

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: 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 guidelines (www.hqsc.govt.nz/our-programmes/national-trauma-network/publications-and-resources/publication/4177) 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 \geq 120 bpm
 - Systolic BP \leq 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 <input type="checkbox"/>	N <input type="checkbox"/>	N/A <input type="checkbox"/>	
Insert service-specific trauma call criteria here:				
If patient does not arrive via ambulance, are trauma call criteria met on arrival to ED?	Y <input type="checkbox"/>	N <input type="checkbox"/>	N/A <input type="checkbox"/>	
Insert service-specific trauma call criteria here:				
ED charge nurse or designated staff member activates trauma call	Y <input type="checkbox"/>	N <input type="checkbox"/>	N/A <input type="checkbox"/>	
Trauma team roles are allocated before patient arrives (as follows)	Y <input type="checkbox"/>	N <input type="checkbox"/>	N/A <input type="checkbox"/>	
Team leader: <ul style="list-style-type: none"> • Ensures the following teams are contacted with ETA if not already notified: <ul style="list-style-type: none"> – Intensive care – Trauma/surgical registrar – Blood bank – Radiology – Orderly (This list may vary, adapt to local protocols)	Y <input type="checkbox"/>	N <input type="checkbox"/>	N/A <input type="checkbox"/>	
Airway doctor: <ul style="list-style-type: none"> • Makes airway management plan 	Y <input type="checkbox"/>	N <input type="checkbox"/>	N/A <input type="checkbox"/>	
Airway nurse/anaesthetic technician: <ul style="list-style-type: none"> • Sets up airway equipment • Checks suction 	Y <input type="checkbox"/>	N <input type="checkbox"/>	N/A <input type="checkbox"/>	

Procedure doctor: • Ultrasound machine at bedside	Y <input type="checkbox"/>	N <input type="checkbox"/>	N/A <input type="checkbox"/>	
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 <input type="checkbox"/>	N <input type="checkbox"/>	N/A <input type="checkbox"/>	
Staff: • Don appropriate PPE	Y <input type="checkbox"/>	N <input type="checkbox"/>	N/A <input type="checkbox"/>	
<u>STOP</u> • Team briefing of roles and responsibilities • Review airway checklist	Y <input type="checkbox"/>	N <input type="checkbox"/>	N/A <input type="checkbox"/>	
ED management				
Time of ED arrival:				
Take handover from ambulance personnel	Y <input type="checkbox"/>	N <input type="checkbox"/>	N/A <input type="checkbox"/>	
Confirm if TXA has been administered pre-hospital	Y <input type="checkbox"/>	N <input type="checkbox"/>	N/A <input type="checkbox"/>	
Confirm estimated blood loss volume	Y <input type="checkbox"/>	N <input type="checkbox"/>	N/A <input type="checkbox"/>	
Initiate primary survey	Y <input type="checkbox"/>	N <input type="checkbox"/>	N/A <input type="checkbox"/>	
Obtain at least two points of IV access	Y <input type="checkbox"/>	N <input type="checkbox"/>	N/A <input type="checkbox"/>	
Take trauma bloods as per protocol	Y <input type="checkbox"/>	N <input type="checkbox"/>	N/A <input type="checkbox"/>	
Perform bedside E-FAST	Y <input type="checkbox"/>	N <input type="checkbox"/>	N/A <input type="checkbox"/>	
Activate Code Crimson/accelerated treatment pathway if the patient meets criteria	Y <input type="checkbox"/>	N <input type="checkbox"/>	N/A <input type="checkbox"/>	
Blood bank notified of need for emergency blood units	Y <input type="checkbox"/>	N <input type="checkbox"/>	N/A <input type="checkbox"/>	

Pre-transfusion bedside patient and product identification check is performed before administration of any component	Y <input type="checkbox"/>	N <input type="checkbox"/>	N/A <input type="checkbox"/>	
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 <input type="checkbox"/>	N <input type="checkbox"/>	N/A <input type="checkbox"/>	
Limit or stop crystalloid fluids	Y <input type="checkbox"/>	N <input type="checkbox"/>	N/A <input type="checkbox"/>	
Initiate secondary survey	Y <input type="checkbox"/>	N <input type="checkbox"/>	N/A <input type="checkbox"/>	
Temperature measured within 15 minutes of arrival	Y <input type="checkbox"/>	N <input type="checkbox"/>	N/A <input type="checkbox"/>	
Actively warm the patient	Y <input type="checkbox"/>	N <input type="checkbox"/>	N/A <input type="checkbox"/>	
Actively warm IV fluids/blood products	Y <input type="checkbox"/>	N <input type="checkbox"/>	N/A <input type="checkbox"/>	
<ul style="list-style-type: none"> • 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 <input type="checkbox"/>	N <input type="checkbox"/>	N/A <input type="checkbox"/>	
Team leader/designated staff member ('MTP guardian') rings blood bank and states they are activating the MTP	Y <input type="checkbox"/>	N <input type="checkbox"/>	N/A <input type="checkbox"/>	
Team leader or designated staff member/MTP guardian calls for each box as required	Y <input type="checkbox"/>	N <input type="checkbox"/>	N/A <input type="checkbox"/>	
Consider reversal of anticoagulant drugs if indicated	Y <input type="checkbox"/>	N <input type="checkbox"/>	N/A <input type="checkbox"/>	
Decision-making and definitive care				
Senior surgeon confirms plan for destination of definitive haemorrhage control	Y <input type="checkbox"/>	N <input type="checkbox"/>	N/A <input type="checkbox"/>	
Interventional radiologist consulted for options of interventional radiology if service available	Y <input type="checkbox"/>	N <input type="checkbox"/>	N/A <input type="checkbox"/>	

Senior anaesthetist/intensivist communicates plan for operating room availability and transfer	Y <input type="checkbox"/>	N <input type="checkbox"/>	N/A <input type="checkbox"/>	
ED charge nurse or primary nurse provides brief handover to operating room nursing staff	Y <input type="checkbox"/>	N <input type="checkbox"/>	N/A <input type="checkbox"/>	
Patient begins movement from ED to area for definitive haemorrhage control within 30 to 60 minutes	Y <input type="checkbox"/>	N <input type="checkbox"/>	N/A <input type="checkbox"/>	

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.

**Te Kāwanatanga
o Aotearoa**

New Zealand Government