense of conflict from viewing them. The investigators also found that improved decisional satisfaction persisted at 13 months among recipients of the print decision aid but not among recipients of the web-based version. The rate of prostate cancer screening among all participants over the 13 months remained virtually unchanged (at 59%), and neither the print nor the web-based decision aid had any effect on screening rates compared with usual care.

These findings have several implications. First, decision aids can have more than a transient effect on patients' knowledge, perceived uncertainty, and satisfaction regarding medical decisions. As the authors suggest, this has implications for informing decisions that patients face recurrently (eg, prostate or breast cancer screening). Second, web-based, interactive media are not inherently better than noninteractive media for conveying information about medical decisions. Knowing this may help increase the reach of decision aids because noninteractive materials are less expensive to produce and may be easier to disseminate.

This study also points to important challenges in defining and achieving high-quality decision-making processes for prostate cancer screening. The intervention groups demonstrated modest increases (2.5 points on an 18-point scale) in prostate cancer knowledge. However, although statistically significant, it is unclear how relevant this knowledge was to informed decision making or whether it was sufficient to overcome prior misunderstandings regarding potential benefits and harms from screening. Knowledge domains measured in this study (awareness of prostate cancer screening controversy, risk factors, benefits and limitations of prostate cancer treatment, and natural history) may not represent the essential knowledge needed for an informed screening decision. For example, increasing awareness of prostate cancer risk factors may actually worsen already biased risk perceptions.

Admittedly, achieving consensus regarding the appropriate body of knowledge needed for making an informed screening decision is difficult. However, many would agree that this knowledge includes understanding one's risk of death from prostate cancer (which is lower than most men believe); the likelihood that screening will contribute to reducing this risk (which is, at most, small); that screening increases the likelihood of experiencing important harms, including invasive procedures engendered by false-positive results, overdiagnosis and treatment of clinically unimportant cancers, impotence, and urinary incontinence; and that these outcomes are all far more probable than averting death from prostate cancer.⁷

The study suggests that a future challenge will be informing men who may have already decided about screening on the basis of limited information. This study recruited men who generally seemed to have preestablished screening patterns and to be functioning within

health care delivery systems in which screening was the norm. Although racially diverse, the sample represented only 39% of those approached and consisted mainly of men who were insured (98%), had a regular physician (95%), and had previously been screened for prostate cancer (86%). The fact that screening rates were highly stable and unaffected by the intervention may imply that patients, physicians, and clinical systems often operate in stable patterns with respect to screening.

This raises questions about whether contextual factors operating at societal and health care system levels could make implementing an individualized decision difficult, particularly a decision to stop regular PSA testing. The study took place in a societal context characterized by widespread promotion of PSA screening; publication of new evidence demonstrating that screening offers, at best, limited mortality benefits; and well-publicized controversy about the value of screening. As in politics, such controversy can lead to discourse driven less by careful consideration of the complex tradeoffs between benefits and harms and more by simplified rules (heuristics) that represent one's position. In such a context, both patients and physicians may be tempted to bypass the details and seize on simple guiding statements that project confidence and save time and angst, eg, that "All men should get tested for prostate cancer" or "Prostate cancer screening is a waste of time and money."

The work of Taylor and colleagues⁶ has important implications for future research and policy. First, the lessons of prostate cancer screening should cause us to reexamine our tendency to adopt new screening technologies before obtaining high-quality evidence about the magnitude of benefits and harms. Specifically, we should consider implementing policies that help offset our collective propensity to emphasize potential benefits of cancer screening and deemphasize (or completely ignore) potential harms. Second, future studies of decision support interventions should attempt to explicitly determine and measure decision-relevant knowledge. Third, we should test decision support interventions early in the adoption phase of a screening technology rather than after the technology becomes widely promoted and used. As an example, lung cancer screening using low-dose computed tomography affords an opportunity to develop and test decision support interventions before screening becomes widely used.⁸

Overall, this study's successful execution reflects our evolution toward a more sophisticated view of decisions about cancer screening, from one in which screening itself is the main outcome to one in which the quality of the decision-making process is paramount.

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References

1. US Preventive Services Task Force. [Accessed May 1, 2013] Screening for Prostate Cancer: US Preventive Services Task Force Recommendation Statement. May. 2012 <http://www.uspreventiveservicestaskforce.org/prostatecancerscreening/prostatefinalrs.htm>

2. Wolf AM, Wender RC, Etzioni RB, et al. American Cancer Society Prostate Cancer Advisory Committee. American Cancer Society guideline for the early detection of prostate cancer: update 2010. *CA Cancer J Clin*. 2010; 60(2):70–98. [PubMed: 20200110]
3. Hoffman RM, Couper MP, Zikmund-Fisher BJ, et al. Prostate cancer screening decisions: results from the National Survey of Medical Decisions (DECISIONS study). *Arch Intern Med*. 2009; 169(17):1611–1618. [PubMed: 19786681]
4. Stacey D, Bennett CL, Barry MJ, et al. Decision aids for people facing health treatment or screening decisions. *Cochrane Database Syst Rev*. 2011; (10):CD001431. [PubMed: 21975733]
5. Volk RJ, Hawley ST, Kneuper S, et al. Trials of decision aids for prostate cancer screening: a systematic review. *Am J Prev Med*. 2007; 33(5):428–434. [PubMed: 17950409]
6. Taylor KL, Williams RM, Davis K, et al. Decision making in prostate cancer screening using decision aids vs usual care: a randomized controlled trial [published online July 29, 2013]. *JAMA Intern Med*.
7. Howard K, Barratt A, Mann GJ, Patel MI. A model of prostate-specific antigen screening outcomes for low- to high-risk men: information to support informed choices. *Arch Intern Med*. 2009; 169(17):1603–1610. [PubMed: 19786680]
8. Bach PB, Mirkin JN, Oliver TK, et al. Benefits and harms of CT screening for lung cancer: a systematic review. *JAMA*. 2012; 307(22):2418–2429. [PubMed: 22610500]