

West Midlands Trauma Network Policy No. 25

TU (LEH) to MTC Transfer Hyper-acute

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) will be the hub for communication.

The TU (LEH) 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.

As a basic principle the TU receiving team should be satisfied that:

The airway is safe for the duration of transfer or secured
That life threatening chest injuries have been excluded or treated
That appropriate hemorrhage control has been achieved
That the cervical spine immobilisation is maintained.
That an escort is provided who is clinically capable of dealing with the patient’s condition.
That all relevant imaging is transferred electronically to the receiving MTC

The selected MTC is responsible for ensuring that the patient is received in an appropriate clinical area (as per discussion with MTC TTL and KIDS for paediatrics) and that the trauma team is alerted to the arrival of the patient.

The MTC trauma team leader should:

Be available to offer advice to the TU Trauma Team Leader (TTL) if necessary or requested.
Review the TU images on the Imaging Exchange Portal prior to patient arrival if possible.
Notify relevant tertiary services as necessary.
Assemble the trauma team

The Regional Trauma desk is responsible for coordinating the communication between MTC, TU and transporting ambulance provider. Specifically the RTD will:

Take the call from the TU and note basic details of transfer
Set up “conference call” with MTC TTL and monitor the call.
(KIDS should be involved in “conference call” for paediatric patients)
Task appropriate vehicle to TU.
Update MTC on departure of transport vehicle from TU and expected time of arrival
Coordinate calls between vehicle and MTC TTL when advice or updated information needs to be passed.

Standards for service.

1. That from call to RTD to transfer commencing should be less than 30 minutes
2. That 90% patients are transferred to nearest MTC
3. That all patients are received in an MTC by a consultant led trauma team.

Pre Transfer Actions

A trauma unit 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. Use transport type drains not under water seal.
5. Control haemorrhage
 - 5.1. Stop external bleeding
 - 5.2. Activate massive transfusion protocol if required
 - 5.3. GIVE INITIAL DOSE TRANEXAMIC ACID
 - 5.4. If exsanguinating internal haemorrhage perform damage control laparotomy or definitive care
6. Apply pelvic binder (T Pod or SAM) if required
7. Splint femoral fractures with traction splint
 - 7.1. Immobilise all other fractures with splints or plaster.

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

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 however there may be some centres that have advanced nurse practitioners providing this level of care.

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. The MTC will arrange taxi transfers to return the escort and their equipment.

Ambulance Transport

West Midlands Ambulance Service will be the provider for most hyper acute transfers. They will provide a double manned ambulance (DMA) from the emergency fleet. It will be equipped with a defibrillator and portable ventilator. The crew may not always contain a paramedic, if there is no paramedic the senior clinician on board will be an emergency medical technician (EMT). When a doctor escort is being provided by the TU it is not necessary to insist on a paramedic crew as the EMT will be more than capable of providing the support required.

KIDS Clinical Guideline: 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

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

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**

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 ETCO₂, 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](#))

TU Pre transfer actions

Action	Completed by	Comments
Call RTD and speak to MTC team leader (+ KIDS for paed)		
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?		
Escort personal briefed?		
Transfer bag checked?		
Transfer drugs ready?		
CCN transfer form available?		
Copy of trauma chart and ambulance PRF ready?		

Transfer Flow Charts

