Guidelines for North Bristol Trust

Penetrating Cardiac Injuries

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Authors:	David Lockey / Ben Walton
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Aims: To Provide a Network Wide Policy for the management of penetrating cardiac injury

INDICATIONS FOR RESUSCITATIVE ED THORACOTOMY

1. Indications for ED resuscitative thoracotomy by TTL in major trauma in adults and to include adolescent penetrating trauma

- TTLS will perform a thoracotomy in penetrating trauma with no pulse but evidence of electrical activity where there has been less than 15 mins loss of output.
- The incision will be left anterolateral (extended to clamshell if required) and the purpose will be to release tamponade and control cardiac bleeding – no other procedures will normally be undertaken
- The thoracotomy will NOT be performed for blunt trauma – thoracic or extrathoracic injuries unless in exceptional circumstances.
- CT Reg and CT Consultant will be called as soon as injury requiring ED thoracotomy identified either by pre hospital alert or on arrival in ED
- Trauma team will be present including General Surgical Registrar

2. Stable penetrating trauma, suspected cardiac tamponade

- Suspected cardiac tamponade but maintaining output on arrival and immediate assessment – move to theatre to await CT team for thoracotomy.
- CT Reg and CT Consultant will be called as soon as injury identified either by pre hospital alert or on primary survey
- TTL to accompany and wait with patient. Prepare for thoracotomy in theatres with theatre staff. TTL to proceed to left anterolateral thoracotomy for relief of tamponade if cardiac output lost before arrival of CT Registrar
- General Surgical Registrar to attend theatre also
- Consultant General Surgeon on call if on site to be notified and immediate assistance requested. If not on site then to be called in from home

3. Penetrating thoracic trauma - Deteriorating patient

- In a patient with suspected cardiac tamponade who quickly deteriorates in the ED resus after arrival, the TTL may proceed to ED thoracotomy based on patient presentation and speed of deterioration.
- CT Reg and CT Consultant will be called as soon as injury identified either by pre hospital alert or on primary survey
- General Surgical Registrar to attend ED
- Consultant General Surgeon on call if on site to be notified and immediate assistance requested

If a TTL if to undertake a resuscitative thoracotomy for penetrating injury and suspected cardiac tamponade assistance will always be requested from other surgical staff on site ie general surgical teams and vascular teams whilst CT team awaited

For an ED thoracotomy the TTL must request assistance from theatres to enable a scrub nurse to assist in the ED and bring any additional equipment needed

There will be 2 types of thoracotomy kit kept in the ED. One will be labelled TTL thoracotomy and carry a limited number of instruments.
In addition a full thoracotomy set will be kept for use by CT team when required.

INDICATIONS TO CALL THE CT TEAM

i) Indications to call CT team pre-arrival of patient

- Trauma call from Pre hospital Emergency service (call CT Registrar and Consultant) or SWAST pre alert indicating significant haemorrhage from cardiothoracic injury SEE CALL OUT MECHANISM A

ii) Other indications to call CT team pre arrival of patient

- Penetrating trauma to torso
- SWAST pre hospital alert suggesting significant blunt thoracic injury

iii) Indications to call CT team after patient arrived

- **Haemodynamically unstable patient with suspected**
  - Penetrating trauma to torso with suspected internal thoracic injury
  - Blunt thoracic injury with associated physiological derangement
  - Acute ECG changes related to myocardial trauma
  - Chest drain inserted for trauma with ongoing air leak or blood loss

iv) Non life threatening cardiothoracic Injury identified during primary or secondary survey:

- The CT reg will be informed of every trauma patient with non life threatening chest injury- blunt or penetrating. Liaison will be between the General Surgical Registrar and CT Reg. If the General Surgical Registrar is in theatres then the TTL may liaise with CT or nominate someone appropriate to do this.
- Contact will be via the normal pager system currently in place.
- The CT Reg will review relevant images.
- The management plan decided in discussion with the CT Registrar will be clearly documented in the notes and contact details for the CT Registrar recorded.
- The drug chart will be completed by the general surgical SHO
- Daily review of in patients with CT injury by CT team
- The CT Registrar will be contacted by the ICU for advice regarding ongoing management of thoracic trauma issues and may be requested to review the patient, other than the daily WR if clinically indicated

5. The mechanism to call the team will be:

EITHER A: CODE RED patients

- A “Code Red” call will result in the CT Registrar being notified via switchboard.
- The instruction will be “Code Red trauma call for cardiothoracics”
- The CT Registrar will immediately inform their Consultant on call.

- There will be no discussion with the TTL about the need to attend. The assumption is that for "Code Red" via HEMS that they leave immediately for SMH
- This call will also apply to non HEMS patients where immediate life threatening thoracic injury, likely to require a thoracotomy, is suspected by the Consultant TTL from the pre hospital alert information or is identified on clinical examination in the primary survey

- CT Registrar and Consultant are to confirm receipt of the call and ETA via TTL mobile 07703 886400 or the ED red phone emergency phone number– 0117 950 6862

OR B: FAST bleep for trauma patient via 2222 mechanism for all other significant cardiothoracic trauma as suspected pre arrival or identified on arrival (as categorised above in ii-iii)

- The Instruction to switchboard will be trauma call Cardiothoracic Registrar
- There will be no discussion with the TTL about the need to attend. The assumption is that they leave urgently for SMH
- CT Registrar to confirm receipt of the call and ETA viaTTL mobile 07703 886400 or the ED red phone emergency phone number– 0117 950 6862

OR C:Non life threatening cardiothoracic Injury identified during primary or secondary survey:

- Contact will be via the **operator** who will bleep the CT Reg

- **For all unstable patients with CT injury the TTL may also call (depending on injuries identified pre hospital or on arrival in the ED)**

General Surgical Registrar +/- General Surgical Consultant
+/- Vascular Registrar

On arrival - CT Registrar or Consultant to go to Bay 1 ED Resus room to manage patient there or be directed to Theatres. They will park vehicle on ED ramp and enter via the ambulance doors.

They will asked to sign in with time of arrival on the trauma sheet for audit purposes as are all other trauma team members

If the TTL changes the "code red trauma call" after arrival and assessment of the patient the CT team will be notified ASAP regarding change, although they may still need to attend within 30 minutes. This contact will be via switchboard direct to mobile phones of the team.

6. **Performance standard for all patients with cardio thoracic injury admitted to ICU**
   - All patients with cardiothoracic injuries will have a named CT consultant providing shared care on ICU
   - Daily review (7/7) of in patients with CT injury by CT team.
   - There is a designated CT Registrar able to provide this cover for trauma patients at the MTCvia switchboard at UHB.
   - The CT registrar will be contacted by the ICU for advice regarding ongoing management of thoracic trauma issues and may be requested to review a patient other than on the daily Ward Round if clinically indicated due to complications or patient deterioration.

7. **Team leadership**
   In the event of the TTL performing a thoractomy – the ED registrar will take over the role of the TTL. However the impact on the ED department is likely to be significant.

The ED consultant on call will be called in and the escalation policy for the ED followed to ensure other ED patients aren't compromised.

8. **Review and governance**
   All thoractomieswill be reviewed in the Major Trauma Centre M&M meetings.

9. **On going CPD/skills update**
   The Trust will provide a yearly update for TTL's including a practical session.
   Additionally General Surgical Registrars and Emergency Medicine Registrars rotating through SMH Major Trauma Centre should have thoracotomy training.