

Follow-up of Canadian Blood Services Platelet Bacterial Testing Results

A sample taken from each platelet unit is cultured for bacteria at least 36 hours after blood donation. Platelet units are issued to hospitals only if the culture is negative at the time of issue. Platelet cultures are incubated for 7 days and if the culture becomes positive after platelet issue ("initial-positive" bacterial culture), the hospital is notified, and a precautionary recall of all blood components from the associated donation(s) is initiated.

Following an initial positive bacterial culture, Canadian Blood Services will conduct additional testing of the positive platelet culture and from the original component and companion components (if applicable/ available). The testing is performed at Canadian Blood Services' laboratory. The time-line for this additional testing by Canadian Blood Services may extend to several weeks after the component recall, in response to the initial positive culture. **Although additional testing results are not intended for patient clinical management, for all associated transfused units, Canadian Blood Services will report results of follow-up Gram stain and bacterial identification to hospitals as soon as available.**

Only a small number of initial positive cultures are subsequently determined to be "confirmed-positive" results (i.e., detecting the same bacteria from the initial and at least one other sample from the associated donation(s)). Canadian Blood Services data obtained between August 2017 to December 2019 indicated that 0.09% and 0.04% confirmed positive culture results were obtained for buffy coat pools and apheresis units, respectively. The majority of identified bacterial species recovered from confirmed-positive platelet cultures were skin commensal bacteria.¹

Upon hospital notification of a component recall due to an initial positive result, if the recalled unit was transfused, it is recommended that the patient's clinical status and health record be reviewed to assess for evidence of possible bacterial transfusion-transmitted infection (TTI). Clinical signs may include: fever, chills, rigors, nausea, vomiting, diarrhea, abdominal and muscle pain, hypotension, hemoglobinuria, disseminated intravascular coagulation and/or renal failure. Other clinical criteria of a possible bacterial TTI are outlined in the Public Health Agency of Canada (PHAC) **Guideline for Investigation of Suspected Transfusion Transmitted Bacterial Contamination**². As per recommendations of the National Advisory Committee (NAC), appropriate patient follow-up, including whether recipient notification is warranted, should be guided by clinical assessment³. If the patient's clinical status suggests a possible bacterial TTI, then steps outlined in the PHAC Guideline to investigate for bacterial TTI should be undertaken, recognizing that pre-transfusion bacterial infection or antibiotic treatment can complicate the assessment³. If a bacterial TTI is suspected, this should be reported to Canadian Blood Services using the recommended transfusion reaction report form for your jurisdiction⁴. The hospital Transfusion Medicine Director should also be consulted for advice.

References

1. Ramirez-Arcos et al. Extension of platelet shelf-life with an improved bacterial testing algorithm. *Transfusion*. 2020;60(12):2918-2928.
2. Public Health Agency of Canada. Guideline for Investigation of Suspected Transfusion Transmitted Bacterial Contamination. Oct 2007. At: <https://www.canada.ca/en/public-health/services/reports-publications/canada-communicable-disease-report-ccdr/monthly-issue/2008-34/guideline-investigation-suspected-transfusion-transmitted-bacterial-contamination.html>.
3. National Advisory Committee on Blood and Blood Products and Canadian Blood Services. Recommendations for the Notification of Recipients of a Blood Component Recall. V.20181126. At: <https://nacblood.ca/resources/guidelines/downloads/NAC%20CBS%20recipient%20notification%202018-11-26%20Published.pdf>.
4. Guide to Reporting Adverse Transfusion Reactions. At: <https://professionaleducation.blood.ca/en/guide-reporting-adverse-transfusion-reactions>.