Ovarian Cancer Screening for Low Risk Women: Clinical Utility and Guidelines
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Acknowledgments:

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About CADTH: CADTH is an independent, not-for-profit organization responsible for providing Canada’s health care decision-makers with objective evidence to help make informed decisions about the optimal use of drugs, medical devices, diagnostics, and procedures in our health care system.
Research Questions

1. What is the clinical utility of ovarian cancer screening for asymptomatic women at average risk?

2. What are the evidence-based guidelines regarding ovarian cancer screening for women at average risk?

Key Findings

Six systematic reviews (two with meta-analyses) and three randomized controlled trials were identified regarding the clinical utility of ovarian cancer screening for women without a family history of ovarian cancer. Additionally, six evidence-based guidelines were identified.

Methods

A limited literature search was conducted on key resources including PubMed, The Cochrane Library, University of York Centre for Reviews and Dissemination (CRD) databases, Canadian and major international health technology agencies, as well as a focused Internet search. Methodological filters were applied to limit retrieval to health technology assessments, systematic reviews, meta-analyses, randomized controlled trials, and guidelines. The search was also limited to English language documents published between January 1, 2012 and April 26, 2017. Internet links were provided, where available.

Selection Criteria

One reviewer screened citations and selected studies based on the inclusion criteria presented in Table 1.

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<th>Table 1: Selection Criteria</th>
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<td><strong>Population</strong></td>
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<td><strong>Study Designs</strong></td>
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Results

Rapid Response reports are organized so that the higher quality evidence is presented first. Therefore, health technology assessment reports, systematic reviews, and meta-analyses are presented first. These are followed by randomized controlled trials, non-randomized studies, and evidence-based guidelines.

Six systematic reviews (two with meta-analyses) and three randomized controlled trials were identified regarding the clinical utility of ovarian cancer screening for women without a family history of ovarian cancer. Additionally, six evidence-based guidelines were identified.

Additional references of potential interest are provided in the appendix.

Overall Summary of Findings

Six systematic reviews\(^1\)-\(^6\) (two with meta-analyses),\(^1,2\) three randomized controlled trials,\(^7\)-\(^9\) and six evidence-based guidelines\(^10\)-\(^15\) were identified regarding the clinical utility of ovarian cancer screening for women without a family history of ovarian cancer. There was a general agreement among the identified literature that screening for ovarian cancer did not improve clinical outcomes in asymptomatic women without a family history of the disease.\(^1\)-\(^15\)

One systematic review\(^1\) evaluated three RCTs that measured the effect of transvaginal ultrasonography in an asymptomatic female population as an annual screening procedure. The authors concluded that there was no benefit on mortality demonstrated in the studies reviewed.\(^1\)

A second systematic review with meta-analysis\(^2\) was conducted to quantify the risks and benefits of screening asymptomatic women for ovarian cancer. A total of ten RCTs were included in this review. Overall, screening did not decrease all-cause mortality, ovarian cancer mortality, or the risk of diagnoses of advanced stage ovarian cancer.\(^2\) The authors also noted that screening for ovarian cancer resulted in unnecessary surgery, which led to severe complications in some women.\(^2\)

A third systematic review\(^3\) was performed to measure the clinical effectiveness and potential adverse effects of screening asymptomatic women for ovarian cancer using pelvic examination. The authors concluded that there was no direct evidence on the overall benefits and harms of the pelvic examination and that there was limited evidence regarding the diagnostic accuracy and harms of the routine screening pelvic examination in asymptomatic women.\(^3\) This systematic review was an update to a previous systematic review\(^4\) also cited in this report.

A fourth systematic review\(^4\) assessed the health benefits, accuracy, and harms of pelvic examination for asymptomatic women. Nine studies (27,330 patients) were included in this review. There was no direct evidence identified for overall benefits and harms of the pelvic examination and limited evidence was identified regarding the diagnostic accuracy of routine screening pelvic examinations in asymptomatic women.\(^4\)

A fifth systematic review\(^5\) investigated the clinical benefit and harms of screening for cancer using 11 biomarkers. Ten publications were included in the systematic review. The authors concluded that there was no direct evidence on patient-relevant outcomes supporting the use of 10 of these biomarkers to screen for cancer and that
screening for ovarian cancer using CA125 showed no benefit but sometimes resulted in false-positive tests, overdiagnosis, and overtreatment.\(^5\)

A sixth systematic review with meta-analysis\(^6\) aimed to determine the accuracy of bimanual pelvic examination in screening for ovarian cancer and its effectiveness in distinguishing benign from malignant lesions. A total of 15 studies (37,381 patients) were included in this review. The authors concluded that the bimanual pelvic examination was ineffective for diagnosing ovarian cancer and for distinguishing benign and malignant lesions.\(^6\)

One randomized controlled trial\(^7\) assessed the sensitivity and specificity of bimanual ovarian palpation for screening of ovarian cancer in asymptomatic women. A total of 20,872 patients were examined using bimanual ovarian palpation. The authors concluded that bimanual ovarian palpation has a low sensitivity as a screening test and may not provide significant benefit in asymptomatic women.\(^7\)

A second randomized controlled trial\(^8\) sought to determine the effect of two ovarian cancer screening techniques on mortality. Women were allocated to receive annual multimodal screening with serum CA125 interpreted with use of the risk of ovarian cancer algorithm, annual transvaginal ultrasound screening, or no screening. There were a total of 202,638 women included in this study. The authors concluded that neither screening technique significantly reduced mortality under primary analysis; however, there was some promising evidence for mortality reduction in years 7-14.\(^8\)

A third randomized controlled trial\(^9\) assessed the effect of ovarian cancer screening with transvaginal ultrasound and CA125 on mortality. Women were randomly allocated to either the screening arm (n=39,105) or a control arm (n=39,111). The authors concluded that ovarian cancer screening did not decrease all-cause mortality after a maximum follow-up time of 19.2 years.\(^9\)

The six evidence-based guidelines identified\(^10\)\(^-\)\(^15\) were quite uniform in their conclusions and had various recommendations against the use of ovarian cancer screening. The European Group on Tumor Markers did not recommend the use of CA125 as a screening test in asymptomatic women.\(^10\) The American College of Physicians recommended against the use of pelvic examination in asymptomatic for ovarian cancer screening.\(^11\) The Canadian Task Force on Preventative Health Care recommended against screening asymptomatic women without known genetic risk factors (based on the statement made by the U.S. Preventive Services Task Force).\(^12\) The Scottish Intercollegiate Guidelines Network and the National Guideline Clearinghouse recommended against the screening for ovarian cancer in the general population (outside of the research setting).\(^13\) The National Comprehensive Cancer Network Ovarian Cancer Panel did not recommend any form of screening for ovarian cancer.\(^14\) Finally, the U.S. Preventive Services Task Force recommended against screening for ovarian cancer in asymptomatic women.\(^15\)

**References Summarized**

**Health Technology Assessments**

No literature identified.

**Systematic Reviews and Meta-Analyses**


Randomized Controlled Trials


Non-Randomized Studies

No literature identified.
Guidelines and Recommendations


Appendix — Further Information

Non-Randomized Studies

No Comparator


Clinical Practice Guidelines

Unclear Methodology


Review Articles


23. Wilt TJ, Harris RP, Qaseem A, High Value Care Task Force of the American College of Physicians. Screening for cancer: advice for high-value care from the

24. Fung Kee Fung M, Bryson P, Johnston M, Chambers A, and the members of the Gynecology Cancer Disease Site Group. Screening postmenopausal women for ovarian cancer [Internet]. Toronto (ON): Cancer Care Ontario; 2004 (Education and Information assessed 2014) [cited 2017 May 05]. Available from: https://www.cancercare.on.ca/common/pages/UserFile.aspx?fileId=34208 Target population: This evidence summary applies to the general population of postmenopausal women who are not at increased risk for ovarian cancer (e.g., women who do not have a positive family history of disease).

