Treponemal point-of-care tests for syphilis

Andrea D. Chittle MD, Paul Sandstrom PhD, Joseph Cox MD, Raymond S.W. Tsang PhD

■ Cite as: *CMAJ* 2024 May 27;196:E702-3. doi: 10.1503/cmaj.231548

1 Point-of-care tests (POCTs) for syphilis can reduce barriers to care

Increasing screening uptake is important to reversing the rising rates of syphilis and congenital syphilis in Canada.[1,2] Conventional screening for syphilis involves serologic laboratory testing.[1–4] Barriers to accessing screening and delays to treatment created by lengthy test turnaround times may be addressed by POCTs.[3,4] Point-of-care tests may be particularly beneficial in prenatal care settings and in communities with emerging syphilis outbreaks.[3,5]

2 Syphilis POCTs can be administered by trained individuals in a variety of settings

Point-of-care tests for syphilis that provide results in minutes can be performed in clinical, laboratory, and outreach settings.[3–5] Fingerstick specimens can be used; results are read according to the manufacturer's instructions.[3,4] Trained lay testers can conduct POCTs, adhering to standard infection-control measures and disposal procedures for biological waste.[3]

3 The first syphilis POCT licensed in Canada detects treponemal antibodies

The first test authorized by Health Canada is a dual HIV and syphilis POCT (Appendix 1, available at www.cmaj.ca/lookup/doi/10.1503/cmaj.231548/tab-related-content). The syphilis component detects antibodies to *Treponema pallidum*, analogous to the first test in most serologic laboratory testing algorithms.[1–5] Antibodies to *T. pallidum* usually remain positive after infection.[1,2]

4 Determining the suitability of POCTs and interpreting results requires clinical assessment

Treponemal POCTs cannot distinguish active from prior syphilis infections, so are not informative for individuals with previous infections.[3,5] Following a positive POCT result, clinical staging is required to determine the appropriate syphilis treatment regimen and trace-back period for contacts.[1,5] Patients with a negative result who have had recent syphilis exposures or clinical findings (e.g., lesion suspicious for a chancre) require follow-up.[1,5] The benefits of POCTs are optimized through linking testing with clinical and laboratory services.[4]

5 Point-of-care tests cannot replace standard serologic laboratory tests

Serologic laboratory test results include quantitative nontreponemal titres.[1,2] For those with a positive POCT result, titres support clinical staging and confirm treatment effectiveness.[1–3] Serologic laboratory testing validates negative results on POCTs and is essential in diagnosing re-infections and evaluating congenital syphilis.[1,2]

References

1. Syphilis Guide in Sexually transmitted and blood-borne infections: guides for health professionals. Ottawa: Public Health Agency of Canada; modified 2024 Jan. 5. Available: https://www.canada.ca/en/public-health/services/infectious-diseases/sexual-health-sexually-transmitted-infections/canadian-guidelines/syphilis.html (accessed 2023 Dec. 7).
2. Robinson JL. Canadian Paediatric Society, Infectious Diseases and Immunization Committee. Congenital syphilis: no longer just of historical interest [position statement]. Canadian Paediatric Society; 2009, updated 2018 Feb. 8, reaffirmed 2018 Feb. 28. Available: https://cps.ca/en/documents/position/congenital-syphilis1 (accessed 2023 Nov. 22).
3. Naidu P, Tsang RSW. Canadian Public Health Laboratory Network guidelines for the use of point-of-care tests for *Treponema pallidum* in Canada. *J Assoc Med Microbiol Infect Dis Can* 2022;7:85-96.

4. Singh AE, Ives N, Gratrix J, et al. PoSH Study Team. Sensitivity and specificity of two investigational Point of care Tests for Syphilis and HIV (PoSH Study) for the diagnosis and treatment of infectious syphilis in Canada: a cross sectional study. *Clin Microbiol Infect* 2023;29:940.e1-7.
5. WHO information note on the use of dual HIV/syphilis rapid diagnostic tests (RDT). Geneva: World Health Organization (WHO); 2017:1-8. Available: https://www.paho.org/en/documents/who-information-note-use-dual-hivsyphilis-rapid-diagnostic-tests-rdt-2017 (accessed 2023 Nov. 25).

Competing interests: Andrea Chittle worked on this manuscript in the course of her paid employment with the Public Health Agency of Canada. Joseph Cox reports grants or contracts from ViiV Healthcare and Gilead Canada, and consulting fees, honoraria, and support for attending meetings from ViiV Healthcare. Raymond Tsang performs laboratory and field evaluations of syphilis point-of-care tests. No other competing interests were declared.

This article has been peer reviewed.

Affiliations: Centre for Communicable Diseases and Infection Control (Chittle), Public Health Agency of Canada, Ottawa, Ont.; Department of Family Medicine (Chittle), Faculty of Health Sciences, McMaster University, Hamilton, Ont.; National Microbiology Laboratory Branch (Sandstrom, Tsang), Public Health Agency of Canada; Department of Medical Microbiology and Infectious Diseases (Sandstrom), Faculty of Health Sciences, University of Manitoba, Winnipeg, Man.; Epidemiology, Biostatistics and Occupational Health (Cox), School of Population and Global Health, McGill University, Montréal, Que.

Disclaimer: The views expressed in this article are those of the authors and do not necessarily represent the official position of the Public Health Agency of Canada.

Correspondence to: Andrea Chittle, andrea.chittle@phac-aspc.gc.ca