****

# Trauma haemorrhage simulation training checklist

**This document is for staff who manage critically bleeding trauma patients in tertiary trauma centres and smaller secondary hospitals. It is one of four resources to support the implementation of guidelines and standardise the management of critical bleeding. The resources are** [**available online in editable or print formats here**](https://www.hqsc.govt.nz/our-programmes/national-trauma-network/publications-and-resources/publication/4398)**.**

## Purpose

Simulation training creates an opportunity to understand and support system and process change, while considering site-specific challenges and human factors that can influence how the national best-practice [critical haemorrhage bundle of care](https://www.hqsc.govt.nz/our-programmes/national-trauma-network/publications-and-resources/publication/4177/) guidelines are applied within an organisation.

This checklist is intended to be used as a guide for running an in-situ simulation of a critically haemorrhaging trauma patient in an emergency department (ED). Some criteria may not be relevant at every locality depending on infrastructure.

## Scenario

This simulation checklist reflects a trauma patient who arrives at the ED but does not meet Code Crimson activation criteria, and/or the signs of critical haemorrhage are hidden/not recognised until completion of the primary survey.

The Code Crimson activation criteria is:

* ABC Score greater than 2
* HR ≥ 120 bpm
* Systolic BP ≤ 90mmHg
* Penetrating injury (thoracic, abdominal or junctional)
* E-FAST scan positive

**or**

* Received pre-hospital blood products

|  |  |
| --- | --- |
| **Traumatic critical haemorrhage simulation checklist** | **Comments** |
| **Activation and preparation** |
| Are trauma call criteria met on ambulance pre-arrival notification? | Y [ ]  | N [ ]  | N/A [ ]  | Click or tap here to enter text. |
| Insert service-specific trauma call criteria here: Click or tap here to enter text. |
| If patient does not arrive via ambulance, are trauma call criteria met on arrival to ED? | Y [ ]  | N [ ]  | N/A [ ]  | Click or tap here to enter text. |
| Insert service-specific trauma call criteria here: Click or tap here to enter text. |
| ED charge nurse or designated staff member activates trauma call | Y [ ]  | N [ ]  | N/A [ ]  | Click or tap here to enter text. |
| Trauma team roles are allocated before patient arrives (as follows) | Y [ ]  | N [ ]  | N/A [ ]  | Click or tap here to enter text. |
| **Team leader:*** Ensures the following teams are contacted with ETA if not already notified:
* Intensive care
* Trauma/surgical registrar
* Blood bank
* Radiology
* Orderly

(This list may vary, adapt to local protocols) | Y [ ]  | N [ ]  | N/A [ ]  | Click or tap here to enter text. |
| **Airway doctor:*** Makes airway management plan
 | Y [ ]  | N [ ]  | N/A [ ]  | Click or tap here to enter text. |
| **Airway nurse/anaesthetic technician:*** Sets up airway equipment
* Checks suction
 | Y [ ]  | N [ ]  | N/A [ ]  | Click or tap here to enter text. |
| **Procedure doctor:*** Ultrasound machine at bedside
 | Y [ ]  | N [ ]  | N/A [ ]  | Click or tap here to enter text. |
| **Procedure nurse:*** Venous access and blood sampling supplies prepared for trauma bloods
* Fluid warmer primed and ready for use
* Rapid infuser primed and ready for use or pressure bags at bedside (if available)
 | Y [ ]  | N [ ]  | N/A [ ]  | Click or tap here to enter text. |
| Staff:* Don appropriate PPE
 | Y [ ]  | N [ ]  | N/A [ ]  | Click or tap here to enter text. |
| **STOP*** Team briefing of roles and responsibilities
* Review airway checklist
 | Y [ ]  | N [ ]  | N/A [ ]  | Click or tap here to enter text. |
| **ED management** |
| **Time of ED arrival:** Click or tap here to enter text. |
| Take handover from ambulance personnel | Y [ ]  | N [ ]  | N/A [ ]  | Click or tap here to enter text. |
| Confirm if TXA has been administered pre-hospital  | Y [ ]  | N [ ]  | N/A [ ]  | Click or tap here to enter text. |
| Confirm estimated blood loss volume | Y [ ]  | N [ ]  | N/A [ ]  | Click or tap here to enter text. |
| Initiate primary survey | Y [ ]  | N [ ]  | N/A [ ]  | Click or tap here to enter text. |
| Obtain at least two points of IV access | Y [ ]  | N [ ]  | N/A [ ]  | Click or tap here to enter text. |
| Take trauma bloods as per protocol | Y [ ]  | N [ ]  | N/A [ ]  | Click or tap here to enter text. |
| Perform bedside E-FAST | Y [ ]  | N [ ]  | N/A [ ]  | Click or tap here to enter text. |
| Activate Code Crimson/accelerated treatment pathway if the patient meets criteria | Y [ ]  | N [ ]  | N/A [ ]  | Click or tap here to enter text. |
| Blood bank notified of need for emergency blood units  | Y [ ]  | N [ ]  | N/A [ ]  | Click or tap here to enter text. |
| Pre-transfusion bedside patient and product identification check is performed before administration of any component | Y [ ]  | N [ ]  | N/A [ ]  | Click or tap here to enter text. |
| Emergency blood units arrive at the bedside within 10 minutes(Type-specific or O negative if patient has not yet had G&S completed) | Y [ ]  | N [ ]  | N/A [ ]  | Click or tap here to enter text. |
| Limit or stop crystalloid fluids | Y [ ]  | N [ ]  | N/A [ ]  | Click or tap here to enter text. |
| Initiate secondary survey | Y [ ]  | N [ ]  | N/A [ ]  | Click or tap here to enter text. |
| Temperature measured within 15 minutes of arrival | Y [ ]  | N [ ]  | N/A [ ]  | Click or tap here to enter text. |
| Actively warm the patient | Y [ ]  | N [ ]  | N/A [ ]  | Click or tap here to enter text. |
| Actively warm IV fluids/blood products | Y [ ]  | N [ ]  | N/A [ ]  | Click or tap here to enter text. |
| * Give 2 g dose of TXA within 3 hours of injury
* If 1 g TXA given pre-hospital, consider additional 1 g IV bolus
 | Y [ ]  | N [ ]  | N/A [ ]  | Click or tap here to enter text. |
| Team leader/designated staff member (‘MTP guardian’) rings blood bank and states they are activating the MTP | Y [ ]  | N [ ]  | N/A [ ]  | Click or tap here to enter text. |
| Team leader or designated staff member/MTP guardian calls for each box as required | Y [ ]  | N [ ]  | N/A [ ]  | Click or tap here to enter text. |
| Consider reversal of anticoagulant drugs if indicated | Y [ ]  | N [ ]  | N/A [ ]  | Click or tap here to enter text. |
| **Decision-making and definitive care** |
| Senior surgeon confirms plan for destination of definitive haemorrhage control | Y [ ]  | N [ ]  | N/A [ ]  | Click or tap here to enter text. |
| Interventional radiologist consulted for options of interventional radiology if service available | Y [ ]  | N [ ]  | N/A [ ]  | Click or tap here to enter text. |
| Senior anaesthetist/intensivist communicates plan for operating room availability and transfer | Y [ ]  | N [ ]  | N/A [ ]  | Click or tap here to enter text. |
| ED charge nurse or primary nurse provides brief handover to operating room nursing staff | Y [ ]  | N [ ]  | N/A [ ]  | Click or tap here to enter text. |
| Patient begins movement from ED to area for definitive haemorrhage control within 30 to 60 minutes | Y [ ]  | N [ ]  | N/A [ ]  | Click or tap here to enter text. |

Abbreviations: ABC = assessment of blood consumption; BP = blood pressure; bpm = beats per minute; ED = emergency department; E-FAST = extended focused assessment with sonography for trauma; ETA = estimated time of arrival; G&S = blood group and antibody screening; HR = heart rate; ICU = intensive care unit; IV = intravenous; MTP = massive transfusion protocol; PPE = personal protective equipment; TXA = tranexamic acid

Providers are free to edit and adapt this document as needed, including addition of provider logo.

If you have any suggested changes or areas for improvement you would like considered for inclusion in the national best practice critical bleeding bundle of care, please email help@majortrauma.nz.

Published in January 2022 by the Health Quality & Safety Commission, PO Box 25496, Wellington 6146, tel 04 901 6040, email info@hqsc.govt.nz.