

# Provincial Laboratory Services



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**Health PEI**  
One Island Health System

## Blood Culture Utilization and Quality 2019-2021

March 28, 2022

*This information applies to: Physicians, Nurse Practitioners, Director of Nursing, Nurse Managers, Clinical Instructors/Educators and Infection Control Practitioners; Dr. Kristen Mead, Medical Director*

Blood cultures are one of the most important microbiological tests available to the clinician. In 2021, over 6,800 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. Our contamination rate remains very low and the blood culture volume collected has improved over volumes collected in 2020.

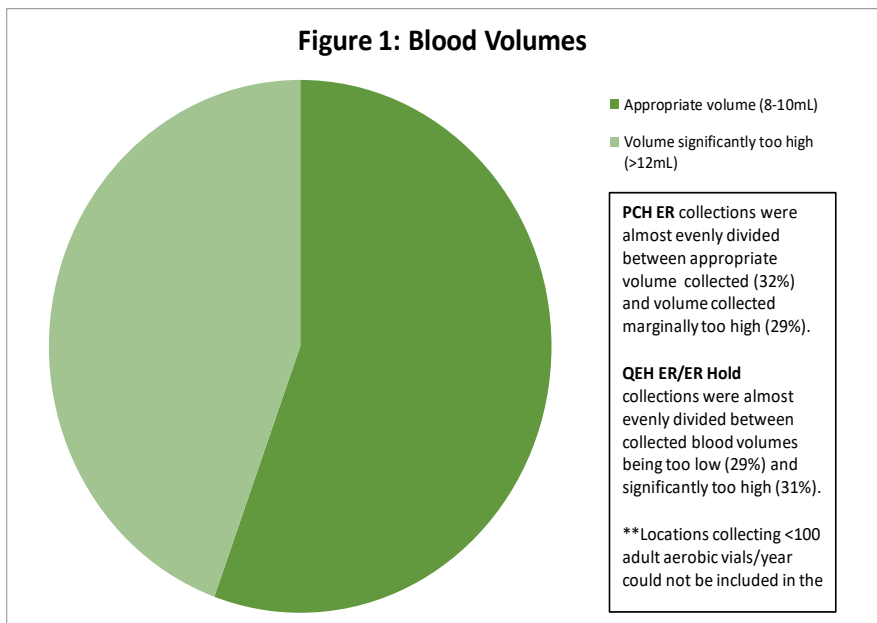
### 1. Blood Volume

The most recent audit indicates that KCMH ER, PCH ER Hold, PCH Surgery, Western ER, and Western Medical consistently collected appropriate blood volumes; however, most other sites continue to collect volumes that are too high. **Incorrect volumes (either too high or too low) directly affect outcomes and lead to falsely negative results (see figure 1).**

The optimal volume to be collected in adult aerobic and anaerobic culture vials is 8-10mL and current blood culture collection policies require marking optimal blood volume level on the culture vial prior to performing venipuncture. **Please see QEHR Nursing policy “Blood Cultures” and/or Provincial Laboratory Procedure “PRMPRE002 Blood Cultures Collection” for blood culture collection instructions.**

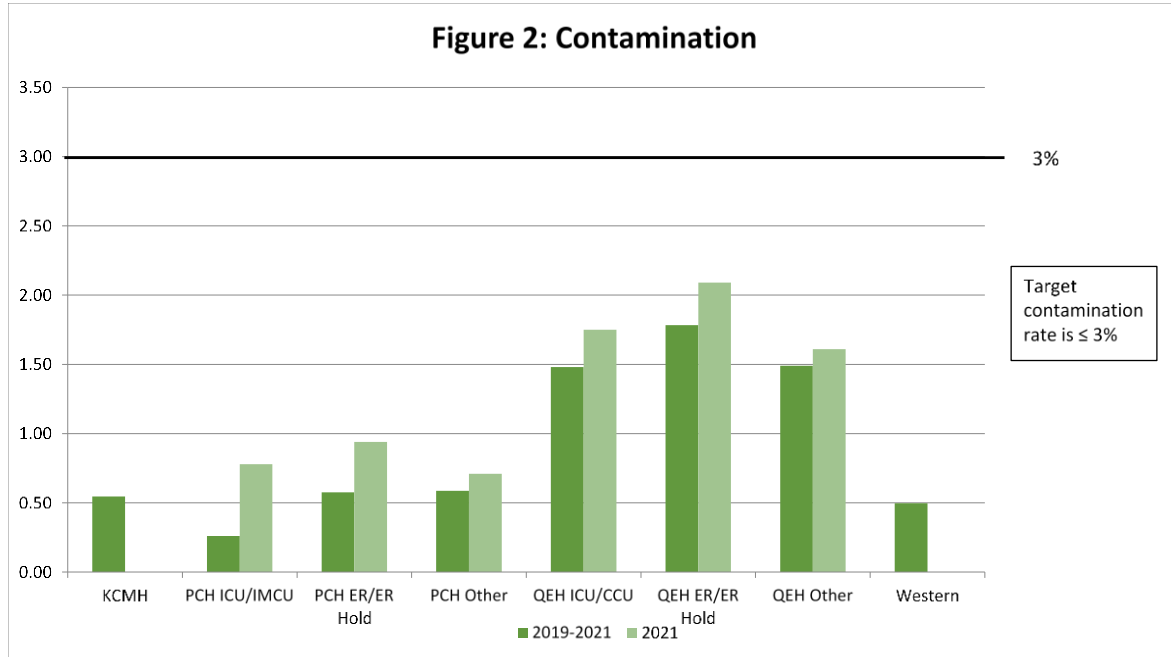
The Microbiology laboratory will continue to add a comment to blood culture reports where culture vials are received without a blood volume marking indicated on the bottle. In addition, incident reports will be filed for any facility units that fail to indicate target blood volume on the culture vial.

Figure 1: Blood Volumes

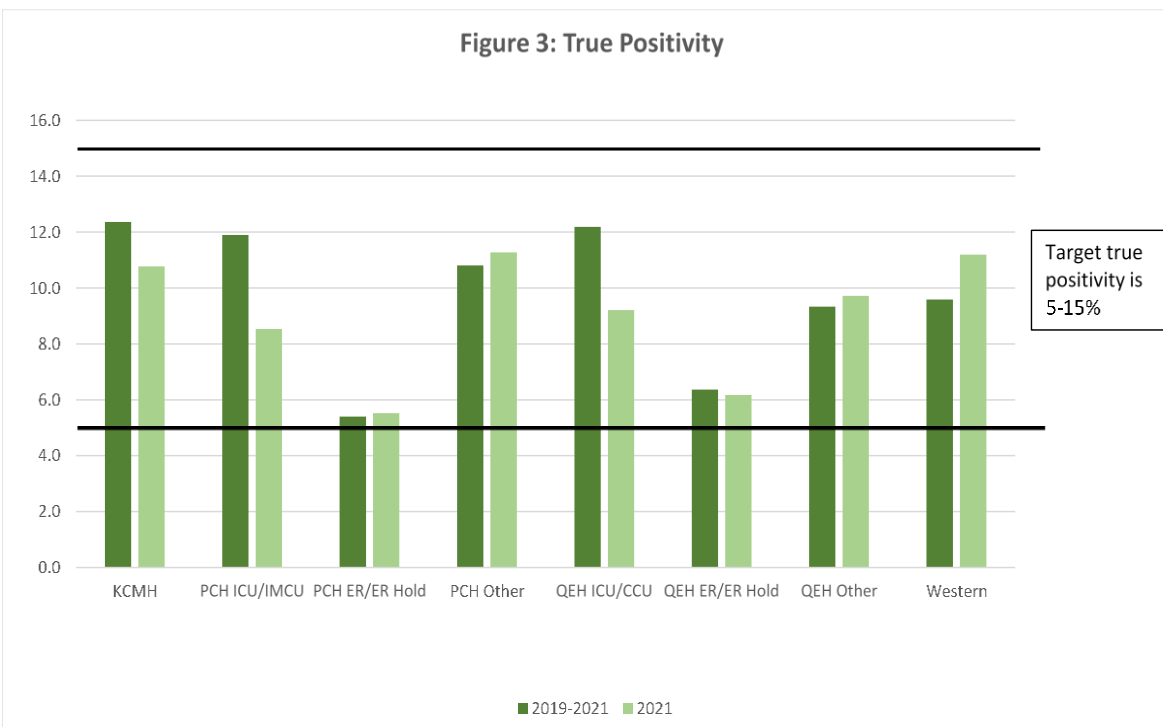


## 2. Contamination and True Positivity

The target contamination rate is  $\leq 3\%$  (see figure 2). Sites throughout the province continue to do very 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 3). 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.



**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.

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