

CADTH Reference List

Vaginal Swabbing for the Diagnosis of Candidiasis or Bacterial Vaginosis

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Key Messages

- Two non-randomized studies were identified regarding the clinical utility of vaginal swabbing for the diagnosis of candidiasis or bacterial vaginosis.
- Specific recommendations were identified in five evidence-based guidelines regarding the use of vaginal swabbing for the diagnosis of candidiasis or bacterial vaginosis.

Research Questions

1. What is the clinical utility of vaginal swabbing for the diagnosis of candidiasis or bacterial vaginosis?
2. What is the cost-effectiveness of vaginal swabbing for the diagnosis of candidiasis or bacterial vaginosis?
3. What are the evidence-based guidelines regarding the use of vaginal swabbing for the diagnosis of candidiasis or bacterial vaginosis?

Methods

Literature Search Methods

A limited literature search was conducted by an information specialist on key resources including MEDLINE, the Cochrane Database of Systematic Reviews, the international HTA database, websites of Canadian and major international health technology agencies, as well as a focused internet search. The search strategy was comprised of both controlled vocabulary, such as the National Library of Medicine's MeSH (Medical Subject Headings), and keywords. The main search concepts were candidiasis and vaginal swabbing. No filters were applied to limit the retrieval to study type. An additional search on vaginal infections was limited to guidelines only. Where possible, retrieval was limited to the human population. The search was also limited to English language documents published between January 1, 2016 and January 11, 2021. Internet links were provided, where available.

Selection Criteria and Summary Methods

One reviewer screened literature search results (titles and abstracts) and selected publications according to the inclusion criteria presented in Table 1. Full texts of study publications were not reviewed. The Overall Summary of Findings was based on information available in the abstracts of selected publications. Open access full-text versions of evidence-based guidelines were reviewed when abstracts were unavailable, and relevant recommendations were summarized.

Table 1: Selection Criteria

Criteria	Description
Population	Q1-Q3: Females presenting with suspected candidiasis or bacterial vaginosis
Intervention	Q1-Q3: Vaginal swabbing for laboratory diagnosis
Comparator	Q1, Q2: Usual care (e.g., physical examination and history taking) Q3: Not applicable
Outcomes	Q1: Clinical utility (e.g., rates of adverse events, symptom severity, length of infection) Q2: Cost-effectiveness (e.g., cost per adverse event avoided, cost per quality-adjusted life-year gained) Q3: Recommendations regarding best practices (e.g., screening protocols and appropriate patient populations)
Study designs	Health technology assessments, systematic reviews, randomized controlled trials, non-randomized studies, economic evaluations, evidence-based guidelines

Results

Two non-randomized studies^{1,2} were identified regarding the clinical utility of vaginal swabbing for the diagnosis of candidiasis or bacterial vaginosis. Five evidence-based guidelines³⁻⁷ were identified regarding the use of vaginal swabbing for the diagnosis of candidiasis or bacterial vaginosis. No health technology assessments, systematic reviews, or randomized controlled trials were identified regarding the clinical utility of vaginal swabbing for the diagnosis of candidiasis or bacterial vaginosis. No economic evaluations were identified regarding the cost-effectiveness of vaginal swabbing for the diagnosis of candidiasis or bacterial vaginosis.

Additional references of potential interest that did not meet the inclusion criteria are provided in Appendix 1.

Overall Summary of Findings

Two relevant non-randomized studies^{1,2} and five relevant guidelines³⁻⁷ were identified for this report.

The first non-randomized study¹ compared the effectiveness of clinical investigation versus laboratory tested vaginal swabs for acute vulvovaginal candidiasis, and the second non-randomized study² examined the efficacy of clinical diagnosis versus laboratory tested vaginal swabs for both candidiasis and bacterial vaginosis. The authors of the first non-randomized study¹ concluded that a clinically based diagnosis of vulvovaginal candidiasis had high false-positive rates, recommending that a combination of both clinical and laboratory culture be the standard diagnostic method to avoid unnecessary treatment and the associated risks. The authors of the second non-randomized study² concluded that there was no agreement, or only a slight agreement, between the syndromic approach and laboratory results for the diagnosis of *Trichomonas vaginalis* (TV)/*Gardnerella vaginalis* (GV) and *Candida albicans* (CA). They concluded that 31% of patients with TV/GV and 51% with CA would have missed diagnosis if only syndromic evaluation was conducted.²

Specific recommendations concerning appropriate populations were identified in five guidelines.³⁻⁷ Three evidence-based guidelines^{3,5,6} discussed the appropriateness of screening for bacterial vaginosis within pregnant individuals. The first guideline from the US Preventive Services Task Force³ recommends against screening for bacterial vaginosis in pregnant persons who are not at increased risk for preterm delivery. The authors of the fourth identified guideline⁶ added that the American College of Obstetricians and Gynecologists and the Centers for Disease Control and Prevention also recommend against screening for bacterial vaginosis in pregnant persons. Conversely, the authors of the third identified guideline⁵ concluded that there was insufficient evidence as to whether to recommend screening for bacterial vaginosis in the general pregnant population. The authors of the second identified guideline⁴ recommend that all women presenting with features suggesting vulvovaginal candidiasis should always have a clinical examination, with routine microscopy, as good practice. The authors⁴ recommend that self-collected vaginal swabs for microscopy can be collected where clinical examination is not possible or required. The authors of the fifth identified guideline⁷ recommend wet-mount and gram-stain smears as useful in the diagnosis of candidiasis and bacterial vaginosis. For CA specifically, the authors⁷ recommend that vaginal cultures are not useful for asymptomatic women because the *Candida* species may be part of the normal vaginal microbiota; however, they recommend that this practice should be considered for symptomatic women.

References

Health Technology Assessments

No literature identified.

Systematic Reviews and Meta-analyses

No literature identified.

Randomized Controlled Trials

No literature identified.

Non-Randomized Studies

1. Aniebue UU, Nwankwo TO, Nwafor MI. Vulvovaginal candidiasis in reproductive age women in Enugu Nigeria, clinical versus laboratory-assisted diagnosis. *Niger J Clin Pract.* 2018 Aug;21(8):1017-1022. [Medline](#)
2. Barry MS, Ba Diallo A, Diadhiou M, et al. Accuracy of syndromic management in targeting vaginal and cervical infections among symptomatic women of reproductive age attending primary care clinics in Dakar, Senegal. *Trop Med Int Health.* 2018 May;23(5):541-548. Economic Evaluations No literature identified. Guidelines and Recommendations [Medline](#)
3. U.S. Preventive Services Task Force, Owens DK, Davidson KW, et al. Screening for bacterial vaginosis in pregnant persons to prevent preterm delivery: US Preventive Services Task Force recommendation statement. *JAMA.* 2020 Apr;323(13):1286-1292. [Medline](#)
4. Saxon C, Edwards A, Rautemaa-Richardson R, et al. British Association for Sexual Health and HIV national guideline for the management of vulvovaginal candidiasis. London, England: British Association for Sexual Health and HIV; 2019: <https://www.bashguidelines.org/media/1223/vvc-2019.pdf> Accessed 2021 Jan 19. See: *DIAGNOSIS*, p.9
5. Yudin MH, Money DM. No. 211-Screening and management of bacterial vaginosis in pregnancy. *J Obstet Gynaecol Can.* 2017 Aug;39(8):e184-e191. [Medline](#)

6. Chapman DK, Bartlett J, Powell J, Carter N. Bacterial vaginosis screening and treatment in pregnant women. *J Midwifery Womens Health*. 2016 Sep;61(5):628-631. [Medline](#)
7. Public Health Agency of Canada, Expert Working Group. Canadian guidelines on sexually transmitted infections. Ottawa (ON): Government of Canada; 2016: <https://www.canada.ca/en/public-health/services/infectious-diseases/sexual-health-sexually-transmitted-infections/canadian-guidelines/sexually-transmitted-infections.html>. Accessed 2021 Jan 19.
See: Section 3 Genital and Extra-genital Specimen Collection "Vaginal specimens," Diagnosis of specific infections "Candida albicans" and "Bacterial vaginosis (BV)"

Appendix 1: References of Potential Interest

Systematic Reviews and Meta-Analyses

Vaginal Swabbing Not Specified

8. Kahwati LC, Clark R, Berkman N, et al. Screening for bacterial vaginosis in pregnant adolescents and women to prevent preterm delivery: updated evidence report and systematic review for the US Preventive Services Task Force. *JAMA*. 2020 Apr;323(13):1293-1309. [Medline](#)
9. Zuckerman A, Romano M. Clinical recommendation: vulvovaginitis. *J Pediatr Adolesc Gynecol*. 2016 Dec;29(6):673-679. [Medline](#)

Non-Randomized Studies

Alternative Comparator

10. Khan Z, Bhargava A, Mittal P, et al. Evaluation of reliability of self-collected vaginal swabs over physician-collected samples for diagnosis of bacterial vaginosis, candidiasis and trichomoniasis, in a resource-limited setting: a cross-sectional study in India. *BMJ Open*. 2019 Aug;9(8):e025013. [Medline](#)
11. Barnes P, Vieira R, Harwood J, Chauhan M. Self-taken vaginal swabs versus clinician-taken for detection of candida and bacterial vaginosis: a case-control study in primary care. *Br J Gen Pract*. 2017 Dec;67(665):e824-e829. [Medline](#)
12. Gaydos CA, Beqaj S, Schwabke JR, et al. Clinical validation of a test for the diagnosis of vaginitis. *Obstet Gynecol*. 2017 Jul;130(1):181-189. [Medline](#)

Unclear Intervention

13. Tellapragada C, Eshwara VK, Bhat P, Kamath A, Aletty S, Mukhopadhyay C. Screening of vulvovaginal infections during pregnancy in resource constrained settings: implications on preterm delivery. *J Infect Public Health*. 2017 Jul-Aug;10(4):431-437. [Medline](#)

Guidelines and Recommendations

Unclear Methodology

14. Australasian Sexual Health Alliance. Bacterial vaginosis. (*Australian STI management guidelines for use in primary care*). Sydney, Australia: Australian Government Department of Health; 2018: <http://sti.guidelines.org.au/sexually-transmissible-infections/infections-associated-with-sex/bacterial-vaginosis> Accessed 2021 Jan 19.
See: Diagnosis
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See: When to send a swab, p. 3; Investigations, p.3; Sampling, p.4

Review Articles

17. Reiter S, Kellogg Spadt S. Bacterial vaginosis: a primer for clinicians. *Postgrad Med*. 2019 Jan;131(1):8-18. [Medline](#)
18. Coleman JS, Gaydos CA. Molecular Diagnosis of Bacterial Vaginosis: an Update. *J Clin Microbiol*. 2018 Sep;56(9):09. [Medline](#)
19. Paladine HL, Desai UA. Vaginitis: diagnosis and treatment. *Am Fam Physician*. 2018 Mar 1;97(5):321-329. [Medline](#)
20. Goje O, Munoz JL. Vulvovaginitis: Find the cause to treat it. *Cleve Clin J Med*. 2017 Mar;84(3):215-224. [Medline](#)

Additional References

21. Soper DE. Bacterial vaginosis and surgical site infections. *Am J Obstet Gynecol*. 2020 Mar;222(3):219-223. [Medline](#)
22. Ottawa Public Health. Vaginal discharge. Ottawa (ON): Ottawa Public Health; 2018 Sep: https://www.ottawapublichealth.ca/en/public-health-topics/resources/Documents/Vaginal-Discharge_accessible_EN-.pdf Accessed 2021 Jan 19.