NHS
Blood and Transplant

5-Day Contingency Platelets and recognising bacterial contamination -

An update for clinical and transfusion laboratory staff

NHSBT Clinical & Patient Blood Management teams

Caring Expert Quality

Background

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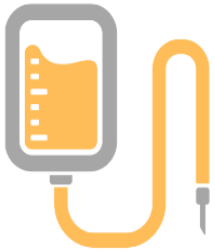
- To mitigate the risk to patients, in the event of NHSBT platelet bacterial screening services being unavailable or in some severe platelet shortage scenarios [Red Alert], we have made 5-day platelet codes available to hospital transfusion laboratories.



- If NHSBT need to issue 5-day platelets to hospitals as a short-term measure, all platelet components be impacted, and **will not** have been bacterial screened prior to release.

- This temporary change will result in NHSBT reverting to the 5-day platelet component we had in place, prior to introduction of the BacT/ALERT bacterial screening process in early 2011.
- The decision by NHSBT to activate issue of 5-day platelets will be made by weighing the potential risk of patients receiving un-screened platelets, against the potential risk of patients being harmed because no platelets are available.

- This contingency measure has been approved by MHRA. All other NHSBT Quality Assurance measures to reduce the risk of bacterial contamination will remain in place.

Risk

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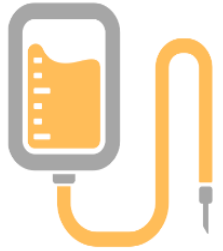
- Due to their storage temperature [22^{0}C ± 2^{0}C] platelets are more at risk of bacterial contamination than refrigerated and frozen components.



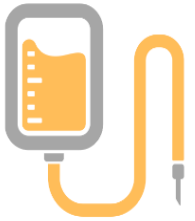
- Since the introduction of screening, we have closely monitored how many platelet packs have had evidence of bacterial contamination, and the types of bacteria isolated from these packs.
- Using the current system platelets are sampled at least 36 hours post donation and then released for issue as negative to date after 6 hrs of monitoring on the bacterial screening machine (BacTAlert) machine. **With bacterial screening platelets have a shelf life of 7 days whereas this is reduced to 5 days without screening.**

- Current confirmed positive rates of contamination have been relatively constant at 0.02% and 0.08% of apheresis and pooled platelets packs, respectively. When also taking into account those results that cannot be confirmed, overall rates are stable at 0.06% for apheresis platelets and 0.15% for pooled platelets.

- In the absence of bacterial screening the risk of a transfusion-transmitted infection remains low, but this additional risk reduction measure will not be in place.

Incidence

Since the introduction of screening, we have detected a range of bacteria, including organisms most commonly associated with the skin, oral cavity and gut.



- Current confirmed positive rates of contamination using bacterial screening have been relatively constant at 0.02% and 0.08% of apheresis and pooled platelets packs respectively. Bacterial screening is very effective, but a small number of packs have been falsely negative, this is a particular problem with *Staphylococcus aureus.*

- **In the absence of bacterial screening the risk of a transfusion-transmitted infection [TTI] therefore remains low.**
- Most bacteria isolated from packs are slow growing and usually found in the deeper layers of skin despite skin cleansing e.g. Cutibacteria. These have not been associated with transfusion-transmitted infection. About 80% of the bacteria isolated from pooled platelets will fall into this group and around 65% for apheresis platelets.

- Other common bacteria isolated from pooled platelets include coagulase negative staphylococci and other skin-associated organisms whereas a more varied range of bacteria are cultured from apheresis platelets including organisms usually found in the oropharynx and gut.

Recognising bacterial contamination of platelets

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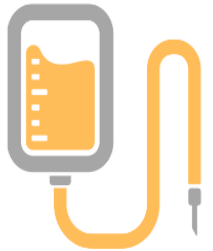
- NHSBT recognise that Hospitals will already have existing processes/procedures in place, that include a **visual check** of blood components. These important checks being done prior to issue from the laboratory and at the final checking stage with a patient.



- **If a Red Alert for platelets is activated or NHSBT platelet bacterial screening services are unavailable, and it is necessary for NHSBT to issue 5-day contingency platelets:**
  - It will be important to have increased vigilance when visually checking platelet components prior to issue / administration.
  - Think about human factors – The majority of clinical and laboratory staff will never have seen a contaminated platelet component or been aware of this type of incident occurring where they work.
  - If working clinically, all staff administering platelets need to be aware of the signs and symptoms of possible bacterial contamination.
  - Re-visit your hospital Transfusion guidelines or laboratory SOP if you need to – **If in doubt escalate to your Hospital Transfusion Consultant, Practitioner or Registrar.**

Recognising bacterial contamination of platelets

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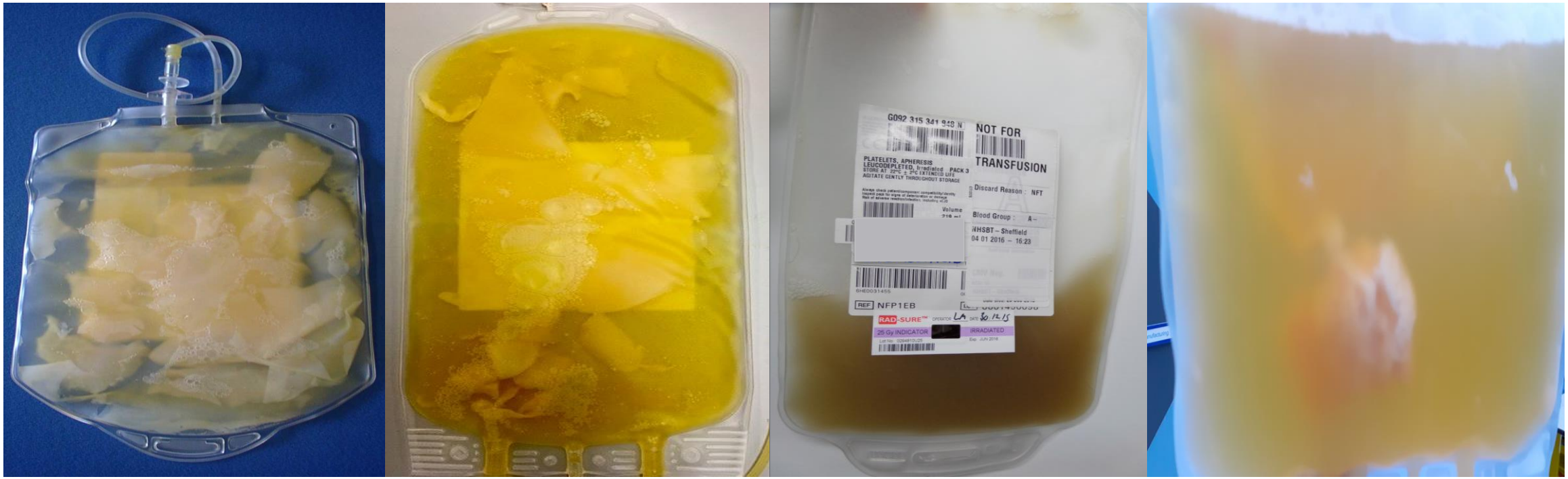
- Indications of contamination in platelets include, the unit being discoloured, turbid (cloudy) or with large clumps/aggregates. **Check every platelet unit** visually for these signs and any leaking/ damage to pack. Some examples of abnormal platelets are shown below, but **if in doubt, do not start the transfusion,** and escalate to your local transfusion team, who will notify NHSBT and start the investigation process.



Recognising bacterial contamination of platelets

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- Clinical features suggesting the possibility of reaction due to bacterial contamination of platelets, can include - high fever [typically ≥ 2^0C above baseline], rigors, severe chills, tachycardia, hypotension, dyspnoea, nausea and vomiting, or circulatory collapse during or soon after transfusion.
- There may be rapidly evolving shock as a result of sepsis.
- It's important to note that not all contaminated platelets packs will be visually abnormal. If a patient develops signs and symptoms that could be indicative of bacterial transfusion transmitted infection, during or following a platelet transfusion, this needs to be investigated as a potential cause.
- In cases of suspected sepsis due to bacterial contamination of platelets, follow your local guidelines and procedures for management of transfusion reactions / the deteriorating patient/ sepsis pathway. Escalate and call for help as needed.

Reporting of reactions or platelet abnormalities

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- Inform your hospital Transfusion laboratory. The implicated unit must be sealed and returned to the transfusion laboratory, who will initiate steps for further investigation & culture of the unit by NHSBT.

- Any abnormalities seen in platelet units and/ or serious adverse reactions, which are possible cases of bacterial TTI, must be reported to NHSBT as soon as possible. This will enable recall of any associated packs and further investigation as indicated.

- Reporting is done by following the NHSBT procedure for **reporting suspected bacterial TTI** and/ or **recall process**. Your hospitals part in the recall process will be managed by the hospital transfusion laboratory/ team, but they will need input from the patient's clinical team to complete the required paperwork.

- All suspected cases of cases of bacterial TTI must be reported externally to the MHRA and Serious Hazards of Transfusion [SHOT] scheme, as well as being reported within your hospital, with duty of candour being undertaken where indicated. The reporting process is also set out in the **[SHOT] Definitions** document.

- Reporting to the MHRA and SHOT will be done by a member of your hospital transfusion team.

Further information

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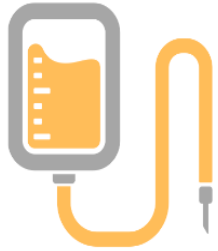
- For further information contact your local Hospital Transfusion Team or regional NHSBT Patient Blood Management Practitioner.



With acknowledgement to:

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