

## Should Canadians be offered systematic prostate cancer screening?

YES

Yves Fradet MD FRCSC

The justification for systematically screening asymptomatic patients for a condition is based on the severity of the disease, the existence of an effective method of detection, the efficacy of treatment, and a demonstrated substantial effect on mortality.<sup>1</sup> In my view, all of these conditions are met with prostate cancer screening, and men have the right to be informed of the potential benefit to their health.

### Severity of disease

The severity of prostate cancer is undeniable. Every year in Canada, some 20000 new cases are diagnosed, and 20% of these men die from prostate cancer. These numbers are comparable to the numbers for breast cancer, and mortality and health care costs will increase proportionally with the rapid increase in life expectancy.

### Effective method of detection

Prostate cancer screening is now possible thanks to a combination of the prostate specific antigen (PSA) test, which helps to identify those at greater risk of cancer, and development of a biopsy procedure guided by transrectal ultrasound. Approximately 6% of men aged 50 and older will have PSA levels higher than 4 µg/mL, and 16% will have levels between 2.5 and 4 µg/mL. Ultrasound-guided biopsies are well tolerated under local anesthetic and have a specificity of nearly 100% and a sensitivity of about 85%. About 15% of cancers are detected during a second biopsy.<sup>2</sup>

### Efficacy of treatment

The efficacy of treatment for prostate cancer is well documented. A Swedish study<sup>3</sup> demonstrated that surgical treatment of localized prostate cancer had reduced cancer mortality by more than 50% at 10 years and had had no negative effects on quality of life. No other cancer treatment can claim these results. Several other studies and observations show that screening significantly reduces mortality from prostate cancer. A study conducted in the Tyrol<sup>4</sup> reported a statistically significant decrease in mortality among men who agreed to at least one systematic screening compared with men in other parts of Austria who were not screened. In Quebec city, a 67% decrease in mortality was observed among 7155

NO

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The field of prostate cancer screening is filled with uncertainty. We are turning healthy men into patients suffering from cancer (with all that that entails) without any evidence that prostate cancer screening will save their lives.<sup>1</sup> Even groups that champion screening for prostate cancer, such as the American Cancer Society, acknowledge this. They send out ambiguous messages that promote early detection, but do not recommend routine screening. For our patients, however, early detection and routine screening are one and the same<sup>1</sup>: a blood test and a rather uncomfortable examination!

In this uncertain context, strong stands on prostate cancer screening become indefensible, and decisions rest as much on values as they do on facts. The current trend is toward a joint decision-making process involving patients and their physicians. Here is the information that must be communicated to patients who are interested in this screening.

### The message

You are 60 years old. According to Canadian statistics, out of 100 men your age, approximately 6 will have prostate cancer detected in the next 10 years. Out of these 6, 1 or 2 will die of prostate cancer, and 4 or 5 will die from other causes.<sup>2</sup>

You should know that, out of 100 men your age, about 60 have prostate tumours (**Figure 1**).<sup>3,4</sup> The vast majority of these tumours are microscopic and will never cause any problems. Some of these tumours will grow and cause problems, but it is impossible to determine which ones. This is why some people recommend that tumours that are detectable be identified through blood samples (prostate-specific antigen [PSA] testing) and a digital rectal examination (DRE). A PSA test helps to locate prostate tumours smaller than those that are found once symptoms appear.

Of the 100 men who undergo tests for the first time (sensitivity 87%, specificity 80%,<sup>1,5</sup> prevalence [of detectable tumours] 3%<sup>5,6</sup>), 22 will require another test: a prostate ultrasound, which is performed using a rectal probe and needle to collect small tissue samples from the prostate.

Among these 22 men, 3 will have cancer detected. When cancers are small and confined to the prostate, which is usually the case, we really have no

YES

men (23% of 30 958 who were offered screening) who were systematically screened compared with those who turned down screening.<sup>5</sup> Another European randomized pilot study of 2367 men showed a 75% decrease in cancer mortality at 10 years.<sup>6</sup> We have also seen close to a 25% decrease in prostate cancer mortality in both Canada and the United States as well as in England, Austria, and several European countries since the PSA test was introduced, despite an increase in longevity.<sup>7</sup> Regions in which the PSA test is used less extensively, such as Scandinavia and Australia, continue to experience an increase in prostate cancer mortality.

Comparison with screening for other diseases

While prostate cancer screening was being made available, screening for several other cancers was introduced on the basis of similar, even inferior data. For example, systematic screening for cervical cancer was implemented on the basis of similar observations and was never subjected to controlled studies.<sup>1</sup> Among the many

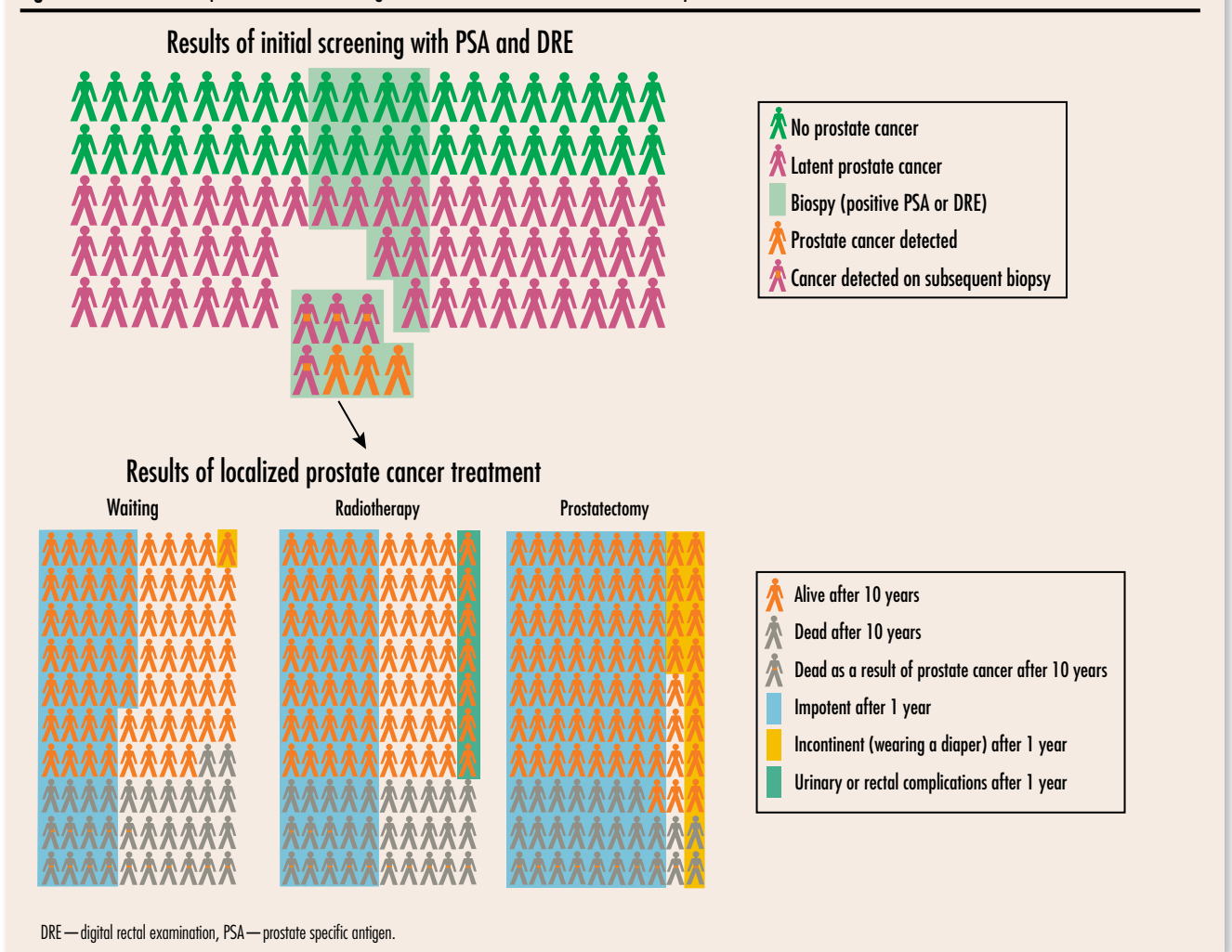
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reliable method of determining which are actually life-threatening. We can attempt to estimate risk by looking at the cells in tissue samples under a microscope. The most definitive answer, however, can only be found after the entire prostate is removed.

We do not know much about the other 19 men. For the most part, they have enlarged prostates, which explains abnormal PSA results. This does not mean that they don't have cancer, however. If biopsy is repeated, cancer will be detected in 4 of these men.<sup>7</sup> In the other 15 men, as in the 78 men who had normal results of PSA tests and DRE, cancer could appear or grow and become detectable one day. This is why some physicians suggest these tests be redone each year.

If we find that you have cancer limited to the prostate, you have 3 choices: have your prostate removed, undergo radiotherapy, or wait for the tumour to grow. It might also be recommended that you take hormones. Let's take a look at what happens to 65-year-old men with localized tumours.<sup>8</sup>

Figure 1. Results of initial prostate cancer screening with the PSA test and DRE and of localized prostate cancer treatments in 100 men



## YES

studies that have evaluated the efficacy of breast cancer screening, only 1 Swedish study was able to demonstrate a significant reduction in mortality and only in women older than 50. Breast cancer screening, however, is widely practised. The same is true for colon cancer; only 1 American study has demonstrated the efficacy of fecal occult blood screening. Even though studies are still trying to evaluate the efficacy of colonoscopy at the present time, it is widely used for screening purposes.

So, why isn't screening for prostate cancer being promoted by family physicians as strongly as screening for these other cancers?

Clearly, advocacy for cancers specific to men has been much less effective than advocacy for cancers specific to women or cancers that affect both men and women. The biggest objection to prostate cancer screening is the potential detection of cancers that are not clinically significant and that will not result in death. It is becoming increasingly evident that low-grade cancers (Gleason  $\leq 6$ ) with a PSA of  $<10$  carry a low risk of death, even without treatment.<sup>8</sup> In Canada, close monitoring is increasingly recommended for this type of low-risk cancer.<sup>9</sup> Moreover, this type of cancer seems to respond to hormone therapy and changes in diet and lifestyle, areas in which family physicians should play a predominant role. It would make sense to try to minimize the psychological and medical effects of a diagnosis of low-risk prostate cancer rather than to deprive some men of an effective means of detecting and treating a high-risk cancer just because we are afraid of adversely affecting a whole lot of other men. ❁

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## NO

After 10 years, out of 100 men who had surgery, 10 will die from prostate cancer, and 17 will die from other causes. Of 100 who chose to wait, 15 will die from prostate cancer, and 17 will die from other causes. Of the 100 who chose to have surgery, 80 will become impotent, and 14 will have to wear diapers for incontinence. Among those who chose to wait, 45 will become impotent, and only 1 will have to wear diapers.<sup>9</sup> Among 100 men treated with radiotherapy, the mortality and risk of side effects will be somewhere between those for men who chose surgery and men who chose to wait.<sup>10</sup>

When tumours are discovered by testing men in good health, we do not know whether finding them early increases life expectancy. In 2008, the results of 2 studies that are specifically evaluating screening should give us this information. For now, the only thing we know for sure is the frequency of problems that result from treatment.

### Conclusion

Undoubtedly, the way in which we present the risks and benefits associated with prostate cancer screening influences patients' decisions. Men who use decision-making tools are less likely to undergo screening.<sup>11,12</sup> Given the substantial uncertainties surrounding screening, the amount of information to communicate, and the amount of thinking patients have to do on what is most important to them, we should refrain from offering systematic screening and instead use decision-making tools that graphically illustrate the risks and benefits of treatment.<sup>13</sup> ❁

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YES

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KEY POINTS

- Prostate cancer is common (the most common cancer in men) and serious (third cause of death due to cancer).
- Effective treatment exists.
- Screening reduces mortality due to prostate cancer.
- Morbidity rates related to the detection of low-risk cancer can be decreased through close surveillance.

NO

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KEY POINTS

- Most men with prostate tumours will die from causes other than prostate cancer.
- There is no reliable method for distinguishing between screened tumours that require treatment and screened tumours that do not (and that it probably would have been better not to look for...and find).
- At this time, there is no proof that screening for prostate cancer can save lives.
- Decision-making tools help men to make choices that are based on both the best evidence and their own values.