

Prostate cancer screening: Attitudes and practices of family physicians in Ontario

Christopher B. Allard, MD;* Shawn Dason,* Janis Lusi, MD;† Anil Kapoor, MD, FRCSC*

*McMaster Institute of Urology, McMaster University, Hamilton, ON; †Brampton, ON

See related article on page 194.

Cite as: *Can Urol Assoc J* 2012;6(3):188-93. <http://dx.doi.org/10.5489/cuaj.11290>

Abstract

Introduction: The utility of prostate cancer screening is controversial. We sought to determine whether Ontario's family physicians believe it is beneficial and to characterize their screening protocols.

Methods: A survey was developed with input from urologists, family physicians and the Ontario Medical Association's Section on General and Family Practice. Questions covered three domains: (1) demographics, (2) beliefs about screening utility and (3) screening practices. All 7302 family physicians in Ontario were invited by email to complete the online survey.

Results: A total of 969 physicians completed the survey; 955 (52.0% male, 48.0% female) were included. Most (80.97%) use prostate-specific antigen (PSA) and digital rectal examination (DRE) for screening; 9.4% use DRE alone and 7.15% PSA. Of the respondents, 8.3% do not offer prostate cancer screening. Most physicians begin offering screening at age 50 (72.9%) and stop at ages 70 or 80 (68.4%); 17.9% offer lifelong screening. In response to the statement "screening with DRE provides a survival benefit," 37.6% and 32.6% agreed and disagreed, respectively. For "screening with PSA provides a survival benefit," 43.3% agreed and 31.0% disagreed. For the statement "the benefits of prostate cancer screening outweigh the risks," 51.4% agreed and 22.0% disagreed.

Discussion: Although 91.7% of respondents offer prostate cancer screening, they are divided over its utility. Only 51.4% were convinced that the benefits outweighed the harms. There is significant variability between physicians' screening protocols. A limitation of this study is the possibility of selection bias. Nevertheless, this is the largest sample of Ontario family physicians ever surveyed about prostate cancer screening and highlights divergent physician practices and a need for more conclusive evidence on screening utility.

Introduction

Prostate cancer is the third leading cause of cancer death in Canadian men.¹ About one in seven men will be diagnosed with prostate cancer and one in 27 will die from the disease.¹ Since its introduction in the late 1980s, prostate cancer screening with prostate-specific antigen (PSA) has been largely adopted throughout North America.^{2,3} Despite its widespread use, the utility of prostate cancer screening remains controversial.

There has been a steady decline in prostate cancer-specific mortality since the introduction of screening,⁴ as well as a migration towards lower stages and grades of disease.^{2,5} However, a causal relationship between screening and decreased mortality has not been demonstrated.⁶⁻⁸ It was hoped that results from two large randomized controlled trials (the Prostate, Lung, Colorectal and Ovarian Cancer Screening Trial [PLCO]⁹ and the European Randomized Study of Screening for Prostate Cancer [ERSPC])¹⁰ would finally resolve the issue. Unfortunately, the results of these trials published in 2009 are conflicting, with the PLCO failing to demonstrate a survival benefit and the ERSPC demonstrating a 20% mortality reduction attributable to screening men aged 55 to 69. Although methodological differences may account for the discordant results,^{11,12} the question of screening utility is as contentious as ever.

Various professional organizations have published conflicting recommendations on prostate cancer screening (Table 1). Family physicians are faced with the unenviable task of interpreting the evidence and deciding whether, whom and how to offer screening. The screening beliefs and practices of Ontario's family physicians are presently unknown. The objective of this study was to determine whether Ontario's family physicians believe prostate cancer screening is advantageous and to characterize their screening protocols.

Methods

A survey was developed for distribution to Ontario's family physicians. Questions were generated in three main domains: (1) demographics; (2) beliefs about the utility of prostate cancer screening; (3) practices pertaining to prostate cancer screening. Answer formats consisted of multiple choices or the Likert scale. A final question allowed the respondent to provide optional feedback.

The survey was designed by members of the McMaster Institute of Urology, with input from four urologists and four family physicians and in accordance with previous recommendations on survey design.²⁰ The survey was reviewed for ethical and informational content by the Ontario Medical Association's (OMA) Section on General and Family Practice, which approved and distributed the survey.

The target population comprised all practicing family physicians in Ontario. In July 2011, an e-mail with a link to the online survey was distributed by the OMA to all 7302 practicing family physicians in Ontario. The survey was hosted online at Survey Monkey (www.surveymonkey.com). One reminder email was sent to all invited respondents. The survey remained open for one month.

Descriptive statistics were performed using Microsoft Excel. Associations between respondent demographic information and other responses were explored with the chi-square test with a p value <0.05 used to define statistical significance.

Results

Surveys were completed by 969 Ontario physicians (response rate 13.3%). Fourteen respondents were excluded for stating they were not actively working as family physicians (reasons given included recent retirement and primary focuses in emergency medicine, adolescent medicine, palliative care, research). The final sample size for this study was 955 respondents.

Demographics

Of the 7302 physicians invited to participate in the survey, 4272 (58.5%) were male and 3030 (41.5%) female. Among respondents, 492 (52.0%) were male and 454 (48.0%) female. Most respondents have practiced as family physicians for more than 20 years (505; 53.2%); 73 (7.7%) have been in practice for 2 years or less, 90 (9.5%) for 3 to 5 years, 97 (10.2%) for 6 to 10 years, 78 (8.2%) from 11 to 15 years, and 107 (11.3%) from 16 to 20 years. These data are similar to the entire population of Ontario family physicians (≤ 2 years in practice: 9.2%; 3-5 years: 11.5%; 6-10 years: 12.5%; 11-15 years: 9.3%; 16-20 years: 9.3%; >20 years: 48.2%).

Screening practices

The most common method of prostate cancer screening performed by respondents is a combination of PSA and DRE, which 736 (80.97%) cite as their principle screening investigations. DRE as the sole screening method is done by 85 respondents (9.35%) and 65 (7.15%) use PSA alone. Transrectal ultrasound (TRUS) is incorporated into the screening practices of 23 (2.53%) physicians (Fig. 1).

Respondents were asked what prompted them to offer prostate cancer screening. The most common reason is the presence of risk factors (family history or race), which was cited by 876 (92.0%) physicians. Other important reasons are patients' requests for screening (849; 89.2%), patient age (829; 87.1%) and the presence of urinary symptoms (691; 72.6%).

When asked at what age physicians begin offering screen-

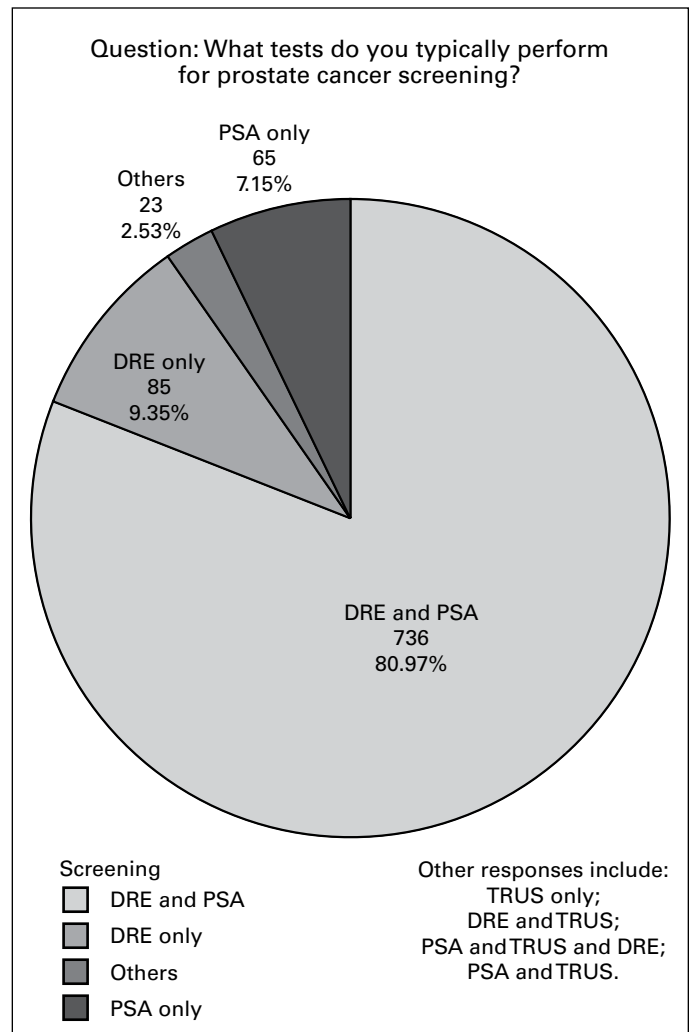


Fig. 1. Method of prostate cancer screening. DRE: digital rectal examination; PSA: prostate-specific antigen; TRUS: transrectal ultrasound.

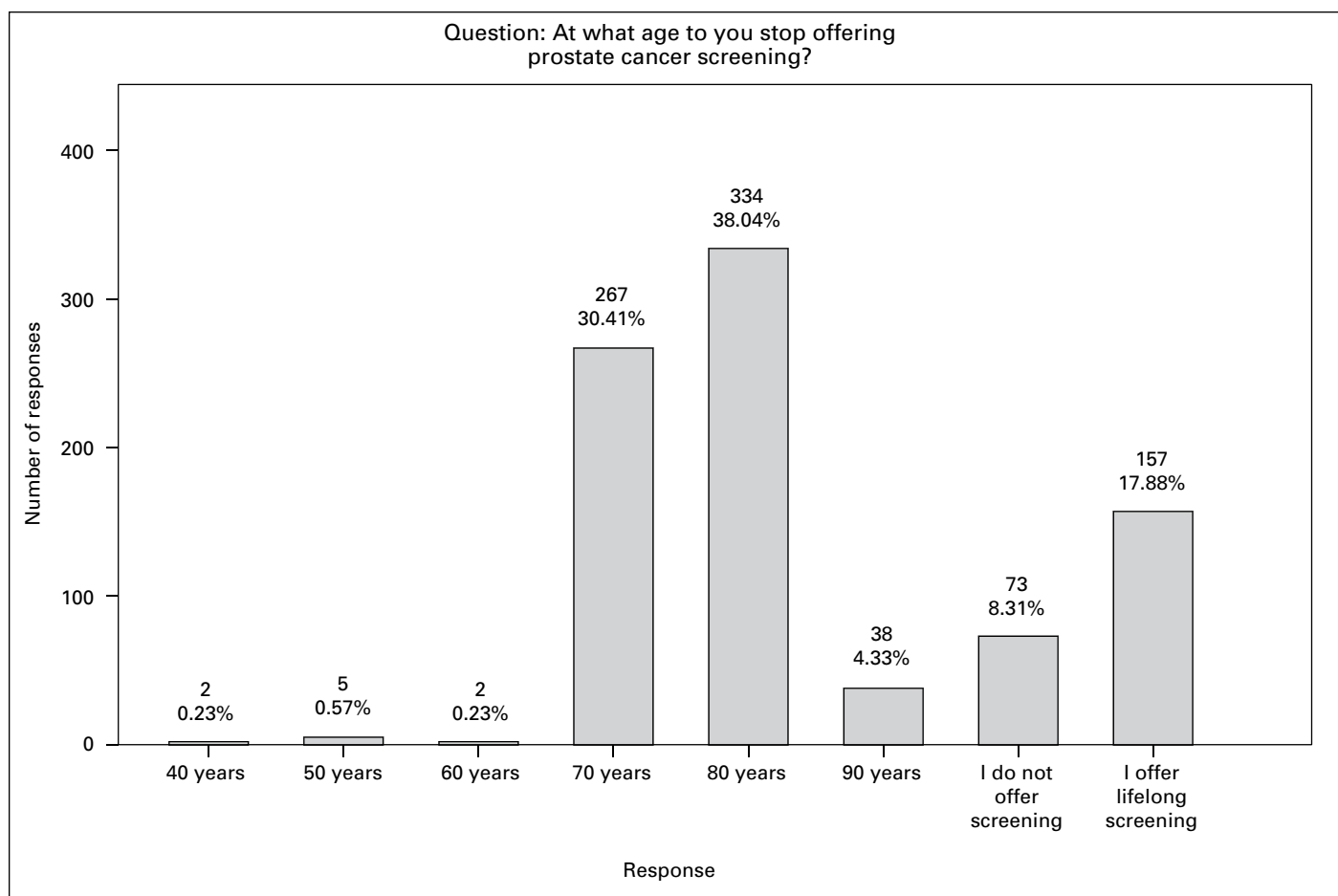


Fig. 2. Illustration of when respondents stopped offering prostate cancer screening.

ing, 666 (72.9%) and 151 (16.5%) cited 50 and 40 years, respectively. Sixteen (1.8%) begin offering screening at age 60 and 1 (0.1%) at age 30. Of the respondents, 79 (8.7%) do not offer screening to asymptomatic men. Most physicians stop offering screening to men at ages 80 (334; 38.0%) or 70 (267; 30.4%). Thirty-eight (4.3%) physicians continue to screen until age 90 and 157 (17.9%) offer lifelong screening. Seventy-three physicians (8.3%) reported that they do not offer prostate cancer screening (Fig. 2).

Among all men to whom it is offered, the percentage that choose to undergo screening varies widely between physician practices (Fig. 3). Prostate cancer screening practices did not vary significantly on stratification by the physicians' number of years in practice or gender (chi-squared $p > 0.05$).

Beliefs about the utility of screening

Physicians were asked to what extent they agreed or disagreed with four statements pertaining to the utility of prostate cancer screening (Fig. 4).

To assess whether screening practices changed following the publications of PLCO and ERSPC in 2009, physicians were asked how their practice today compares to that of five years ago. Of the respondents, 512 (54.2%) offer the same amount of screening now as they did five years ago, 184 (19.5%) offer more screening, and 130 (13.8%) offer less. Physician beliefs about the utility of prostate cancer screening did not vary significantly when stratified by the number of years in practice or gender (chi-squared $p > 0.05$).

Discussion

Most published guidelines recommend that if prostate cancer screening is performed, a combination of PSA and DRE should be used (Table 1). While most respondents reported using PSA and DRE, 19.0% used alternative protocols, the most common was DRE alone (9.4%). In the interest of survey brevity, the findings used by respondents to define positive screens were not evaluated. Various PSA cut-offs may be used, with trade-offs in sensitivity and specificity.^{21,22} Additionally, physicians may use age-based PSA cut-offs,

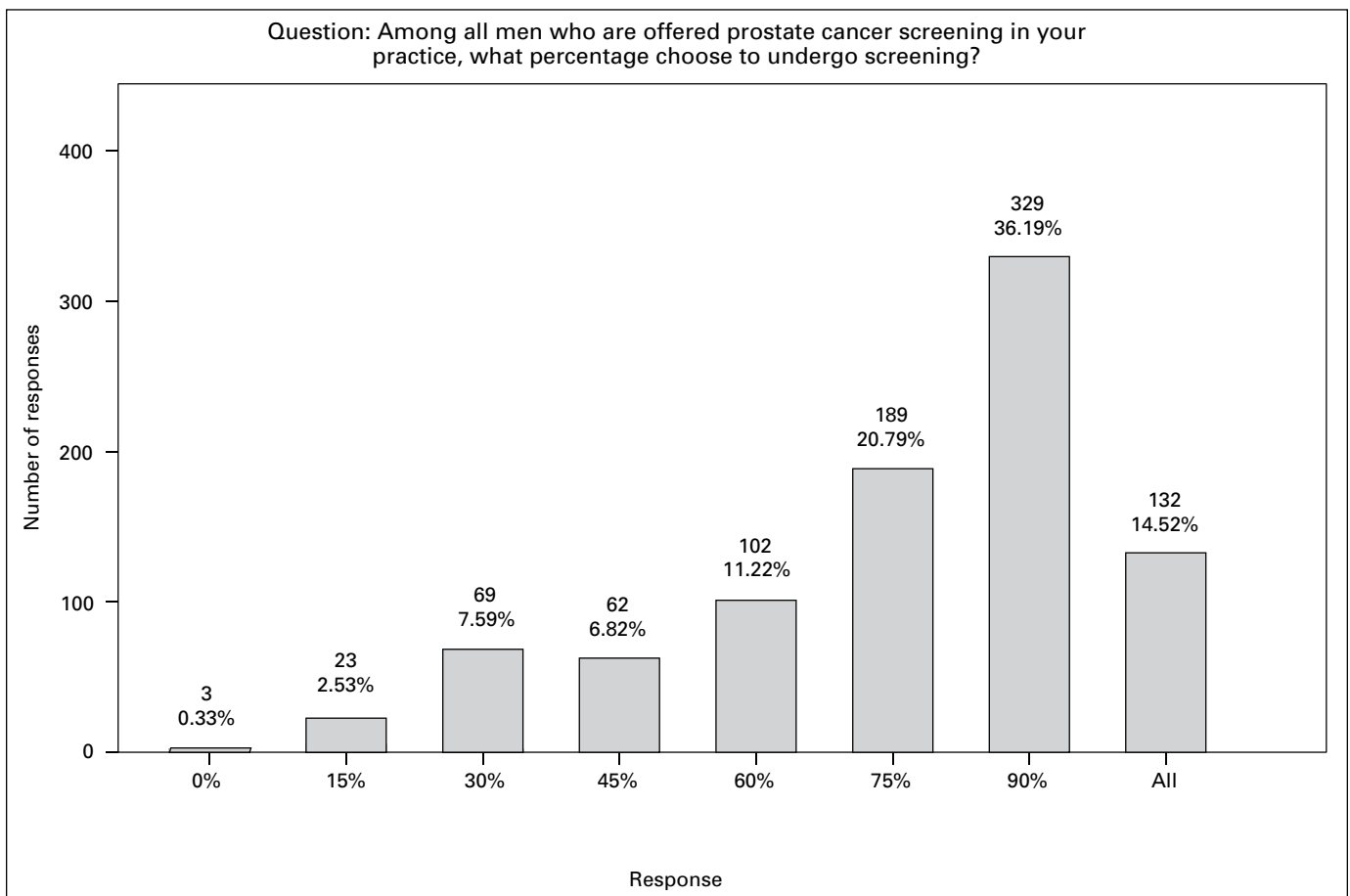


Fig. 3. Illustration of the percentage of men who chose to undergo screening.

PSA velocity, PSA density or PSA free-to-total ratio; the use of these screening adjuncts was not evaluated in this survey or in the PLCO⁹ or ESRPC¹⁰ trials.

Most guidelines recommend offering screening beginning at age 50, or earlier in the presence of risk factors, and to only perform screening if the patient's life expectancy is at least 10 years (Table 1). At the time of the survey, guidelines from the American Academy of Family Physicians (AAFP)¹⁵ and the U.S. Preventive Services Task Force (USPSTF)¹⁸ specifically recommended against screening men over age 75 (the USPSTF have since released a draft recommending against routine PSA-based screening in all age groups¹⁹). Among surveyed physicians who offer screening, most begin at ages 40 or 50 (97.9%), as expected, but a significant proportion continue offering screening at ages 90 or greater (24.2%). Our findings agree with those of a study by Bunting and colleagues.³ In a 1995 survey of 475 Canadian physicians, they found that 24% of PSA screening tests were performed outside the age range 50 to 70 years.

Any survival benefit from prostate cancer screening must be weighed against the potential harms, including anxiety, complications from prostate biopsy and treatment morbidity.

Results from ERSPC suggest that among men aged 55 to 69, 1410 men need to be screened and 48 treated to prevent one death from prostate cancer after nine years of follow-up.¹⁰ Though the number-needed-to-treat will likely decrease with longer follow-up, it is evident that many men with clinically insignificant prostate cancer undergo unnecessary treatments as a result of screening. Of the surveyed physicians, 51.4% believe the benefits of screening outweigh the harms. Beliefs about the utility of screening are divided nearly evenly; 37.6% of respondents agree or strongly agree that DRE provides a survival benefit and 32.6% disagree or strongly disagree; 43.3% agree or strongly agree that PSA provides a survival benefit and 31% disagree or strongly disagree (Fig. 4). The conflicting results of the PLCO and ERSPC trials in 2009 had a negligible impact on the screening practices of the physicians surveyed, with a net screening increase in only 5.7% of practices over the past five years.

Self-reported screening patterns in other Canadian provinces appear to be similar to those in Ontario. In their 2007 survey of 79 primary care physicians in Victoria, British Columbia, Hoag and colleagues found that 81.0% of

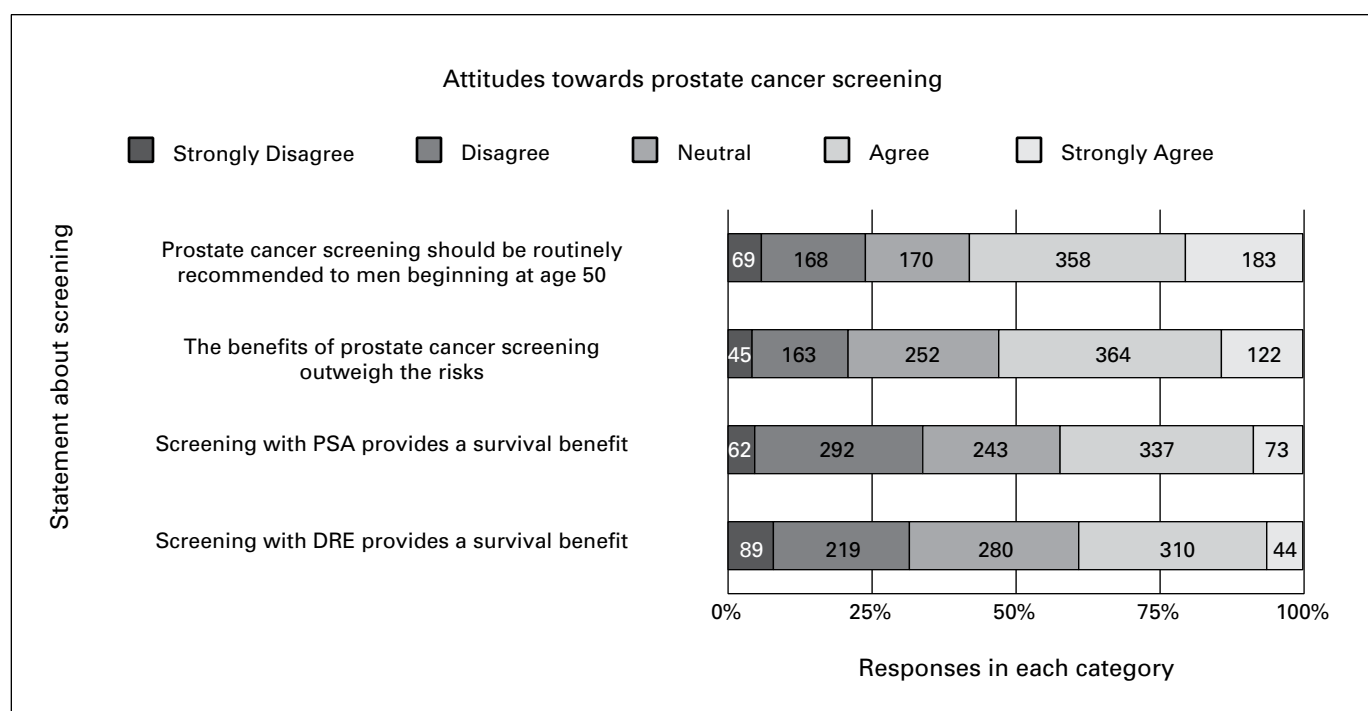


Fig. 4. Beliefs about the utility of screening. DRE: digital rectal examination; PSA: prostate-specific antigen.

respondents screened asymptomatic men, and most used a combination of PSA and DRE, 36.7% used DRE alone and 2.5% PSA.²⁴ In a survey of 485 family physicians in Newfoundland and Labrador, Curran and colleagues found that although most respondents screened men 50 and older, there were divergent beliefs about the benefits of prostate cancer screening.²⁵

This study has notable limitations. Selection bias is possible since physicians with strong opinions on the subject may have been more likely to participate. While the absolute number of respondents is large, the relatively low response

rate makes generalizing the findings difficult. Nevertheless, demographic data are similar between respondents and the entire population of family physicians in Ontario. Respondents were aware that urologists were involved in the survey design, raising the possibility of response bias. Some questions depended on respondents making imperfect estimations about patients or protocols in their practices. Additionally, to maximize the response rate, the survey was kept short and respondents were not polled about their use of published screening guidelines, criteria defining screen positivity or attitudes about active surveillance of

Table 1. Summary of professional organizations' recommendations on prostate cancer screening

Organization	Recommendations
Canadian Cancer Society ¹³	Discuss pros and cons of screening with PSA and DRE beginning at age 50
Canadian Task Force on Preventive Health Care ¹⁴	Insufficient evidence to routinely include or exclude DRE; Insufficient evidence to routinely include PSA
Canadian Urological Association ¹¹	Screening with PSA and DRE should be offered to all men beginning at age 50 (or 40 if risk factors are present) with a 10 year life expectancy
American Academy of Family Physicians ¹⁵	Insufficient evidence to assess balance of benefits and harms in men under 75; recommend against screening men over 75
American Cancer Society ¹⁶	Discuss pros and cons of screening beginning at age 50 (or 45 if risk factors present). Screening should consist of PSA with or without DRE
American Urological Association ¹⁷	Offer annual PSA and DRE beginning at age 40 for patients with a 10 year life expectancy
US Preventive Services Task Force ¹⁸ (Recommendation at time of survey)	Insufficient evidence to recommend for or against screening with PSA and/or DRE in men under age 75; recommend against routine PSA-based screening over age 75
US Preventive Services Task Force ¹⁹ (Draft recommendation released October 2011)	Recommend against routine PSA-based screening

PSA: prostate-specific antigen; DRE: digital rectal examination.

low-risk prostate cancer. These important questions could be addressed in future studies. In spite of these limitations, this study represents the largest sample of Ontario's family physicians ever surveyed on the topic of prostate cancer screening.

Conclusion

The findings of this survey of 955 family physicians highlight widely divergent attitudes and practices pertaining to prostate cancer screening in Ontario. There is an obvious need among family physicians for conclusive evidence on the balance of screening benefits and harms. The modern use of adjuncts to a single PSA cut-off, in addition to active surveillance of low-risk cancers,¹¹ exceeds the scope of conclusions drawn from recent randomized trials. It is unlikely that a consensus on the utility of prostate cancer screening will be achieved until randomized studies with long durations of follow-up evaluate modern screening practices.

Competing interests: None declared.

This paper has been peer-reviewed.

References

1. Canadian Cancer Society's Steering Committee on Cancer Statistics. Canadian Cancer Statistics 2011. Toronto, ON: Canadian Cancer Society; 2011.
2. Ries LA, Melbert D, Krapcho M, et al. SEER Cancer Statistics Review, 1975-2005. National Cancer Institute. Available: http://seer.cancer.gov/csr/1975_2005/ (Accessed May 2, 2012).
3. Bunting PS, Vivek G, Williams JJ, et al. Prostate-specific antigen testing in Ontario: reasons for testing patients without diagnosed prostate cancer. *CMAJ* 1999;160:71-5.
4. Gibbons L, Waters C. Prostate cancer: testing, incidence, surgery and mortality. *Health Rep* 2003;14:9-20.
5. Catalona WJ, Smith DS, Ratliff TL, et al. Detection of organ-confined prostate cancer is increasing through prostate-specific antigen-based screening. *JAMA* 1993;270:948-54. <http://dx.doi.org/10.1001/jama.1993.03510080052031>
6. Coldman AJ, Phillips N, Pickles TA. Trends in prostate cancer incidence and mortality: an analysis of mortality change by screening intensity. *CMAJ* 2003;168:31-5.
7. Etzioni R, Legler JM, Feuer EJ, et al. Cancer surveillance series: interpreting trends in prostate cancer — part III: quantifying the link between population prostate-specific antigen testing and recent declines in prostate cancer mortality. *J Natl Cancer Inst* 1999;91:1033-9. <http://dx.doi.org/10.1093/jnci/91.12.1033>
8. Kopeck JA, Goel V, Bunting PS, et al. Screening with prostate specific antigen and metastatic prostate cancer risk: a population based case-control study. *J Urol* 2005;174:495-9. <http://dx.doi.org/10.1097/01.ju.0000165153.83698.42>
9. Andriole GL, Crawford ED, Grubb RL, et al. Mortality results from a randomized prostate-cancer screening trial. *N Engl J Med* 2009;360:1310-9. <http://dx.doi.org/10.1056/NEJMoa0810696>
10. Schröder FH, Hugosson J, Roobol M, et al. Screening and prostate-cancer mortality in a randomized European study. *N Engl J Med* 2009;360:1320-8. <http://dx.doi.org/10.1056/NEJMoa0810084>
11. Izawa JJ, Klotz L, Siemens DR, et al. Prostate cancer screening: Canadian guidelines 2011. *Can Urol Assoc J* 2011; 5:235-40. <http://dx.doi.org/10.5489/cuaj.11134>
12. Barry MJ. Screening for prostate cancer: the controversy that refuses to die. *N Engl J Med* 2009;360:1351-4. <http://dx.doi.org/10.1056/NEJMe0901166>
13. Canadian Cancer Society: Prostate Cancer. <http://www.cancer.ca> (Accessed May 2, 2012).
14. Feigntner JW. Screening for prostate cancer. In: Canadian Task Force on the Periodic Health Examination, Canadian Guide to Clinical Preventive Health Care. Ottawa: Health Canada; 1994:812-23.
15. American Academy of Family Physicians: Prostate Cancer. Available: <http://www.aafp.org/online/en/home/clinical/exam/prostatecancer.html> (Accessed May 2, 2012).
16. American Cancer Society guidelines for the early detection of cancer. Available: <http://www.cancer.org/Healthy/FindCancerEarly/CancerScreeningGuidelines/american-cancer-society-guidelines-for-the-early-detection-of-cancer> (Accessed May 2, 2012).
17. Carroll P, Albertsen PC, Greene K, et al. Prostate-specific antigen best practice statement: 2009 update. American Urological Association. Available: <http://www.auanet.org/content/guidelines-and-quality-care/clinical-guidelines/main-reports/psa09.pdf> (Accessed May 2, 2012).
18. U.S. Preventive Services Task Force. Screening for prostate cancer: U.S. Preventive Services Task Force Recommendation Statement. *Ann Intern Med* 2008;149:185-91.
19. Chou R, Croswell JM, Dana T, et al. Screening for prostate cancer: a review of the evidence for the U.S. Preventive Services Task Force. *Ann Int Med* 2011;155:762-71.
20. McColl E, Jacoby A, Thomas L, et al. Design and use of questionnaires: a review of best practice applicable to surveys of health staff and patients. *Health Technol Assess* 2001;5:1-256.
21. Wolf AM, Wender RC, Etzioni RB, et al. American Cancer Society guideline for the early detection of prostate cancer: update 2010. *CA Cancer J Clin* 2010;60:70-98. <http://dx.doi.org/10.3322/caac.20066>
22. Thompson IM, Pauler DK, Goodman PJ, et al. Prevalence of prostate cancer among men with a prostate-specific antigen level < or =4.0 ng per milliliter. *N Engl J Med* 2004;350:2239-46. <http://dx.doi.org/10.1056/NEJMoa031918>
23. Litwin MS, Hays RD, Fink A, et al. Quality of life outcomes in men treated for localized prostate cancer. *JAMA* 1995;273:129-35. <http://dx.doi.org/10.1001/jama.1995.03520260051032>
24. Hoag NA, Davidson RA, Pommerville PJ. Prostate cancer screening practices and attitudes among primary care physicians in Victoria, British Columbia. *BCM J* 2008;50:456-60.
25. Curran V, Solberg S, Matthews M, et al. Prostate cancer screening attitudes and continuing education needs of primary care physicians. *J Cancer Educ* 2005;20:162-6. http://dx.doi.org/10.1207/s15430154jce2003_10

Correspondence: Dr. Christopher B. Allard, Institute of Urology, 3rd Floor room G344, 50 Charlton Ave. East, Hamilton, ON L8N 4A6; allardcb@gmail.com