



Patterns of care and treatment trends for Canadian men with localized low-risk prostate cancer: an analysis of provincial cancer registry data

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ABSTRACT

Background Many prostate cancers (pcas) are indolent and, if left untreated, are unlikely to cause death or morbidity in a man's lifetime. As a result of testing for prostate-specific antigen, more such cases are being identified, leading to concerns about "overdiagnosis" and consequent overtreatment of pca. To mitigate the risks associated with overtreatment (that is, invasive therapies that might cause harm to the patient without tangible benefit), approaches such as active surveillance are now preferred for many men with low-risk localized pca (specifically, T1/2a, prostate-specific antigen ≤ 10 ng/mL, and Gleason score ≤ 6). Here, we report on patterns of care and treatment trends for men with localized low-risk pca.

Results The provinces varied substantially with respect to the types of primary treatment received by men with localized low-risk pca. From 2010 to 2013, many men had no record of surgical or radiation treatment within 1 year of diagnosis—a proxy for active surveillance; the proportion ranged from 53.3% in Nova Scotia to 80.8% in New Brunswick. Among men who did receive primary treatment, the use of radical prostatectomy ranged from 12.0% in New Brunswick to 35.9% in Nova Scotia. The use of radiation therapy (external-beam radiation therapy or brachytherapy) ranged from 4.1% in Newfoundland and Labrador to 17.6% in Alberta. Treatment trends over time suggest an increase in the use of active surveillance. The proportion of men with low-risk pca and no record of surgical or radiation treatment rose to 69.9% in 2013 from 46.1% in 2010 for all provinces combined.

Conclusions The provinces varied substantially with respect to patterns of care for localized low-risk pca. Treatment trends over time suggest an increasing use of active surveillance. Those findings can further the discussion about the complex care associated with pca and identify opportunities for improvement in clinical practice.

Key Words Prostate cancer, low-risk prostate cancer, treatment, active surveillance, radical prostatectomy, radiation therapy, patterns of care

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INTRODUCTION

An estimated 24,000 men in Canada will be diagnosed with prostate cancer (pca) in 2016, which represents nearly a quarter of all new cancer cases in men¹. Nearly half of those men will be diagnosed with low-risk pca². Men with localized low-risk pca have several management options—radical prostatectomy (RP), radiation therapy

(RT), and active surveillance—and therefore face complex decisions in terms of selecting the type and timing of initial management.

Many pca cases are indolent and, if left untreated, are unlikely to cause morbidity or death in a man's lifetime^{3,4}. As a result of testing for prostate-specific antigen, more such cases are being identified, leading to concerns about "overdiagnosis" and consequent overtreatment of

pca⁴⁻⁷. To mitigate the risks associated with overtreatment, approaches such as active surveillance—that is, close monitoring and definitive treatment only if the disease progresses—are now preferred for many men with low-risk pca⁸.

The present report focuses on patterns of care and treatment trends for men with localized low-risk pca. Such data can be used to identify variations in clinical practice across provinces and to inform opportunities for improvement in pca care.

METHODS

Men 35 years of age and older diagnosed with low-risk localized pca in 2010, 2011, 2012, and 2013 were identified using data collected in 7 provincial cancer registries (specifically, Alberta, Saskatchewan, Manitoba, New Brunswick, Nova Scotia, Prince Edward Island, and Newfoundland and Labrador). The remaining provinces were unable to participate because of resource constraints or limitations of the available data.

“Localized low-risk” was defined using the Canadian consensus definition published by the Genitourinary Radiation Oncologists of Canada [that is, prostate-specific antigen (PSA) ≤ 10 ng/mL, Gleason score ≤ 6 , and clinical stage T1/2a]⁹. Standardized data on PSA, Gleason score, and clinical stage were collected from patient charts by the provincial cancer agencies. Risk profiles for each patient was derived using site-specific factor 1 (PSA), site-specific factor 8 (Gleason score), and collaborative stage extension (clinical T stage). Standardized data to ascertain risk profiles for pca patients became available in 2010, and we report on all years with available data. Patients who lacked data for PSA, Gleason score, or clinical T stage were excluded from the analysis because a risk profile could not be determined.

Receipt of RP within 1 year of diagnosis was identified using surgical procedure codes in the registries or by linking provincial cancer registry data to hospital or cancer centre data. Receipt of RT (external-beam RT or brachytherapy) within 1 year of diagnosis was identified by linking provincial cancer registry data to hospital or cancer centre data. When RT followed RP within 1 year, the RT was identified as adjuvant RT. Patients who lacked a record of RP or RT were considered to have no record of treatment, a proxy for active surveillance.

The participating provinces were provided with a standardized template, which was populated with the provincial results and provided to the authors. Descriptive statistics for patterns of care and treatment trends over time were generated. Results are reported by province and overall by year.

RESULTS

From 2010 to 2013, the types of primary treatment received by men with localized low-risk pca varied substantially from province to province (Figure 1). Many men had no record of surgical or radiation treatment; the proportion ranged from 53.3% in Nova Scotia to 80.8% in New Brunswick. Given that androgen deprivation therapy and chemotherapy are not recommended for men with low-risk pca, it

is likely that many of those men were being managed under active surveillance. For men who did receive primary treatment, the use of RP ranged from 12.0% in New Brunswick to 35.9% in Nova Scotia. The use of RT ranged from 4.1% in Newfoundland and Labrador to 17.6% in Alberta. Only a very small proportion of men received RP with adjuvant RT (ranging from 0% in Saskatchewan to 3.9% in Nova Scotia).

Treatment trends over time suggest an increase in the use of active surveillance (Figure 2). From 2010 to 2013, the percentage of patients with low-risk pca for whom no record of surgical or radiation treatment was found rose to 69.9% from 46.1% for all provinces combined. The use of RP, RT, and RP with adjuvant RT declined during that period.

DISCUSSION

The present work provides a snapshot of the patterns of care for localized low-risk pca; it is intended to highlight variations in the treatment of pca in Canada. The findings suggest that the type of primary treatment provided to men with low-risk pca varies substantially across provinces. Most men were likely being managed with active surveillance. For men receiving active treatment, the most common modality was RP. The observed variation is likely a result of differences in clinical practice across provinces. Given the lack of high-quality evidence about the comparative effectiveness of the various management approaches, clinician and patient preferences play an important role in treatment decisions.

Our study suggests that there might be greater acceptance of active surveillance by patients and clinicians, consistent with the observed decrease in the use of active treatment between 2010 and 2013. Such a trend is expected, given the increased awareness of overdiagnosis and consequent overtreatment and evidence-based guidelines that recommend active surveillance as a management option for men with low-risk pca^{8,10,11}.

It is important to note that RP and RT are guideline-recommended treatments for men with low-risk pca and are necessary for some patients. Treatment can be indicated for men who, despite meeting initial low-risk criteria, demonstrate any or all of a rapidly rising PSA value, a significant increase in tumour volume, or a higher-risk Gleason score (for example, 7 or greater) after repeat biopsy¹⁰. Given the number of management approaches, it is important that management be guided by evidence-based treatment guidelines as well as by considerations of patient preference, values, and quality of life.

Similar findings have been observed in other countries. In Sweden and Australia, active surveillance was the primary management for, respectively, 59% and 67% of men diagnosed with low-risk pca^{12,13}. Our study shows that the use of active surveillance was higher in Canada than in the United States, where approximately 40% of men with low-risk pca were receiving active surveillance^{14,15}. In addition, an increasing trend of active surveillance use has been observed in other countries^{12,14}.

Limitations

The present report has several limitations. Our data include no measure of patient or clinician preference, an important

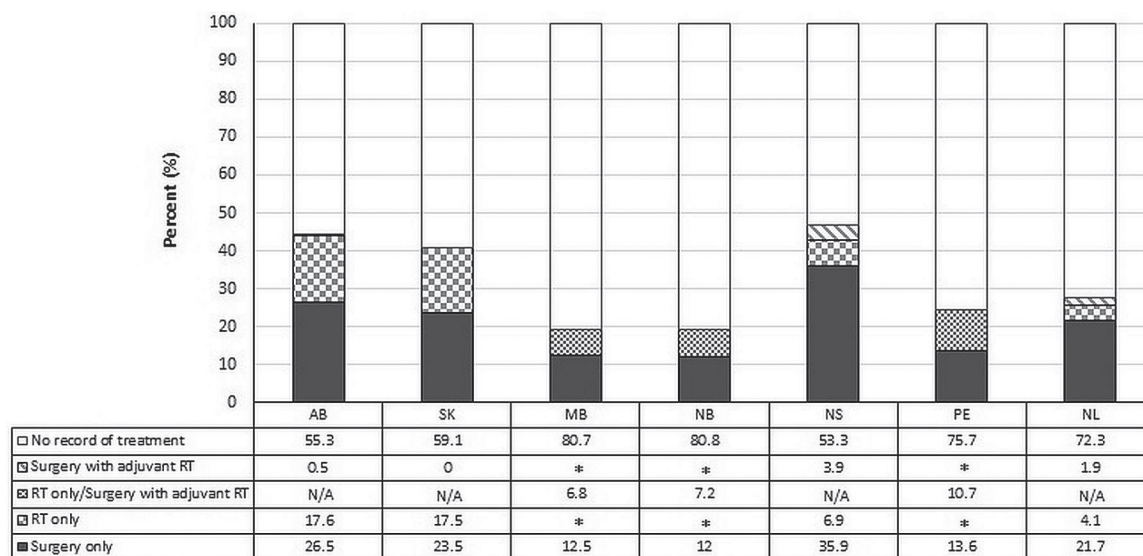


FIGURE 1 Percentages of men with low-risk prostate cancer receiving various types of treatment, by province, for the 2010–2013 diagnosis years combined. Data for all years are presented for Alberta, Saskatchewan, Manitoba, Nova Scotia, and Prince Edward Island; 2011–2013 data are presented for New Brunswick; and 2011–2012 data are presented for Newfoundland and Labrador. Because of small numbers, “RT [radiation therapy] only” and “Surgery with adjuvant RT” were combined for Manitoba, New Brunswick, and Prince Edward Island. Data source: Provincial cancer agencies. * Suppressed because of small numbers. N/A = not applicable.

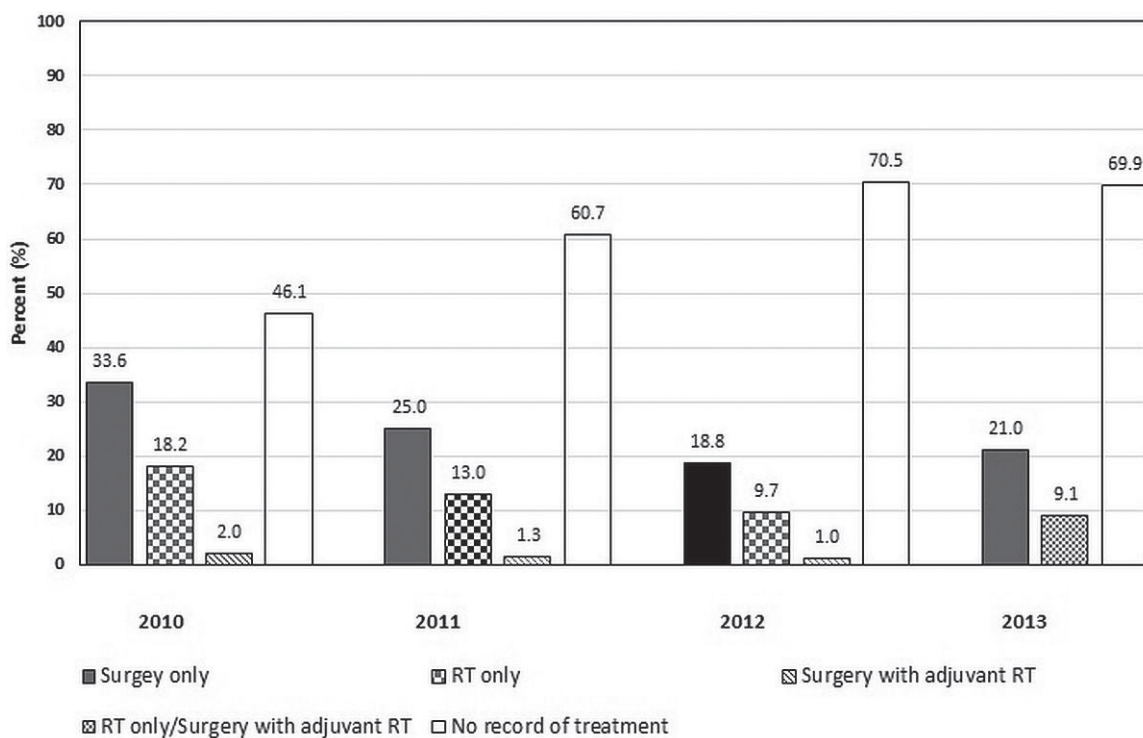


FIGURE 2 Percentage of men with low-risk prostate cancer receiving various types of treatment, by year, all provinces combined, 2010–2013 diagnosis years. “Provinces combined” in 2010 includes Alberta, Saskatchewan, Manitoba, Nova Scotia, and Prince Edward Island; in 2011 and 2012, it includes Alberta, Saskatchewan, Manitoba, New Brunswick, Nova Scotia, Prince Edward Island, and Newfoundland and Labrador; in 2013, it includes Alberta, Saskatchewan, Manitoba, New Brunswick, Nova Scotia, and Prince Edward Island. Radiation therapy (RT) data were available starting 1 January 2012 in New Brunswick. No treatment data were available from Newfoundland and Labrador for 2013 because of data issues. Because of small numbers in 2013, “RT only” and “Surgery with adjuvant RT” were combined. Data source: Provincial cancer agencies.

consideration in appropriateness of care. We were also unable to directly measure use of active surveillance because of limitations of the available data. As a result, “no record of treatment”—our proxy for active surveillance—might also include men who are under observation or who declined treatment. Observation is another option for men with low-risk pCa who have a current life expectancy of less than 10 years⁸. That approach involves monitoring the disease and providing palliation when the disease progresses or symptoms arise. Data were also not available to assess the use of androgen deprivation therapy or chemotherapy; however, those therapies are unlikely to be provided to men with localized low-risk pCa because they are not guideline-recommended treatment options. In addition, because of missing data for one or more of the three prognostic factors (that is, PSA, Gleason score, and clinical T-stage), risk profiles could not be derived for all patients, potentially affecting comparability between provinces. Lastly, British Columbia, Ontario, and Quebec—the provinces with the highest volume of new pCa cases¹—were unable to participate in the study. Our findings might therefore not be generalizable to those provinces.

CONCLUSIONS

Patterns of care for localized low-risk pCa vary substantially between provinces. Treatment trends over time suggest the increasing use of active surveillance. Those findings are intended to further the discussion concerning the complex care associated with pCa and to identify opportunities for improvement in clinical practice.

More information about System Performance Initiative indicators and data can be found at the Canadian Partnership Against Cancer (<http://systemperformance.ca/>).

CONFLICT OF INTEREST DISCLOSURES

We have read and understood *Current Oncology's* policy on disclosing conflicts of interest, and we declare that we have none.

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