

# Prostate Cancer: A Leading Cancer Diagnosis



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Prostate cancer is among the leading causes of illness and death in Canada and in the US. It was projected that in Canada in 2007, 22,300 men would be diagnosed with prostate cancer.<sup>1</sup> In the same year, it was expected that 4,300 men would perish from this disease. Among men, prostate cancer is the leading cancer diagnosis and the third most common cause of cancer-related mortality. Despite such ominous figures, men are more likely to die *with* prostate cancer, rather than *of* prostate cancer. The lifetime probability that a man will be diagnosed with prostate cancer is approximately 1:7; however, the risk of death from prostate cancer is only 1:27.

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## Screening

The discordance between incidence and mortality from prostate cancer, along with insufficient evidence from prospective studies, have led

some to question the need for screening. There are currently two randomized controlled trials that are poised to address this question: the Prostate, Lung, Colorectal and Ovarian cancer (PLCO) screening trial and the European Randomized Study of screening for Prostate Cancer (ERSPC). Until mature data is available, prostate cancer screening recommendations are likely to vary by individual medical organizations.

Currently, screening consists of a carefully performed digital rectal examination (DRE) and serum PSA measurement.

## Serum PSA

First introduced into clinical use in 1986, PSA remains one of the most important tumour markers. Despite its dramatic impact on the earlier diagnosis of prostate cancer ("stage migration"), risk assessment remains problematic. There are no absolute cut-offs below which the risk of prostate cancer is entirely negligible. The Prostate Cancer Prevention Trial (PCPT) showed that the incidence of prostate cancer among men with a PSA < 4 ng/mL was 15%.<sup>2</sup> An individual's risk of prostate cancer is based on a number of variables, including:

- age,
- race,

- DRE findings and
- PSA level.

Online nomograms are available (via the National Cancer Institute) to help assess the risk in an individual patient.

### *Diagnosis*

Once a patient is deemed to be at risk for prostate cancer, diagnosis is generally achieved through an ultrasound-guided transrectal prostate biopsy.

#### *Biopsy*

The majority of patients that harbour prostate cancer will be diagnosed on their first biopsy (> 70%). A second biopsy is frequently used when a false-negative result is suspected. Histologic evaluation yields critical information on the amount, location and grade of prostate cancer. Together with serum PSA and DRE results, biopsy information can be used to recommend treatment options as well as to predict long-term outcomes.

### *Treatment*

There are currently multiple treatment options for prostate cancer depending on both the patient and cancer factors.

#### *Active surveillance*

Active surveillance is ideally suited to patients with a low-risk prostate cancer who do not wish to undergo radical therapy.

Active surveillance is not synonymous with watchful waiting. The former implies that while no initial therapy is prescribed, the patient

remains under close scrutiny for signs of disease progression. Curative therapy may still be applied in the majority should there be any disease progression.

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#### *Surgery*

Radical prostatectomy (RP) has undergone major changes in the last decade. Refinements in surgical techniques have resulted in:

- lower morbidity,
- improved cancer control and
- functional preservation (potency and continence).

Available both through an open as well as a laparoscopic approach, RP is an excellent choice in patients with clinically localized disease.

#### *Radiation*

Delivered either through external beam or implanted seeds, radiation offers an excellent



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## Take-home message

- Prostate cancer is the most common cancer in Canadian men
- Early diagnosis provides the best chances for early treatment and cure
- Early diagnosis is best achieved through proper screening. Although there is no level 1 evidence to recommend a specific screening guideline, most medical organizations recommend screening to begin at age 50. In men at higher risk (with a first-degree relative with prostate cancer or of African descent), screening should begin at age 40 to 45 years
- There is no absolute PSA cut-off. Individual trends in PSA over time, as well as age and race, determine the need for subsequent referral

alternative to surgery. This modality may be used in patients with clinically-localized and locally-advanced disease. Patients unfit for surgery are generally treated with radiotherapy. Improvements in technology now allow a higher dose to be delivered to the prostate while minimizing exposure to adjacent organs.

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## Hormonal therapy

Medical castration is currently the mainstay of therapy in patients with metastatic disease. Although not curative, castration is an effective method in controlling advanced disease.

## Chemotherapy

Currently, the use of cytotoxic chemotherapy is reserved for patients with hormone-refractory disease. Clinical trials are exploring the use of chemotherapy at earlier stages. 

## References

1. Canadian Cancer Society/National Cancer Institute of Canada: Canadian Cancer Statistics 2007, Toronto, Canada, 2007.
2. Thompson IM, Pauler DK, Goodman PJ, et al: Prevalence of Prostate Cancer Among Men with a Prostate-Specific Antigen Level  $\geq 4$  ng Per Milliliter. N Engl J Med 2004; 350(22):2239-46.