

Operating principle

For a patient(s) in a TU or LEH who requires MTC level of care for immediate intervention there should be no delays to transfer. A principle of “**call and send**” will be used. The regional trauma coordinating desk (**RTD: 01384215695**) will be the hub for communication.

Responsibilities

1. The TU (LEH) trauma Team Leader:
 - a. Will be responsible for ensuring that the patient(s) are safe to transfer. It will not be possible to ensure that all patients are completely stable as the intervention to achieve stability may also be the reason for the transfer.
 - b. As a basic principle the TU receiving team should be satisfied that:
 - c. The airway is safe for the duration of transfer or secured
 - d. That life threatening chest injuries have been excluded or treated
 - e. That appropriate hemorrhage control has been achieved
 - f. That the cervical spine immobilisation is maintained.
 - g. That an escort is provided who is clinically capable of dealing with the patient's condition.
 - h. That all relevant imaging is transferred electronically to the receiving MTC
2. The selected MTC Trauma Team Leader:
 - a. Is responsible for ensuring that the patient is received in an appropriate clinical area (usually the ED resuscitation room) and that the trauma team is alerted to the arrival of the patient.
 - b. Be available to offer advice to the TU Trauma Team Leader (TTL) if necessary or requested.
 - c. Review the TU images on the Imaging Exchange Portal prior to patient arrival if possible.
 - d. Notify relevant tertiary services as necessary.
 - e. Assemble the trauma team
3. The Regional Trauma desk CCP:
 - a. Is responsible for coordinating the communication between MTC, TU and transporting ambulance provider. Specifically the RTD will:
 - b. Take the call from the TU and note basic details of transfer
 - c. Set up “conference call” with MTC TTL and monitor the call.
 - d. Task appropriate vehicle to TU.
 - e. Update MTC on departure of transport vehicle from TU and expected time of arrival
 - f. Coordinate calls between vehicle and MTC TTL when advice or updated information needs to be passed.

Pre Transfer Actions

Trauma units should refer patients for hyper-acute transfer when the patient meets the criteria for needing immediate MTC level of care.

This process should not be routinely used for logistical reasons such as lack of ITU beds.

For a patient who has been assessed and had their initial treatment at a TU but for whom on going reconstructive care at a MTC or specialist unit (Oswestry) is required the urgent (48 hour) transfer pathway should be used.

Pre transfer actions at TU

1. Undertake full primary survey.
2. Secure airway if necessary
3. CXR and Pelvic X Ray. Only go for CT if there is doubt about need for transfer
4. Decompress pneumothoraces or haemothoraces. Ideally use transport type drains not under water seal.
5. Control haemorrhage:
 - 5.1. Stop external bleeding
 - 5.2. Use haemostatic agents (e.g. CELOX[®]) if necessary
 - 5.3. Activate massive transfusion protocol if required
 - 5.4. GIVE INITIAL DOSE TRANEXAMIC ACID
 - 5.5. Use minimal fluid resuscitation, ideally using balanced solutions such as Hartmann's solution.
 - 5.6. Target Blood pressures should be 90mmHG in non head injured patients and 110mmHg if isolated intracranial injury suspected.
 - 5.7. If exsanguinating internal haemorrhage perform damage control laparotomy or definitive care.
 - 5.8. Apply pelvic binder (T Pod or SAM) if required
6. Splint femoral fractures with traction splint
7. Immobilise all other fractures with splints or plaster
8. Package patient on scoop stretcher, ideally Ferno (yellow) scoop
9. If transferring blood/ FFP with patient complete relevant forms.

Do not delay transfer to insert invasive monitoring, use non-invasive methods.

Haemodynamically unstable patients

It is widely accepted that these patients offer the most challenging decisions for the Network clinician to make.

In the patient with suspected internal bleeding who is a non-responder or transient responder to fluid resuscitation the Trauma Team Leader in the TU will need to decide if the patient will be safer undergoing hyper-acute transfer to the MTC or undergoing surgical intervention at the TU.

Factors that will influence this decision may include:

- On site presence of suitably experienced surgical & anaesthetic consultants
- Availability of theatre
- Time to CT scan (CT radiographer on site?)

Escort

The appropriate escort should be determined by the TU TTL:

- For intubated and ventilated patients this will normally be an anaesthetist or ITU doctor.
- Where available a pre-hospital Medical Emergency Response Intervention Team (MERIT) may be used however these services are limited and cannot be guaranteed available.
- For non-intubated patients the escort must be capable of dealing with the anticipated complications on route.

The ambulance service will not routinely return escorts to the referring TU.

Ambulance Transport

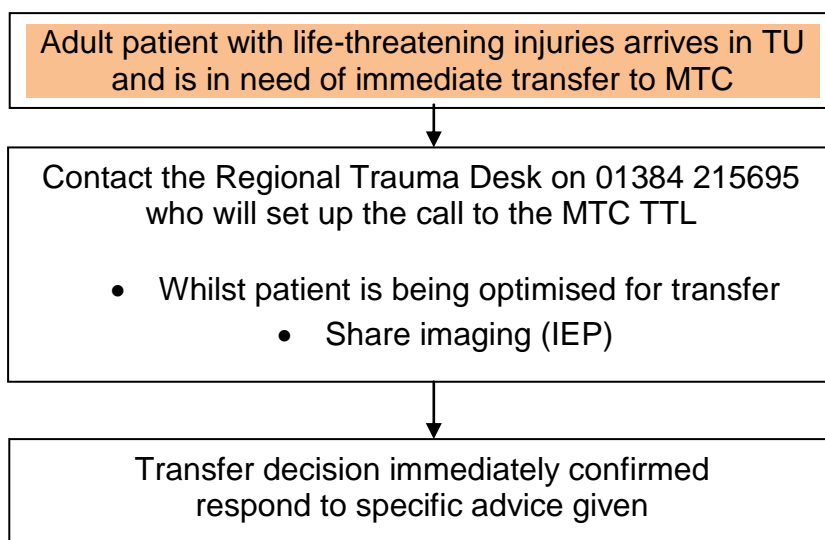
West Midlands Ambulance Service or East Midlands Ambulance Service will be the provider for most hyper acute transfers.

An air ambulance provider (Midlands Air Ambulance or The Air Ambulance Service) may provide support and or transport as part of their Enhanced care Team provision. Use of Enhanced care teams and Air Ambulances should be discussed with the RTD.

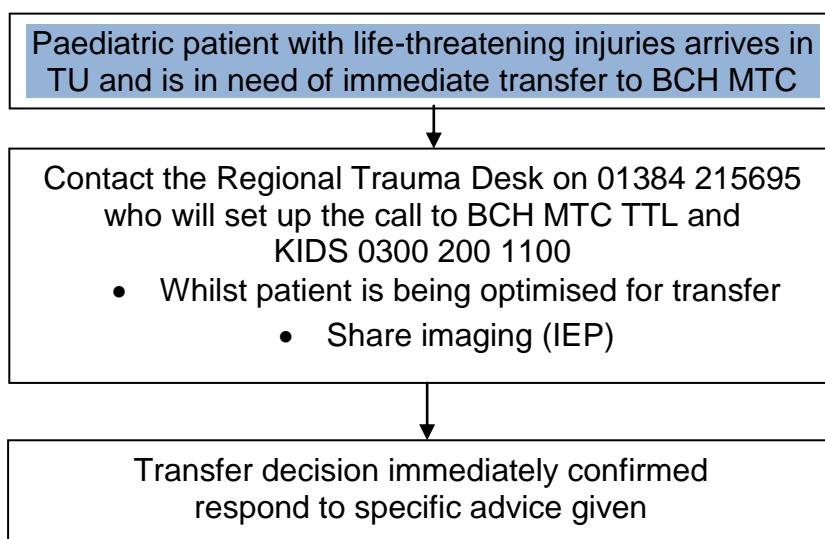
Adult Hyper-acute Transfer Check list

Action	Completed by	Comments
Call RTD (01384215695) and speak to MTC team leader		
Name of MTC TTL		
Up load images to IEP/ PACS		
Airway secured?		
Chest decompressed?		
Pelvis splinted?		
Femurs splinted?		
External bleeding stopped?		
Tranexamic acid given?		
Cx Spine immobilised?		
Patient on Ferno scoop		
Escort personal briefed?		
Transfer bag checked?		
Transfer drugs ready?		
CCN transfer form available?		
Copy of trauma chart and ambulance (e) PRF ready?		
CXR Performed and reviewed		

Hyperacute Transfer from Trauma Unit/LEH to the Major Trauma Centre (ADULT)



(PAEDIATRIC)



KIDS Checklist for transfer of children with neurosurgical emergency

Checklist:

- ✓ Use this checklist to assist in ensuring adequate therapy and monitoring are in place prior to and during transfer

Identify and consult:

- **Identify acute neurosurgical emergency:**
(eg. Mode of injury or history, focal neurological deficits, reduced GCS, dilated/unequal pupils, bradycardia & hypertension)
- **Urgent conference call with KIDS consultant and Neurosurgeon**
if time-critical, likely to require primary transfer by referring team
- **If immediately life-threatening, may require primary transfer to neurosurgery theatre (theatre 1 at BCH) or local neurosurgical intervention – discuss with neurosurgeon and KIDS consultant**

Airway and Breathing:

- Oral ETT, firmly taped, T2 on CXR
- Cervical spine immobilisation if trauma
- PaCO₂ 4.5-5.3 kPa
- Orogastric tube on free drainage

Circulation:

- 2 peripheral iv lines
- Request crossmatch (*Aim Hb > 10gms*)
- Aim for normovolemia
- Avoid hypotension
- 0.9% Saline maintenance (*+dextrose if hypoglycaemia*)
- Volume expansion 0.9% Saline 10ml/kg boluses
- Consider noradrenaline infusion to maintain BP (see [KIDS drug calculator](#))
- CVL and arterial line if sufficient time

Disability and other management:

- 15 mins Neuro Obs
- CT scan (*discuss with Neurosurgeon/KIDS*)
- Normothermia (36-37° C)
- Phenytoin 18 mg/kg over 20 mins if seizures
- Maintain plasma Na > 140mmol
- Hyperosmolar therapy (discuss with Neurosurgeon/KIDS see [KIDS drug calculator](#))
- Secondary survey if trauma

Preparing for transfer:

- Adequate sedation and analgesia with morphine/midazolam infusion – see [KIDS drug calculator](#) for dosing
- Muscle relaxant infusion – see [KIDS drug calculator](#) for dosing
- Urinary catheterisation – especially if mannitol used
- Strategy for managing raised ICP:
(*discuss with Neurosurgeon/KIDS regarding sedation, pCO₂, ABP target for cerebral perfusion, hyperosmolar therapy*)
- Secure child to trolley (*not on spinal board*)
- Connect long extension to allow additional drug and fluid administration en route
- Sufficient portable oxygen for whole journey x2
- Sufficient battery life on monitor and infusion pumps
- Use ambulance oxygen gas and electricity supply where possible
- Transfer documentation, radiology, blood results
- Regular observations (at least once every 15mins) – including pupillary reactions, heart rate, blood pressure ET/CO₂, SpO₂
- Seat belts at all times
- Travel safe – Lights/Sirens only when necessary to manage traffic congestion or unstable patient or time critical

References:

APLS 4th edition 2004
 Joint statement from the Society of British Neurological Surgeons (SBNS) and the Royal College of Anaesthetists (RCOA) Regarding the Provision of Emergency Paediatric Neurosurgical Services ([document](#))