Extended Shelf Life Platelets


For platelets to maintain their function, they must be stored at room temperature with constant gentle agitation. Compared with red blood cells, which generally have a shelf life of 42 days, platelets are good for only a short time — before August 14, 2017, only five days. This short shelf life presented a significant challenge in meeting the platelet needs of hospital patients, especially around long weekends. It also led to discards due to outdates.

To acquire the knowledge needed to possibly extend the shelf life of platelets, Canadian Blood Services’ Centre for Innovation examined bacterial detection in pooled platelets over a seven-day storage period. A team led by Dr. Sandra Ramirez-ArcoS found that delaying sampling for bacterial detection from 24 hours to 36 hours or longer, along with increased sampling volume that allows for testing growth in both aerobic and anaerobic conditions, improves the safety of platelet concentrates.

In addition to this work, Dr. John Blake, one of our in-house engineers, examined the potential impacts of a seven-day shelf life on inventory — both product availability and wastage. He found that compared with five-day protocols, extending to seven days could see about a 30 per cent reduction in product waste.

From research to reality...

Based on these findings, Canadian Blood Services is now implementing a new testing algorithm that extends the shelf life of platelets from five days to seven. This shift allows for more hold time up front for enhanced testing for bacterially contaminated products and an additional day of usable shelf life, which may help relieve some of the inventory pressure and, as Dr. Blake’s modelling suggests, reduce the number of outdates.

What has changed?

A new testing algorithm was implemented on August 14 to improve the detection of bacterially-contaminated pooled and apheresis platelet components:

- We added an anaerobic culture bottle to our culture process to improve our ability to detect anaerobic bacteria. This will also double the sample volume size, thus also increasing our ability to detect aerobic microbes that can grow in anaerobic conditions.
- We increased the time of sample collection for bacterial detection from 24 to 36 hours after component collection. The increased time allows potentially contaminating bacteria a longer period to proliferate, thus improving our ability to detect them.
- We added a six-hour hold prior to the release of platelets, thus allowing any components that may be flagged by our bacterial detection instrument (BacT/ALERT 3D) early in the incubation period to be quarantined and not issued to a hospital customer.

**A smooth transition – keeping our hospital customers informed**

Brampton Operations supports some of the largest hospital users of platelets. Andrea Moore, distribution manager, worked closely with her hospital customers to prepare for the implementation, and to keep hospital customers informed during the implementation week.

“Strong communication during times of significant change is essential for our hospital customers,” says Andrea.

During the pre-August long weekend conference call with hospital customers, some time was spent discussing the change, explaining how we were preparing, and what hospital customers needed to do to prepare. Hospital customers were also given the chance to ask questions.

During the implementation week of August 14, Andrea and her team sent out daily emails to keep hospitals apprised on progress.

Daily email updates from August 14-18 were as follows:

- **Day 1 Monday** – Yesterday we followed the bacteria sampling process for the “five-day” shelf life procedure for the last time.

- **Day 2 Tuesday** – Today we produced platelets from Monday collections. As per the new extended shelf life process, we will wait 36 hours from donation time before we can take the bacteria sample. The bacteria sampling process will be done tomorrow and then we will hold them for another six hours until they can be released. We are on track to have these extended shelf life platelets released in time to be issued for Thursday deliveries!

- **Day 3 Wednesday** – Today we have been sampling Monday collections and are on track to release our first batch of extended shelf life platelets in time for tomorrow’s routine deliveries!
• **Day 4 Thursday** – Today is our second day of sampling platelets following the extended shelf life process, and it's going well. Today is also our last day with five-day platelets in our inventory - only until midnight!

• **Day 5 Friday** – We have good news. We have a strong platelet plan for the weekend and therefore there is no need for the daily extended shelf life platelet update anymore and it will be discontinued. Thank you all for your support and the help in this transition. However, if you have any questions or concerns, please do not hesitate and let us know.

“I think this added transparency eased our hospital customers’ concerns, and provided them with assurance that all was going according to plan,” says Andrea.

Over time, it is hoped that hospitals will reevaluate and refine their ordering and inventory management practices. Hospitals may find that they need to order platelets less frequently or on different days of the week.

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