

Specialty guides for patient management during the coronavirus pandemic

# Clinical guide for the management of major trauma patients during the coronavirus pandemic

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## National major trauma system

### Principles

The ability to provide high quality care to major trauma patients should be maintained to the greatest possible extent during the coronavirus pandemic, while ensuring that critical resources are preserved as far as possible.

Decisions on limiting care need to be made in the context of current and anticipated future availability of critical resources. These include utilisation of blood stocks, critical care areas, emergency surgery and CT scanners. Capacity should be assessed locally and across the major trauma network.

Ensure key staff members are aware of the local and regional status of these resources, by at least daily status updates.

For all patients, decisions on ceilings of care should be broadly in line with those used for coronavirus and non-coronavirus patients, applied on a case-by-case basis and following local guidelines. Where possible, involve patients and relatives in clinical decision-making.

### Blood management

**Major trauma haemorrhage is protected from all but the most extreme shortages, and as far as possible hospitals should manage patients according to current guidance.**

The status of blood stocks will be informed by NHS Blood and Transplant, which will operate a green/amber/red system. Shortages expected are focused on red blood cell (RBC) transfusions, with possible shortages of platelets in some circumstances.

**STOCKS GREEN:** *Normal circumstances where supply meets demand: use standard major haemorrhage protocols.*

**STOCKS AMBER:** *Reduced availability of blood for a short or prolonged period: adjust empiric major haemorrhage care as follows:*

- Use a plasma-first approach and give 2 to 4 units fresh frozen plasma (FFP) as first transfusion product.
- Use an inverse ratio of FFP to Blood (2 FFP to 1 RBC).  
*(FFP:RBC ratios may be flexed between 3:1 and 1:3 depending on supply, as guided by local and regional transfusion services).*
- If platelet supply is restricted, give the first pool of platelets at 8 RBC units and every 8 units of RBCs thereafter.

**STOCKS RED:** *Severe, prolonged shortages: repeatedly assess futility during major haemorrhage resuscitation.*

- At start of a major haemorrhage resuscitation, and after each 8 units of RBCs, assess the patient's status and consult with lead clinicians within the resuscitative/operative teams about continued transfusion therapy and overall futility.
- Involve consultant in transfusion medicine in decision-making as early as possible.
- Continue haemostatic measures in the Amber phase.
- After each 8 units of RBCs, **additionally** give a therapeutic dose of both prothrombin complex concentrate (1000u) and fibrinogen concentrate (4g).  
(cryoprecipitate 2 pools may be used instead of fibrinogen concentrate if not available)

### **AT ALL LEVELS:**

- Use permissive hypotensive approach in all groups. Maintain central pulse at minimum while bleeding.
- Make all efforts not to revert to crystalloid or colloid resuscitation as this will increase bleeding and require more blood products.
- Aggressively check for coagulopathy (eg after every 4 to 8 units of RBCs) and correct early.

### **Critical care resources**

At all times understand current and near-future local and regional critical care bed capacity and capability.

Ensure ceilings of care are discussed on admission or as early as possible with families and relatives for all patients. This should be based on local guidance.

Where ceilings of care have been set for critical care admissions, local consideration should be given to applying the same threshold for trauma patients.

These decisions should be made in the context of the patient, their injuries and future prognosis, and local critical care availability (eg where there is differential critical care availability when non-coronavirus patients are being cohorted in a different critical care area).

### **Urgent and emergency surgery**

Capability for performing acute trauma resuscitation and resuscitative procedures should be maintained at all receiving trauma units and major trauma centres.

Capability for performing emergency life and limb-threatening surgery should be maintained at all major trauma centres.

Consider delayed, non-operative treatment (eg interventional radiology) or conservative approaches for the management of injuries (eg immobilisation instead of fixation for fracture management; delayed management of maxillofacial injuries).

See specialty guidance: <https://www.england.nhs.uk/coronavirus/secondary-care/other-resources/specialty-guides/>

## **Radiology resources**

Where possible, minimise the use of CT scanning during the coronavirus event, to maximise capacity and avoid delays for deep cleaning.

**Emergency department:** Whole-body CT remains useful as a tool to rapidly identify all injuries and avoid multiple trips around the hospital for patients during their inpatient stay. Mechanism of injury alone should not be used as an indication for CT.

**Emergency department:** When CT availability is restricted, increase use of plain film and ultrasound evaluation of trauma patients, augmented by serial clinical examination.

Minimise transport of patients around the hospital by limiting use of imaging for inpatients. Increase reliance on serial clinical examination, augmented by bedside investigations ultrasound and plain films. Discuss all requests for follow-up/repeat CT with relevant specialty and radiology consultants.