Trauma Code Crimson at Auckland City Hospital

WHAT IS IT AND HAS IT MADE A DIFFERENCE?

DR MW FRIEDERICKSEN

INJURY 2016
No conflicts of interest
Prior to Trauma Code Crimson at ACH

- Standardized Trauma call Criteria- 777
  - Trauma Fellow and Consultants
  - General Surgical Registrar
  - DCCM Registrar
  - ED Consultant and Registrar
What is Trauma Code Crimson?
What is Trauma Code Crimson at ACH?

- System to identify those trauma patients who are at high risk of exsanguination, and getting them rapid access urgent surgical or radiological intervention to control bleeding

- Improve the chain of survival
Collaboration

- Auckland HEMS
- Emergency Medicine
- Trauma Service
- General Surgery
- Anesthesia
- Blood Bank
- Radiology and Interventional Radiology
How do we attempt to identify these patients?

- Assessment of Blood Consumption score (ABC)
  - Score to try and predict those patients who are most likely going to require MTP following trauma

Early Prediction of Massive Transfusion in Trauma: Simple as ABC (Assessment of Blood Consumption)?

Timothy C. Nunez, MD, Igor V. Voskresensky, MD, Lesly A. Dossett, MD, MPH, Ricky Shinall, BS, William D. Dutton, MD, and Bryan A. Cotton, MD


Multicenter Validation of a Simplified Score to Predict Massive Transfusion in Trauma

**Trauma Code Crimson**

**Trauma Call Criteria met on R40**

- Penetrating mechanism (1)
- Systolic BP <90mmHg (1)
- Pulse rate >120 (1)
- +ve Trauma E-FAST Ultrasound Score (1)

**Score 2, 3 or 4**

- Emergency Department (ED) Charge Nurse or Specialist organize:
  1. 777 Trauma Code Crimson with expected time of arrival (ETA) and Adult ED
- ED Charge Nurse to ensure the following teams are contacted with, **Trauma Code Crimson and ETA**:
  1. Anaesthetist 021496374
  2. Level 8 Nursing coordinator 021492086
  3. Blood bank 24015
  4. Radiology Registrar 021412581
- Surgical Registrar to contact on call Surgical Consultant
- If Emergency Department Specialist not in hospital to be contacted by Charge Nurse

**Score 0 or 1**

- If Trauma call Criteria met:
  777 Trauma Call with ETA and Adult ED
1. Attend the Trauma patient in the Resuscitation room

2. Along with the ED Charge Nurse ensure that all additional teams have been contacted

3. If you are the Trauma Team Leader follow the action card for Trauma Team Leader and ED Charge Nurse

4. If you have come in from home and are not the Trauma Team Leader
   a. Introduce yourself to the Trauma Team leader
   b. Help with ongoing resuscitation and decision making for this patient
   c. Liaise closely with the Trauma Team Leader, Surgical and Anaesthetic Consultants to facilitate optimal management of the patient

5. Key to optimal patient care and outcome is optimal Team Work

Emphasis on
   a. Team work
   b. Early Surgical and radiological intervention
   c. Early use of blood and blood products
   d. Avoid hypothermia, acidosis and coagulopathy
ADHB Adult Code Crimson MTP

Team Leader Responsibilities

- Team leader should be a trauma team member
- Notify Coag Lab and send Coag requests on the Labplus Urgent form (orange border)
- Activate protocol by ringing Blood Bank (ext 24015) and say "I am activating the "Code Crimson MTP"
- Call for each box as required
- Make a decision to cease MTP and contact Blood Bank

Blood Bank Responsibilities

- Ensure X-match sample processed ASAP after O-neg release
- Notify NZBS Medical Officer after issuing MTP Box Four
- Thaw next box in advance and await request
- Ensure supply of platelets

Contacts

- Blood Bank - Ext 24015
- Coagulation Lab - Ext 22069
- Level 8 Anaesthetist - 021 496 374

REQUEST, DELIVER AND TRANSFUSE AS BELOW:

MTP BOX ONE
2U RBC and 4G Fibrinogen concentrate

MTP BOX TWO
4 RBC
4 FFP
3U Cryoprecipitate

MTP BOX THREE
4 RBC
4 FFP
3U Platelets

MTP BOX FOUR
4 RBC
4 FFP
3U Cryoprecipitate

and alternate 3 & 4...

Check Coags / Platelets / FBC
ABGs / Ca^^

Massive bleeding (ABC Score ≥ 2/4)

Consider Tranexamic acid 1g

Ensure delivery of X-match specimen to Blood Bank

Give 3 Units O-neg or type specific RBC

Ring Blood Bank to Activate Code Crimson MTP

Repeat every 30 min

Check Coags / Platelets / FBC
ABGs / Ca^^
What has happened since introduction?

- 26 August 2015 – currently
- 13 patients
  - 10 patients complete data
- 9 Survivors vs 4 deaths
Have we activated CC appropriately?

- **Called**
  - Criteria met: 5
  - Criteria not met: 2

- **Not called**
  - Criteria met: 3
ABC scores
When have these patients arrived in ED

Day and Time

- Monday
- Tuesday
- Wednesday
- Thursday
- Friday
- Saturday
- Sunday

Day
0800-11759
1800-2229
2230-0759
Fluids in ED

- RBC
- Fibrinogen Concentrate
- FFP
- Cryoprecipitate
- Crystalloid

Number
Procedures within 6 hours

Procedure within 6 hours

ERT  Laparotomy  Surgical airway  Amputation  Angiography  Sternotomy  Nil  Pelvic ex fix

Called  Not Called
Outcomes

<table>
<thead>
<tr>
<th>Hospital Survivors</th>
<th>Deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>40%</td>
<td>60%</td>
</tr>
</tbody>
</table>
Cause of Death

- Neurological: 75%
- Exangination: 25%
Systems Issues highlighted

- Crowd control
- Nurse task saturation
- No orderly available to go to blood blank
- Activating too early
- No access to priority lifts to level 8
- Still too many questions on phone calls
- Use of unfamiliar products
- Deactivation of TCC
Has Trauma Code Crimson made a difference?

YES

YES
Questions?

MARKFR@ADHB.GOV.T.NZ