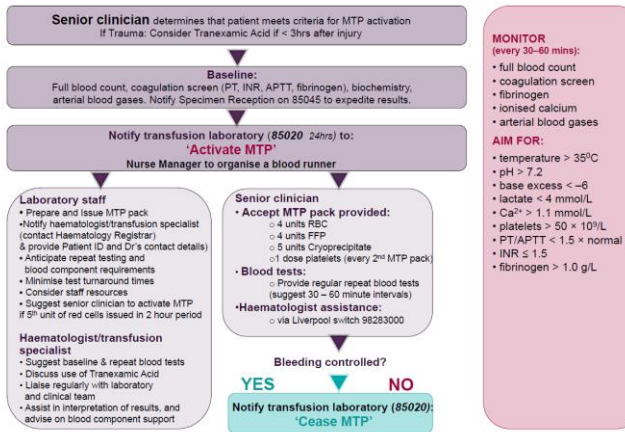


Massive transfusion protocol

The MTP should be activated for patients with any of the following:

- Actual or anticipated transfusion of 4 units of Red Blood Cells (RBC) in less than 4 hrs, + haemodynamically unstable, +/- anticipated ongoing bleeding
- Severe thoracic, abdominal, pelvic or multiple long bone trauma
- Major obstetric, gastrointestinal or surgical bleeding.

Massive Transfusion Protocol (MTP) LIVERPOOL



Patient management:

- Haemorrhage control: early consultant input to control bleeding
 - o Identify cause
 - o Initial measures: compression, tourniquet, packing
 - o Surgical assessment: early surgery or angiography to stop bleeding

- Tolerate permissive hypotension (BP 80–100 mmHg systolic) until active bleeding controlled. A higher target BP is appropriate in head injury and pregnancy.
- Avoid excessive crystalloid.
- Prevent or correct hypothermia: Active patient warming and fluid warming are essential.
- Monitor core temperature - either rectal or nasopharyngeal.
- Prevent or correct hypocalcaemia: check Ca⁺⁺ regularly and replace as required.
- Haematological Tests immediately then every 30 – 60 mins: FBC, Coag Screen, Fibrinogen, Biochemistry.
 - Send specimens at regular intervals but do not delay transfusion of blood products while waiting for results.
 - Inform laboratory that urgent coagulation testing is required with results rung through to the point of care.
- Arterial blood gas analysis including Ca⁺⁺ immediately then every 30 – 60 mins.
- Consider cell-saver if personnel and equipment available.

Resuscitative Aims for Massive Haemorrhage:

- Note: Do not use haemoglobin alone as a transfusion trigger. Haemoglobin results should be interpreted in the context of haemodynamic status, organ perfusion and tissue oxygenation.
- Aim for:
 - INR <1.5; PT less than 16 seconds; a PTT less than 42 seconds.
 - Fibrinogen greater than 1.0 g/L
 - Platelets greater than 50 × 10⁹/L
 - pH 7.35 - 7.45
 - Core Temperature greater than 35.5 degrees centigrade
 - Base Excess greater than -3.0
 - Poor prognostic values: SBP <70 mmHg, Temp <34° C, Base Excess <-6, pH <7.1.