Rapid Resuscitation Transit:

Patient Pathway

On receipt of a HEMS Code Red patient or LAS pre-alert suggesting penetrating wound and haemodynamic instability, the Trauma Team Leader (TTL) should consider whether the patient is likely to require Rapid Resuscitation Transit (RRT) from the Emergency Department (ED) to the operating theatre. This pathway is in place 24/7.

Concept

- The TTL is tasked with ensuring all speciality teams minimise and rationalise their interventions to only those critical steps required prior to transfer to theatre. See action cards for key actions.
- Team members at the bedside should be strictly limited to those with a task set out in the actions below. Both wider scene management and a sense of urgency are key to the success of this pathway.

Inclusion criteria for RRT

- **Absolute:**
  - **Penetrating injury with exsanguination;**
  - **Hard signs of vascular injury;**
  - **Cardiac tamponade – although resuscitative thoracotomy may need to be performed in the ED**
- **Consider:**
  - **Blunt trauma with hypotension not responsive to immediate resuscitation with blood**

Actions in the ED

An overview of the team actions whilst the patient is in the ED is listed below. The TTL is in charge of organising the response.

1. Pre arrival preparation

Pre arrival should include the actions:

- Activate Code Red trauma call.
- Activate Major Haemorrhage Protocol.
- TTL instructs arriving trauma team members that they are initiating the RRT pathway based on inclusion criteria.
- Collect Code Red folder from reception for copy of RRT policy and other necessary documents.
- Ensure team understand RRT concept and action cards are disseminated.
- Decision conveyed to operating surgeon.
- As per Code Red Policy, all specialty Registrars (surgical and anaesthetics) must immediately contact their Consultant.
- Alert theatre co-ordinator (Bleep 1655) that this case will be a RRT patient via trauma ODP.
- Appoint blood monitor and identify where blood and products are to be delivered to and advise lab & porter – (default is ED Resus).
- Alert Trauma Unit Consultant of the week, during the daytime 08.00 – 17:00, who will attend if able to (Bleep 6272) (Rota in ED Resus).
- Alert Code Red Surgeon (rota in ED Resus).
- Pre order CXR in case it is needed and all bloods and labels.
- Load XR plate under Resus trolley for trauma CXR.
- Team awaiting arrival of patient to be wearing lead aprons.

2. Actions on patient arrival

Handover is taken from HEMS/Ambulance Service.

Ensure patient meets RRT criteria or revise call out if not.

- Limit bedside team to those carrying out the steps identified in the pathway.
- Remove scoop.
- A brief targeted primary survey is undertaken.
- Trauma Nurse One immediately attaches name bands to the patient and proceeds to attach monitoring.
- If the patient has no IV access, one large bore cannula is inserted and blood taken for cross match, TEG (blue topped heparinised tube to be given to ODP) and a venous gas (results to be taken to theatre if delayed). If one attempt at cannulation fails, an IO needle should be inserted and blood collected. Use left humeral head for IO insertion preferentially
- If the patient has one working large bore cannula, another should NOT be inserted at this time and a femoral stab should be carried out for a blood sample. This should happen at the LEFT groin.
- The aim should be to achieve one blood sample for cross matching however do not delay transfer if multiple attempts needed.
- Simultaneously an E FAST scan should be performed by the Radiology Registrar and images saved on the US machine.
- CXR to be undertaken – team to remain with patient. Image to be reviewed in theatres.

The TTL should also consider the following additional actions:

- Is a critical airway manoeuvre required before transfer?
- ED thoracotomy may be necessary prior to transfer to theatres – for cardiac tamponade or to cross clamp the thoracic aorta.

The TTL must accompany the patient to theatre and continue to act as TTL whilst the surgical team scrub and anaesthetists prepare the patient for surgery.

There must be a formal handover of care in theatres from TTL to the surgical and anaesthetic team – follow format on action card.

The trauma ward SHO to continue scribing initially in theatres and be responsible for initial blood samples.

After handover to surgical and anaesthetic team ensure detailed TTL notes are written and the RRT section of the trauma booklet is completed.

Ensure outstanding issues are clearly documented.

Notes to be completed by surgical team after surgery.

An operation note alone is insufficient and clinical rationale for surgery must be included.

Trauma notes must be scanned ASAP. Contact ED Resus Nurse extension 21815 for assistance in scanning notes completed after patient has left ED.

The anaesthetic chart must be photocopied at an appropriate time to allow it to be scanned into ED notes in addition to it being placed in patients' medical records.

TRAUMA TEAM LEADER ACTION CARD

PRE TRANSFER TO THEATRE

Identify	1. Suitability of the patient for RRT based on best available pre hospital information or handover 2. Individuals to complete specific actions. Ask them to report to you when complete. 3. Blood monitors – doctor and EM nurse 1 (distribute action cards to blood monitors)
Collect code red folder from reception which contains all necessary action cards & information	
Ensure	1. "Code Red" trauma call put out 2. Relevant Consultants are called by their Registrars to attend immediately 3. EM nurses one and two have their specific action cards 4. Clinical response in line with appropriate actions for RRT patient
Call	1. Code Red Surgeon if on rota (available in ED) 2. Trauma Consultant of week (8-5pm) weekdays (rota in ED) 3. Separate call for code red cardiothoracics via switchboard
Activate Major Haemorrhage Protocol	
Assist in transfer of patient to theatres	

POST TRANSFER TO THEATRE

Clear handover of team leadership role at appropriate point in theatres to surgical and anaesthetic team. The handover should take no more than 30 seconds and should follow the format below:

1. Are you ready to take over care of the patient?
2. Mechanism and time of injury
3. Injuries identified
4. Interventions
5. Outstanding issues – prioritise
6. Any questions?

Complete detailed clinical notes and ensure other team members have completed medical records appropriately.

SURGEON ACTION CARD

PRE TRANSFER TO THEATRE

Inform Consultant Surgeon as soon as Code Red declared
Inform Code Red Surgeon if available (check rota in ED Resus)
Inform Consultant Surgeon as soon as need for theatre realised if not Code Red
Consultant Surgeon to attend
Liaise with TTL and anaesthetist regarding likely operation, likely injuries & cavity
Remain with patient at all times

POST TRANSFER TO THEATRE

Team brief	
Check instruments	1. Ensure instruments available 2. Ensure 2 poole suction tubing 3. Ensure adequate large swabs 4. Consider cell salvage
Scrub up and prepare/drape patient before RSI if not intubated	
Knife to skin (KTS) once intubated and ETT position confirmed. • Announce KTS, so stop clock is started.	
Adhere to Damage Control Principles:	1. Stop Haemorrhage 2. Prevent Contamination 3. Preserve physiology over anatomy
S N A P - C H A T 15 minute interval mandatory communication with anaesthetist	**S**urgical progress **N**umber of blood products transfused & stability **A**BG, TEG and temperature **P**lan until the next interval to be discussed
Call 60 min after KTS, team discussion and plan • Alter plan according to physiology	
Pack & temporary abdominal closure as appropriate	
Ensure decision making process documented in ED trauma pack	
Write clear operative notes and clear plan for ICU including timings for return to theatre	

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ANAESTHETIST ACTION CARD

PRE TRANSFER TO THEATRE

Call for help- consultant on-call, other available colleagues.	
Make only critical airway interventions prior to transfer to theatre.	
Insertion of advanced access should **NOT** be done in the ED.	
Transfer to theatres with:	1. Trauma ODP and trauma team. 2. Trauma anaesthesia drug roll – use cardiostable drugs for anaesthesia. 3. High flow O_2 via tight fitting face mask with reservoir bag to start pre-oxygenation. 4. Ambubag ventilation if intubated. 5. Suction. 6. Volume connected via a rapid infuser to the patient (**but not running unless instructed by TTL**). The ideal fluid is blood (plasmalyte in its absence). 7. Monitoring.

POST-TRANSFER TO THEATRE

Preoxygenate whilst taking part in team brief.	
Cardiostable RSI if not intubated (use fentanyl or ketamine for induction).	
Ensure surgeon ready to do KTS once intubated and ETT position confirmed. Note time of KTS.	
Insert:	1. Subclavian venous trauma line if unstable 2. Arterial line if possible 3. Temperature probe 4. NGT
Take blood samples:	1. 20ml to MTW SHO for lab bloods 2. 10ml to ODP for TEG and venous blood gas
Check both Bair huggers are switched on maximum	
Follow major haemorrhage protocol	1. Delegate blood monitors (usually ODP 2 + second anaesthetist) 2. Administer tranexamic acid as per protocol. 3. Administer IV CaCl 10% to achieve ionised calcium > 1.0 mmol/l. 4. Regular blood gases at 15 minute intervals 5. **ENSURE PORTER REMAINS IN THEATRE** and collects blood products as required
S N A P - C H A T 15 minute interval mandatory communication with lead surgeon	**S**urgical progress **N**umber of blood products transfused & stability **A**BG, TEG and temperature **P**lan until the next interval to be discussed
Give antibiotics and tetanus prophylaxis	
Call 60 min after KTS, team discussion and plan	
Liaise with 1655 to triage post surgery destination and inform bed manager/ ITU/ recovery	

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THEATRE CO-ORDINATOR 1655 ACTION CARD

PRE TRANSFER TO THEATRE

Prepare theatre team immediately in **Theatre 8** if available:

Minimum 1 scrub nurse and 2 runners
Minimum 2 senior ODPs
1 dedicated porter

Assist & supervise **Scrub Nurse 1** to prepare thoracotomy/ laparotomy/ vascular sets as requested.

Assist & supervise **Runners**:

Ensure

1. Operating table prepared with head end by the anaesthetic machine.
2. 2 arm boards are available ready to attach with incontinence pads so the patient can be positioned in a crucifix once transferred.
3. Ensure 2 Bair huggers are available:
   a. Bair hugger 1: under body. In position on table, covered completely in incontinence pads.
   b. Bair hugger 2: surgical access. Ready to apply on top of patient following transfer.
4. Cell savage available but not immediately prepared.
5. Urinary catheter trolley is prepared.
6. WHO checklist and consent form 4 are available.

Switch on the cameras in theatre 8.

POST TRANSFER TO THEATRE

Facilitate rapid transfer of patient onto table.

Facilitate WHO checklist and check name bands.

Liaise with 1201 to triage post surgery destination and inform bed manager/ ITU/ recovery.

THEATRE ODP (ODP 2) ACTION CARD

PRE TRANSFER TO THEATRE

Call in the on-call ODP if there is another theatre running out of hours.	
Switch on	1. TEG machine 2. Glidescope 3. Ultrasound machine
Prepare a drug trolley including:	1. Standard trauma anaesthetic drugs. 2. Tray with 2x 10ml 10%CaCl drawn up. 3. Tray with blood gas syringes and syringes for TEG. 4. Tray with 5x 10ml 0.9% saline flushes.
Prepare	1. Airway equipment 2. Temperature probe connected 3. Large bore orogastric /nasogastric tube and bile bag.
Rapid infuser plugged in, switched on and run through with **plasmalyte** (not colloid).	
Run through double transducer set.	
Allocate a trolley for lines	1. Trauma line/ Vascath 2. CVP line (age appropriate) 3. Arterial line

POST TRANSFER TO THEATRE

Work as directed by anaesthetist.	
Assist anaesthetist:	Transduce arterial and CVP lines. Insert lines where necessary.
Process blood gas and TEG samples	

TRAUMA ODP (ODP 1) ACTION CARD

PRE TRANSFER TO THEATRE

Notify 1655 immediately of plan. 1655 will dispatch ODP 2 to Theatre 8.	
Prepare equipment for transfer:	1. Ambubag, O_2 cylinders, suction, appropriate face mask + laryngoscope + ETT + bougie. 2. Monitoring, $EtCO_2$ lead with block if intubated. 3. Trauma drug box.
Assist and accompany anaesthetist with the patient.	

POST TRANSFER TO THEATRE

Work as directed by anaesthetist.	
Assist anaesthetist:	Induce patient and manage airway. Insert lines where necessary.

EM NURSE 1 ACTION CARD

PRE TRANSFER TO THEATRE

Attach patient name bands x2.
Attach monitoring to patient.
Ensure nursing documentation complete and notes scanned.
Provide support and information for family members.
Keep family updated of progress and liaise with AICU/ PICU as appropriate.

EM NURSE 2 (BLOOD MONITOR) ACTION CARD

PRE TRANSFER TO THEATRE

Blood Monitor
Organise porter to collect blood and products for major haemorrhage response using blood collection form
Set up rapid infuser.
Transfuse blood as directed by the TTL.

SCRUB NURSE ACTION CARD

PRE TRANSFER TO THEATRE

Prepare thoracotomy/ laparotomy/ vascular sets as requested.

Ensure the following are available:

- 2 poole suction tubing
- Adequate large swabs

POST TRANSFER TO THEATRE

Prepare patient with antiseptic solution (chest and abdomen) after transfer onto operating table.

Assist surgeon.

RUNNER ACTION CARD

PRE TRANSFER TO THEATRE

Switch on camera in theatre 8.

Operating table prepared with head end by the anaesthetic machine.

2 arm boards available ready to attach with incontinence pads so the patient can be positioned in a crucifix once transferred.

Ensure 2 Bair Huggers are available and positioned:

- Bair hugger 1: under body. In position on table, covered completely in incontinence pads.
- Bair hugger 2: surgical access. Ready to apply on top of patient following transfer.

Cell savage available but not immediately prepared.

Urinary catheter trolley is prepared.

WHO checklist and consent form 4 are available.

POST TRANSFER TO THEATRE

Verbalise time of patient arrival in theatre for all staff to hear.

Assist with transfer of the patient onto the operating table.

Connect the arm boards, cover with incontinence pads and position the arms.

Apply the second Bair hugger in the appropriate position and tape onto patient

- Do NOT switch on yet

Apply diathermy pad, set diathermy machine & peddles in appropriate position

Facilitate WHO checklist and check name bands.

Start the digital clock at KTS (knife to skin) and announce the time.

Switch on both Bair huggers after KTS on the maximum temperature.

Urinary catheter insertion at end of procedure.

Consider DVT prophylaxis – TED stockings & flowtrons.