

Provincial Laboratory Services



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Blood Culture Utilization and Quality 2016-2018

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

From: Vanessa Arseneau, Chief Technologist, Microbiology Laboratory, Queen Elizabeth Hospital

Jennifer Dowling, Medical Laboratory Technologist II, Microbiology Laboratory, Queen Elizabeth Hospital

Blood cultures are one of the most important microbiological tests available to the clinician. In 2018, over 6,400 blood cultures were drawn from patients across the Island. Regular audits on the proper utilization of this diagnostic test provide a quality indicator which is measurable. Island-wide data for 2016, 2017 and 2018 is provided below.

1. Blood volume

The most recent audit indicated that inappropriate blood volumes are being collected for adult aerobic/anaerobic blood culture bottles. Incorrect volumes directly affect outcomes and may lead to falsely negative results (see figure 1).

The majority of sites are collecting too much blood per bottle, with one site collecting too little. The optimal volume to be collected is 8-10mL and it is recommended to mark the required blood volume level on the culture vial prior to performing venipuncture. Please see QEH Nursing policy "Blood Cultures" and/or Provincial Laboratory Procedure "PRMPRE002 Blood Cultures Collection" for blood culture collection instructions.

The audit does not contain information specific to paediatric vial collections. Should you require more detailed information related to your unit or facility, please contact Vanessa Arseneau or Jennifer Dowling.

2. True Positivity

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 2).

A true positivity of less than 5% indicates that blood cultures are being collected too often. A low true positivity may also be due to inappropriate collection technique (ie. underfilled vials). A true positivity of greater than 15% indicates that blood cultures are not being collected often enough.

3. Contamination

The target rate for contamination is $\leq 3\%$ (see figure 3).

Sites throughout the province are **doing very well** with regard to collection technique.

REFERENCE: 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.

Cc: Shane Buchanan, Brian Timmons, Jamie MacDonald, Dr. K. Mead

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Figure 1: Average Blood Volumes Collected

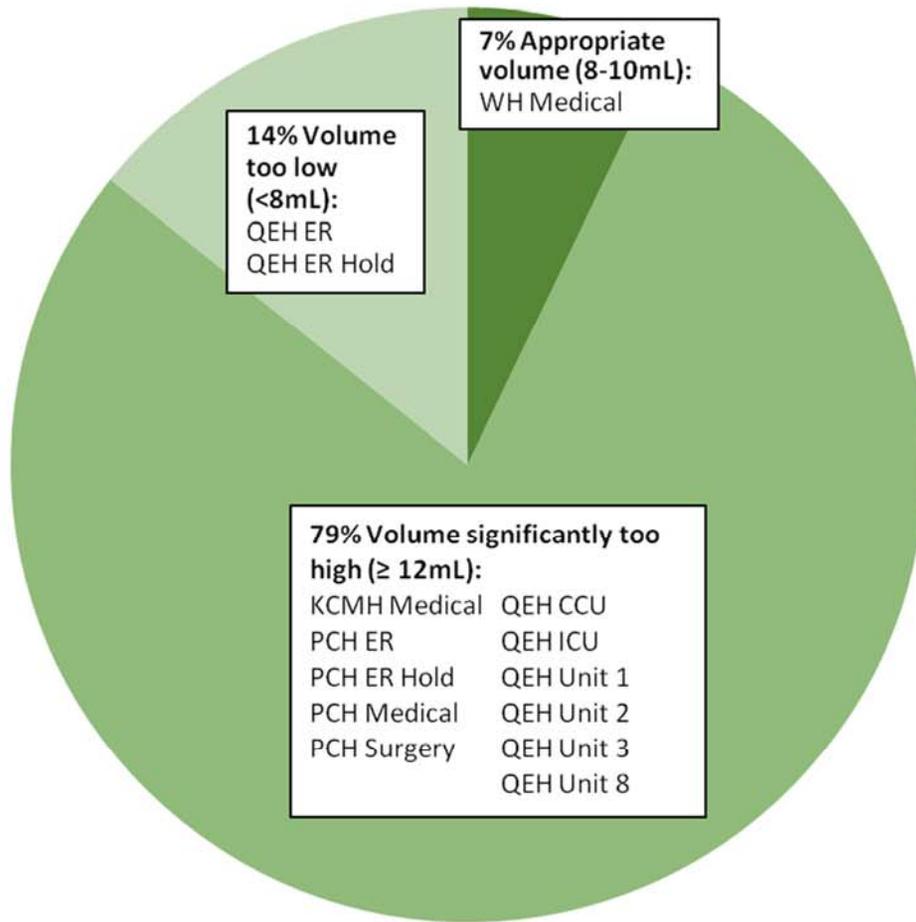


Figure 1: Target blood volume for adult aerobic/anaerobic culture vials is 8-10mL/vial.

Locations collecting <25 adult aerobic vials/year could not be included in the blood volume audit.

Figure 2: Positivity

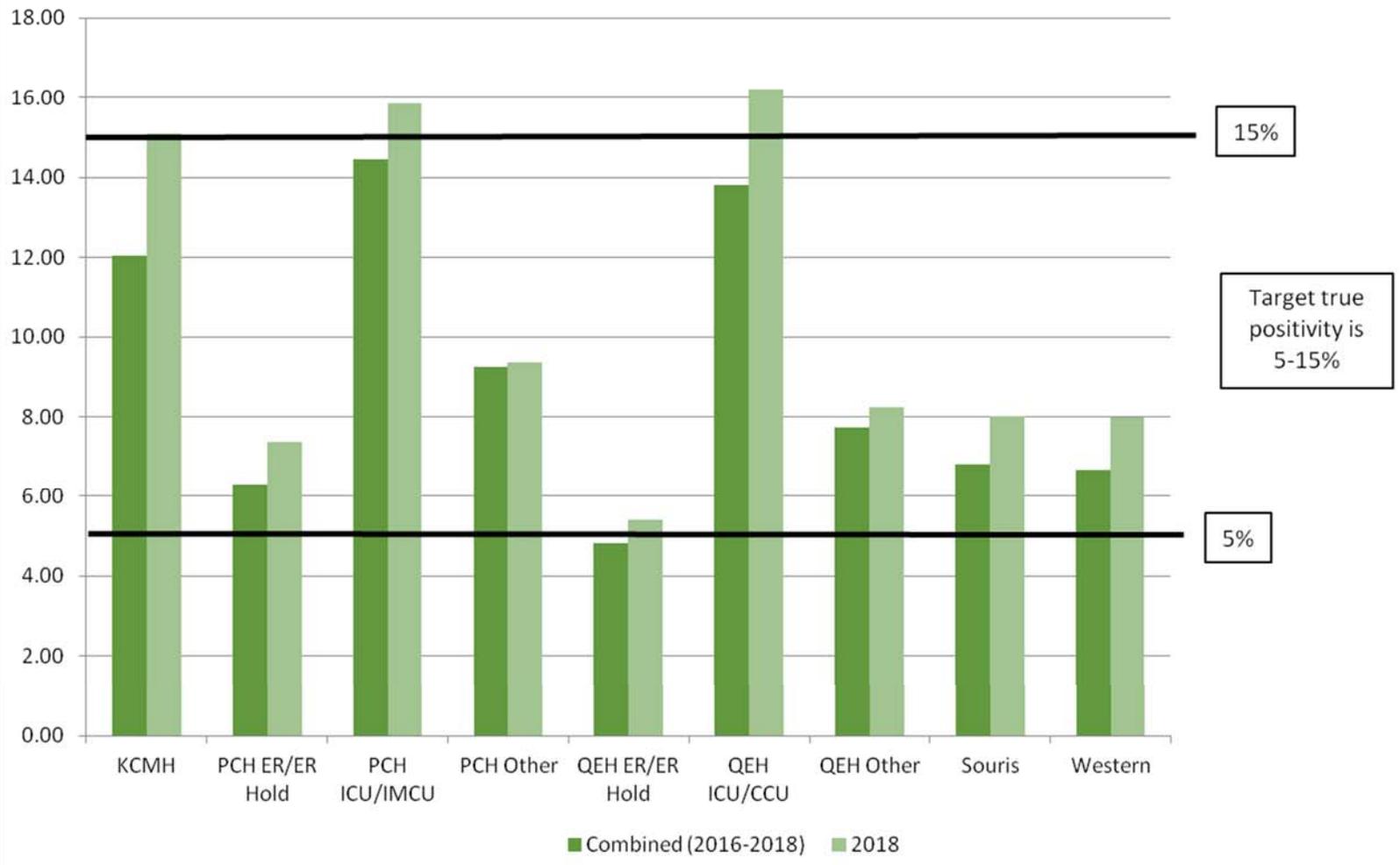


Figure 3: Contamination Rates

