

## Robotic Surgical System for Radical Prostatectomy: OHTAC Recommendation

### ONTARIO HEALTH TECHNOLOGY ADVISORY COMMITTEE RECOMMENDATION

- The Ontario Health Technology Advisory Committee recommends against publicly funding the robotic surgical system for radical prostatectomy

### RATIONALE FOR THE RECOMMENDATION

The Ontario Health Technology Advisory Committee (OHTAC) reviewed and accepted the findings of the health technology assessment conducted by Health Quality Ontario.<sup>1</sup> This assessment was developed using evidence from randomized controlled trials and prospective observational studies.

The committee's recommendations were based on several factors.

First, the clinical benefit of the robotic surgical system for functional and oncological outcomes is uncertain compared with the open and laparoscopic alternatives. Factors affecting clinical benefit may include surgical technique, surgeon experience, and baseline patient characteristics, which were heterogeneous within the included studies.

Second, based on the economic evaluation in the health technology assessment, the Ontario Health Technology Advisory Committee felt that the robotic surgical system does not provide good value for money compared with other widely used health interventions.

The committee also discussed the increasing adoption and continued diffusion of the technology in Ontario and other similar jurisdictions, the impact on education and training in urology, and access for robot-assisted radical prostatectomy. The committee was also influenced by the fact that in many jurisdictions, including in Ontario, hospitals are provided with the same funding irrespective of the surgical approach. The committee felt that this policy should continue, and therefore decided to recommend against publicly funding the robotic surgical system for radical prostatectomy.

## Decision Determinants for Robotic Surgical System for Radical Prostatectomy

Decision Criteria	Subcriteria	Decision Determinants Considerations
<b>Overall clinical benefit</b> How likely is the health technology/intervention to result in high, moderate, or low overall benefit?	<b>Effectiveness</b> How effective is the health technology/intervention likely to be (taking into account any variability)?	Robot-assisted versus open radical prostatectomy: <ul style="list-style-type: none"> <li>No differences in short-term urinary and erectile functions at 3 months (moderate quality) and inconclusive findings for long-term results (very low quality)</li> <li>No differences in pain, health-related quality of life, or return to work or activity (low to moderate quality)</li> <li>No difference in positive surgical margins (low quality)</li> <li>Inconclusive results for biochemical recurrence (very low quality)</li> <li>Reduced operative times favouring robot-assisted prostatectomy (moderate quality)</li> <li>Reduced lengths of hospital stay and estimated blood loss favouring robot-assisted prostatectomy (moderate quality)</li> <li>No differences in transfusion rates, indwelling catheterization duration, or hospital readmission rates (moderate quality)</li> </ul> Robot-assisted versus laparoscopic radical prostatectomy: <ul style="list-style-type: none"> <li>Inconclusive results for urinary and erectile functions (low quality)</li> <li>No difference in health-related quality of life (very low quality)</li> <li>No differences in positive surgical margins and biochemical recurrence (low quality)</li> <li>No differences in operative times, lengths of hospital stay, estimated blood loss, transfusion rates, or indwelling catheterization duration (moderate quality)</li> </ul>
	<b>Safety</b> How safe is the health technology/intervention likely to be?	Moderate quality of evidence suggests no difference in complications between robot-assisted and open radical prostatectomy (in the RCT); however, very low quality of evidence shows a reduction favouring the robot-assisted approach (in the nonrandomized studies).  There was no difference in complication rates between robot-assisted and laparoscopic radical prostatectomy (moderate quality).
	<b>Burden of illness</b> What is the likely size of the burden of illness pertaining to this health technology/intervention?	Prostate cancer is the second most common type of cancer in men, with a 15.4% lifetime probability of developing the disease in Ontario. In 2012 in Ontario, the incidence among all new cancer cases was 21.6%.
	<b>Need</b> How large is the need for this health technology/intervention?	Other surgical approaches for radical prostatectomy already exist, such as the open and laparoscopic approaches. According to experts, in Ontario in 2015, about 2,400 radical prostatectomies were performed, with 34% robot-assisted and 4% laparoscopic.

Decision Criteria	Subcriteria	Decision Determinants Considerations
<b>Consistency with expected societal and ethical values<sup>a</sup></b> How likely is adoption of the health technology/intervention to be congruent with societal and ethical values?	<b>Societal values</b> How likely is adoption of the health technology/intervention to be congruent with expected societal values?  <b>Ethical values</b> How likely is adoption of the health technology/intervention to be congruent with expected ethical values?	There has been limited adoption of laparoscopic radical prostatectomy because of its steep learning curve. Robot-assisted radical prostatectomy offers a minimally invasive approach without as challenging a learning curve. Surgeons may also prefer robot-assisted radical prostatectomy for its improved dexterity, ergonomic design, three-dimensional imaging, and precision.  Some patients may desire and seek out robot-assisted radical prostatectomy because of its minimally invasive approach, innovative nature, and potential for improved clinical benefit, particularly if it is recommended by their urologist.
<b>Value for money</b> How efficient is the health technology/intervention likely to be?	<b>Economic evaluation</b> How efficient is the health technology/intervention likely to be?	The costs of using the robotic system are high, while the health benefits appear to be small. The incremental cost is \$6,234, and the incremental quality-adjusted life-year (QALY) is 0.0012. The associated incremental cost-effectiveness ratio (ICER) is \$5.2 million. Thus, robot-assisted radical prostatectomy does not appear to be cost-effective.
<b>Feasibility of adoption into health system</b> How feasible is it to adopt the health technology/intervention into the Ontario health care system?	<b>Economic feasibility</b> How economically feasible is the health technology/intervention?  <b>Organizational feasibility</b> How organizationally feasible is it to implement the health technology/intervention?	About 1 in 3 radical prostatectomies performed in Ontario are currently robot-assisted. If adoption were to increase to 60%, the estimated budget impact would be about \$3.4 million.  The robotic surgical system is already currently available in several hospitals in Ontario (mainly urban academic teaching hospitals).

<sup>a</sup>The anticipated or assumed common ethical and societal values held in regard to the target condition, target population, or treatment options. Unless there is evidence from scientific sources to corroborate the true nature of the ethical and societal values, the expected values are considered.

## REFERENCES

- (1) Health Quality Ontario. Robotic surgical system for radical prostatectomy: a health technology assessment [Internet]. Ont Health Technol Assess Ser [Internet]. Forthcoming.

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