# SHOT Bite No 9:
# Component compatibility

SHOT Serious Hazards of Transfusion

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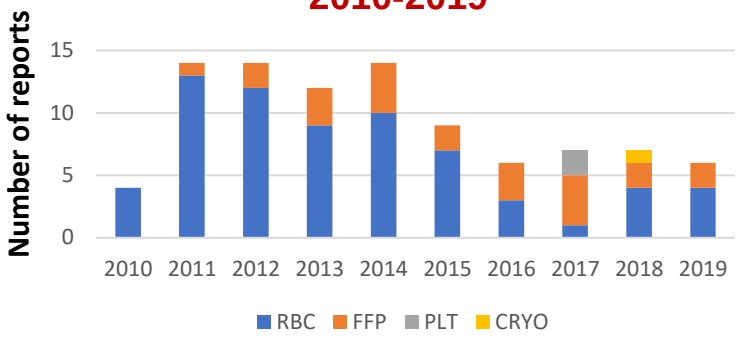
This SHOT Bite is for guidance only and should not replace the local transfusion policy.

## Preventing ABO-incompatible (ABOi) transfusions

SHOT continues to receive reports of errors where the differences between the component issued and that requested have not been recognised. ABOi transfusions are serious incidents with the potential for significant morbidity and mortality, that are wholly preventable, due to an avoidable breakdown in procedures. Many of these errors are detectable during a full and accurate bedside check. The figure shows the ABOi events for all components from 2010-2019.

Both laboratory and clinical staff should have the knowledge to check that the correct component has been selected AND that it is compatible with the patient during the component selection, collection and administration stages.

### ABO-incompatible transfusions 2010-2019




From 2010-2019 there were **2 deaths** and **16 cases of major morbidity** due to ABOi transfusions

Positive patient identification using a pre-prepared transfusion request form, checked verbally with the patient and against the patient's identification band, would identify discrepancies in patient demographics prior to venepuncture

## Key Messages and Recommendations

Collection of blood components remains a critical step in the transfusion process and robust procedures should to be in place to ensure that necessary checks are made

When selecting O D-positive red cells for transfusion to O D-negative individuals it is important to check the patient for contraindications in addition to age and childbearing potential e.g. a history of anti-D or if the patient is transfusion-dependent

A check of serology and blood components issued by lone workers at the next available opportunity may identify errors before the patient is put at risk

It is essential that staff members are adequately trained and competency-assessed before they are expected to perform any task

Laboratory staff should discuss requests with clinicians if they have any concerns over the appropriateness of the request

Laboratory information management systems (LIMS) should prevent ABO-incompatible blood components being issued, especially in an emergency when the patient's blood group is unknown

A robust checking process at the administration step immediately prior to transfusion remains a critical step to support prevention of transfusion of ABOi blood components

The SHOT and Patient Blood Management video regarding pre-administration bedside checking can be found at https://www.youtube.com/watch?v=vhhgltwyk5M#action=share

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## Blood Group Compatibility Chart

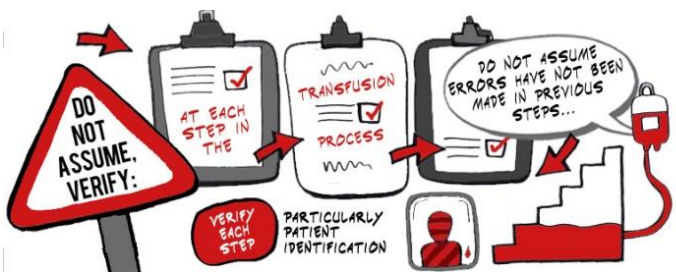
| Recipient blood group | Compatible donor group | | | |
|---|---|---|---|---|
| | Red Blood Cells | Platelets | Fresh Frozen Plasma | Cryoprecipitate |
| A | A, O | 1st Choice A<br>2nd Choice AB**<br>3rd Choice B** or O | 1st Choice A<br>2nd Choice AB**<br>3rd Choice B* | 1st Choice A<br>2nd Choice B* |
| B | B, O | 1st Choice B**<br>2nd Choice AB**<br>3rd Choice A or O | 1st Choice B<br>2nd Choice AB**<br>3rd Choice A* | 1st Choice B<br>2nd Choice A* |
| AB | AB, A, B, O | 1st Choice AB**<br>2nd Choice A or B*/**<br>3rd Choice O | 1st Choice AB**<br>2nd Choice A*<br>3rd Choice B* | 1st Choice AB**<br>2nd Choice A*<br>3rd Choice B* |
| O | O | 1st Choice O<br>2nd Choice A or B**<br>3rd Choice AB** | 1st Choice O<br>2nd Choice A<br>3rd Choice B<br>4th Choice AB** | 1st Choice O<br>2nd Choice A<br>3rd Choice B |

*Tested and negative for high titre anti-A and anti-B. **Not routinely available

## Overview of different blood components

| Component | Red blood cells | Fresh frozen plasma | Platelets | Cryoprecipitate |
|---|---|---|---|---|
| **What it looks like** |  |  |  |  |
| **Storage conditions** | 4 ±2°C | <-25°C<br>(4 ±2°C once thawed) | 22 ± 2°C with agitation<br>Do not refrigerate | <-25°C<br>(store at ambient temperature once thawed) |
| **Shelf life** | Up to 35 days from donation | 36 months (24 hours after thawing)<br><br>5 days post thawing (unexpected major haemorrhage use only) | 7 days (if bacteriologically screened) | 36 months (use immediately and within 4 hours of thawing)<br><br>Do not refrigerate |
| **Average volume (mL)** | Adult: 200-340mL<br>Neonatal: Prescribe up to 20mL/kg for top up | Adult: 274mL<br>Neonatal: Prescribe up to 12-15mL/kg | 300mL (pooled buffy coats)<br>199mL (apheresis donation) | 43mL (packs)<br>189mL (pools) from 5 donors (2 pools = 1 adult therapeutic dose) |

Full UK specifications available at: https://www.transfusionguidelines.org/transfusion-handbook/3-providing-safe-blood/3-3-blood-products

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