

Provincial Laboratory Services



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One Island Health System

Blood Culture Utilization and Quality 2022-2024

February 24, 2025

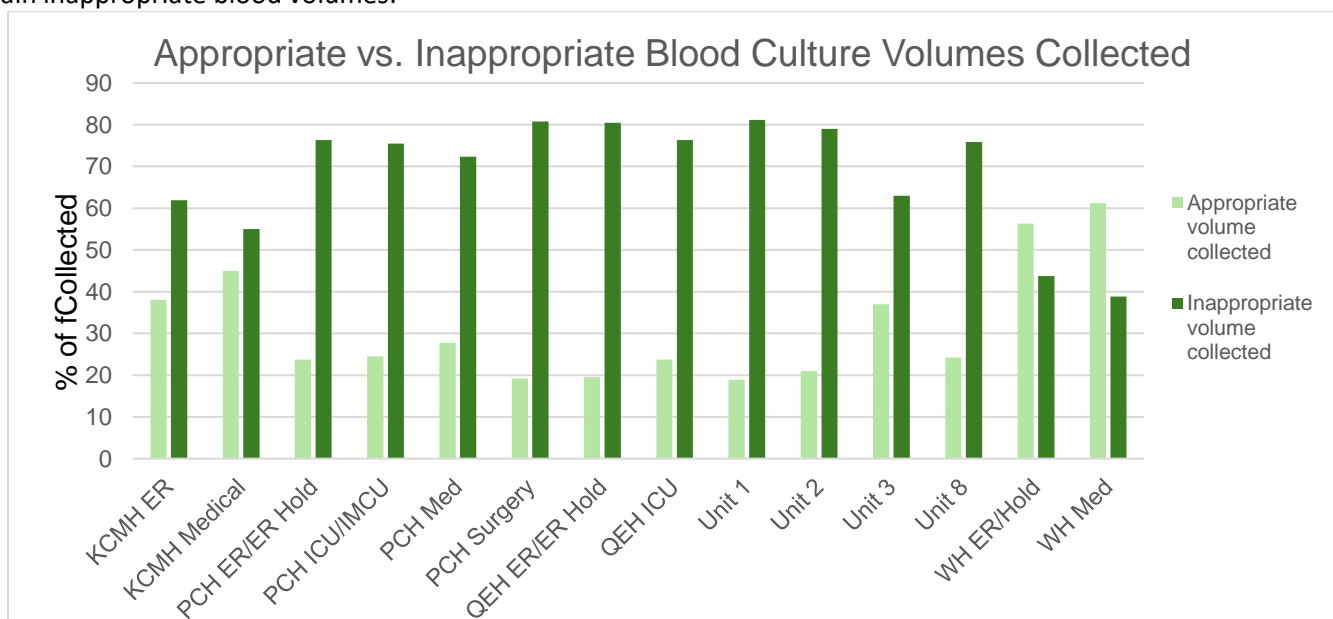
This information applies to: Island Physicians, Nurse Practitioners, Directors of Nursing, Nurse Managers, Clinical Instructors/Educators, and Infection Control Practitioners

In 2024, almost 9,300 blood cultures were collected from patients across the Island. Regular audits on the proper utilization of this important diagnostic test provide a quality indicator which is measurable. **Our contamination rate remains low; however, the blood volume collected requires improvement.**

1. Blood Volume

Incorrect volumes (either too high or too low) directly affect outcomes and lead to contamination and false results (see figure below). The optimal collection volume for adult aerobic and anaerobic culture vials is 8-10mL and current blood collection policies require marking start and target end blood volume level on the vial prior to performing venipuncture. Locations collecting <100 adult aerobic vials/year could not be included in the blood volume audit.

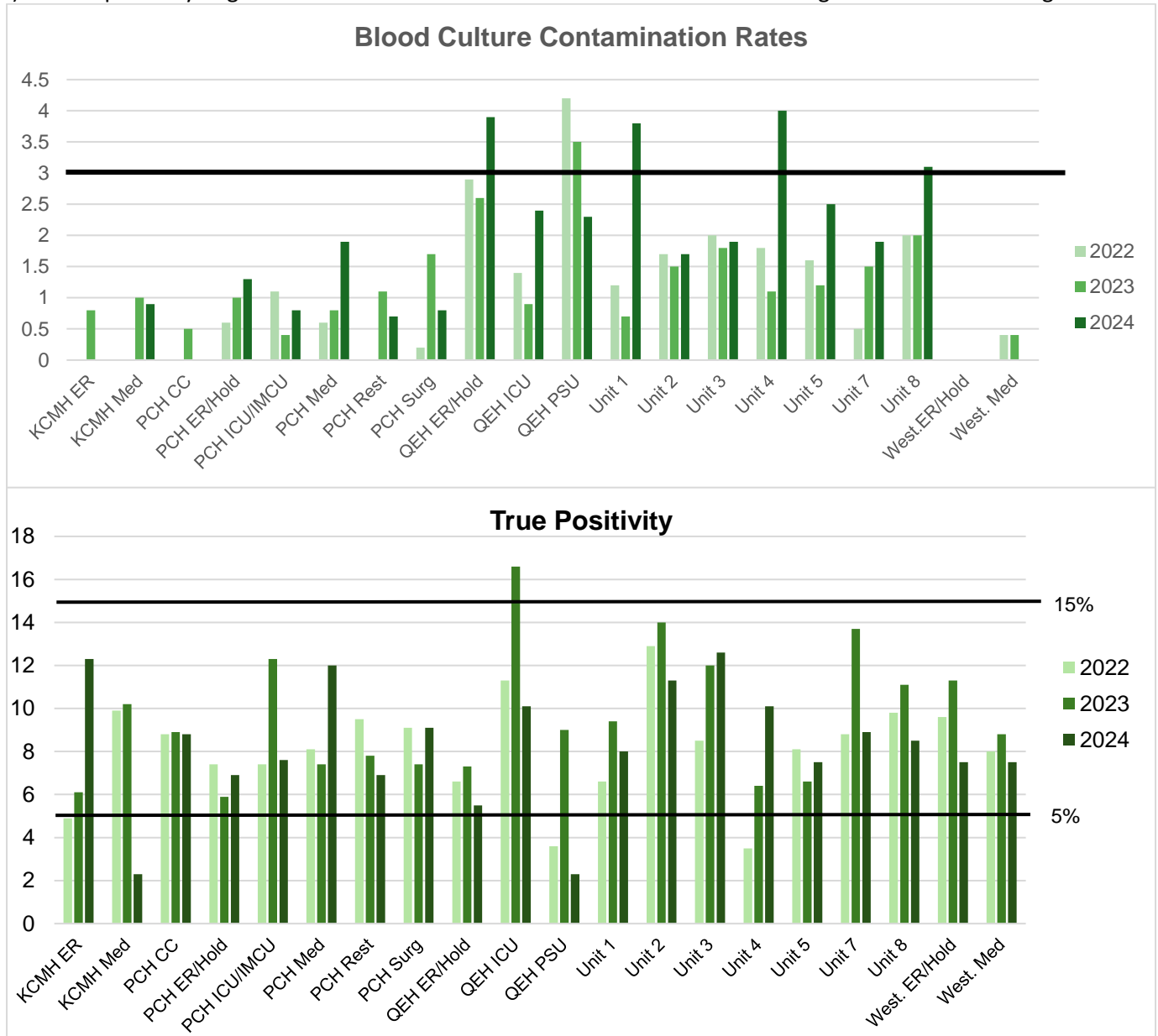
The PCH and QEH Microbiology laboratories will continue to add comments to blood culture reports for vials received that contain inappropriate blood volumes.



2. Contamination and True Positivity

The target contamination rate is $\leq 3\%$ (see figure below). Although there are a few exceptions, sites throughout the province continue to do well with regard to this aspect of collection technique.

The goal rate for true positivity is 5-15%. True positivity is the percentage of positive blood cultures (excluding contamination) over all blood cultures collected (see figure below). A true positivity of less than 5% may indicate that blood cultures are being collected too often; however, it may also be due to inappropriate collection technique (i.e. underfilled vials). A true positivity of greater than 15% indicates that blood cultures are not being collected often enough.



References: Baron, E. J. et al. (2005). Blood Cultures IV. In E. J. Baron (Ed.), *Cumitech: Cumulative Techniques and Procedures in Clinical Microbiology* (pp. 1-25). Washington, DC: ASM Press; Doern, G. V. et al. (2019). Practical Guidance for Clinical Microbiology Laboratories: A Comprehensive Update on the Problem of Blood Culture Contamination and a Discussion of Methods for Addressing the Problem. *Clinical Microbiology Reviews*, 33(1). Doi: 10.1128/CMP.00009-19.

For more information, please contact:

Dr. Heidi Paulin
Division Head
Provincial Laboratory Services
Queen Elizabeth Hospital
(902) 894-2328
hpaulin@ihis.org

Vanessa Arseneau
Chief Technologist
Provincial Laboratory Services
Queen Elizabeth Hospital
(902) 894-2310
VLArseneau@ihis.org

Jennifer Dowling
Medical Laboratory Technologist II
Provincial Laboratory Services
QEH Microbiology
(902) 894-2312
JLDowling@ihis.org