Transfer of Critically Ill Patients - Burton - Full Clinical Guideline

Reference no.: POL-CL/2844-310/2018

1. Introduction

This is a clinical guideline specifically for Burton Hospital and covers the transfer of critically ill patients requiring anaesthetic escort for intra and inter hospital transfer.

This guideline will not discuss transfer decision making or stabilisation prior to transfer.

For QHB Operational policy on transfers see "Burton Hospital NHS Foundation Transfer of Patients Policy no 127." For reference, below is the relevant section from the above document:

Section 9. CRITICAL CARE INTRA HOSPITAL TRANSFER GUIDELINES.

9.1 Indication for intra-hospital transfers

The patient may require further investigations and/or treatments from a higher level care area for example, Intensive Care or High Dependency.

9.2 Definition: An acutely/critically ill patient in this context is defined as one who is at risk of, or is showing signs of, deterioration and who requires transfer to an area providing higher levels of care for single or multiple organ support. These may be categorised as level 2 or level 3 patients.

Level 2 = Patients requiring more detailed observation or intervention including support for a single failing organ system or post-operative care and those stepping down from higher levels of care.

Level 3 = Patients requiring advance respiratory support alone or basic respiratory support together with support of at least two organ systems. This level includes all complex patients requiring support for multi-organ failure."

All inter hospital transfers from Critical Care follow the Mid–Trent Critical Care Network Operational Policy.

Critical Care Network

Burton is part of the Mid-Trent Critical Care Network (MTCCN). All inter hospital transfers or critical care patients therefore follow the Mid–Trent Critical Care Network Operational Policy and use standardised equipment. Clinically, MTCCN follow the Intensive Care Society Guidelines on transfer care standards.

Ref 1. http://www.midtrentccn.nhs.uk/

Ref 2 The Intensive Care Society: Guidelines for the transport of the critically ill adult (3rd Edition 2011).

2. Purpose and Outcomes

3. Definitions Used

NHSLA	National Health Service Litigation Authority
ICU	Intensive Care Unit
ODP	Operating department practitioner
NGT	Naso-gastric tube
ETA	Estimated time of arrival
MTCCN	Mid Trent Critical Care Network
WMAS	West Midlands Ambulance Service NHS Trust
ED	Emergency Department

4. Key Responsibilities/Duties

This guide in general terms only applies to those patients who are receiving anaesthesia or critical care therapies and hence require anaesthetic transfers. It also applies to those who may suffer airway issues during the transfer.

It does not apply to those patients who may deteriorate during transfer from a non-anaesthetic perspective i.e. cardiovascular. In these cases the parent team will address these issues.

- The consultant general anaesthetist on call is responsible for anaesthetic transfers within the hospital and anaesthetic transfers from the Emergency Department E.D. It is key that the process is arranged by the admitting teams with ownership of the patient being agreed with the receiving hospital/department.
- All transfers from the critical care department are the responsibility of the ITU consultant. This process may require parent team input
- Paediatric transfers are the responsibility of the paediatric consultant with support from the general anaesthetic consultant. ITU at Queens should not admit anyone below the age of 16 years and should not offer on-going care to those between 16-18.
- Non anaesthetic transfers are the responsibility of the parent team's consultant.

5.2 TRAINING AND EQUIPMENT

The competencies / skills level required for each transfer will be determined by the transferring and the receiving consultant on an individual basis, based upon the needs of the patient.

Personnel involved in transfer need to be:

1. Trained and competent in care of acutely ill patient including:

    - Airway management
    - Resuscitation
    - Inotropic support
    - Use and management of invasive lines
    - Recognition and treatment of changes in vital signs
    - Moving and Handling with spinal precautions.

2. Trained and competent in the principles of transfer of the acutely ill patient:

    - For intra-hospital transfers trainees must have completed the relevant basic level unit of training for transfer
    - For inter-hospital transfer the trainee will have undergone a transfer training course. The majority of Stoke School of Anaesthesia trainees attend a school transfer course in their first year of training. MTCCN courses are a suitable alternative
    - This is supplemented by local induction processes.

    * In general it is not expected that year 1 trainees will undertake inter-hospital transfers.*

3. Competent in the use of the local transfer equipment:

    - Portable ventilator – on transfer course
    - Vital signs monitor
    - Syringe pumps
    - Infusion devices
    - Suction equipment – on transfer course.

4. Familiar with the local transfer arrangements and the contents of the different emergency bags and paperwork.

3 and 4 are achieved through attendance at a local induction session at the commencement of post, and further updates, as appropriate (e.g. in the event of changes to equipment) by the responsible critical care technician.

5.3 EQUIPMENT FOR TRANSFER

Intra-hospital

- "The bridge" is kept in the cupboard behind the ICU desk
- The green transfer bag is kept with it
- The yellow transfer drug bag is kept in the locked cupboard at the ICU desk
- The transfer forms are kept with the bridge.

Equipment checks:

- *The bridge is checked daily by the ODP floater. Checklist forms are kept in a folder with the bridge*
- *The bag MUST be checked after each use by the team who have used it or a nominated person or on the date of the first expiring item. A checklist must be completed*
- *When the bag is checked and ready to use it is tagged to show this.*
- *Drug bag check MUST be done by the team who have used it or a nominated person or on the first expiry date. When the bag is checked and ready to use it is tagged to show this*
- *All completed checklist forms are kept by Mr R Hawksworth.*

Inter-hospital

- The MTCCN transfer trolley is kept in the Medical Equipment library on the ground floor
- The Mid Trent CCN orange transfer bag is kept with it.
- Mid Trent transfer forms are also kept here and need to be completed for each transfer
- The yellow transfer drug bag is kept in the locked cupboard at the ICU desk.

Equipment checks:

- *The trolley is checked daily by the ODP floater. Forms are kept in a folder with the trolley*
- *The bag MUST be checked after each use by the team who have used it or a nominated person or on the date of the first expiring item. A checklist must be completed*
- *Completed forms are kept by Mr R Hawksworth.*

On returning from a transfer - whether intra inter-hospital – all the equipment must be cleaned, checked and tagged by the team or a nominated person.

5.4 DOCUMENTATION

"Clear records should be maintained at all stages. This is a legal requirement and should include details of the patient's condition, reason for transfer, names of referring and accepting consultants, clinical status prior to transfer and details of vital signs, clinical events and therapy given during transport."

Aagbi safety guideline

There is different documentation depending on whether the transfer is intra-hospital or inter-hospital.

- For intra-hospital transfers the Burton-specific transfer sheet should be

used. These are kept in a file with the bridge. They should be completed and returned to the patient's notes as they form part of the patient's ongoing documentation of care

- For inter-hospital transfers the Mid Trent Critical care sheet should be used. These are kept with the Ferno trolley in the medical equipment library. They are numbered and need to be returned to the Senior Sisters in the ICU office, who then pass them on to the audit team for the network
- Trauma network transfer documentation is available in ED
- If transferring from ED an intra-hospital chart or an anaesthetic chart can be used depending on circumstances, however one or the other MUST be filled in and filed in the patient's notes.

5.5 PREPARATIONS FOR TRANSFER

Resuscitation and stabilisation of the patient before transport is key to avoiding complications during the journey. However, a percentage of transfers are 'time-critical' – It is imperative that treatment/investigations and procedures are limited to those that are absolutely necessary (i.e. Do we really need a urinary catheter / an A-line / an NGT in a patient suffering from an Extra Dural haematoma?)

The person traveling with the patient may not have been involved in their preceding care and therefore MUST take time to familiarise themselves the patient's history and with the treatment and investigations already undertaken – whether the transfer is intra-hospital or inter-hospital:

- The airway should be assessed / re-assessed by the staff member in charge of the transfer to confirm it is safe and secure
- Sedation, paralysis and ventilation settings should be reviewed
- The patient should be stabilised on the transport ventilator prior to departure. Oxygen saturations and end tidal Co2 can be used for this or if there is any concern a blood gas should be taken to ensure adequate gas exchange.

All the transfer equipment should be checked prior/during attaching to the patient:

- Monitor – working / battery full / power supply available
- All infusion lines patent, secured, enough drugs for journey plus spare
- Fluid/extra drugs to take if needed
- Calibrate transducers once patient connected
- Capnography connected / alarm set
- Ventilator – check power / oxygen / settings / Fi02 required / alarms
- Ventilator tubing – check patent, alarm check, filter and capnography attached
- Self-inflating bag present
- Adequate oxygen.

Secure venous access is mandatory and at least 2 intravenous cannulae (central or peripheral) are required during transfer. A suitably secured indwelling arterial cannula is ideal for blood pressure monitoring.

For inter-hospital transfers, a nasogastric / orogastric tube and urinary catheter should be passed and free drainage allowed into collection bags.

The pre-departure check list should be used to help to ensure that all necessary preparations have been completed – see forms in Appendix 1 / 2.

5.6 MONITORING DURING TRANSFER

"The standard of care and monitoring during transport should be at least as good as that at the referring hospital or base unit. The minimum standards of monitoring required are shown below:-

- *Continuous cardiac rhythm (ECG) monitoring*
- *Non-invasive blood pressure*
- *Oxygen saturation (SaO2)*
- *End tidal carbon dioxide (in ventilated patients)*
- *Temperature*

ICM Guidelines for the transport of the Critically Ill 2011."

1. All transfers of patients from / within Queens Hospital conform to the above, whether the transfer is with the Bridge, the MTCCN equipment or from ED.

2. Monitoring must be continuous throughout the transfer. All monitors, including ventilator displays and syringe drivers should be visible to accompanying staff. Temperature can be monitored intermittently.

3. For long / inter-hospital transfer - Intermittent non-invasive blood pressure measurement is sensitive to motion artefact and is unreliable in a moving vehicle. It is also a significant drain on the battery supply of monitors. Continuous, invasive blood pressure measurement, through an indwelling arterial cannula should normally be used.

4. Central venous catheterisation is not essential but may be of value in optimising filling status prior to transfer or may be required for the administration of inotropes and vasopressors.

5. In mechanically ventilated patients the oxygen supply, inspired oxygen concentration (FiO2) ventilator settings and airway pressure should be monitored.

5.7 INTER-HOSPITAL TRANSFER

- Organisation of the staff for transfer should be at Consultant level and discussed between theatre and ICU
- The Ferno trolley, MTCCN bag and MTCCN transfer form need to be collected from the Medical Equipment library
- The yellow drug bag needs to be collected from the ICU cupboard and the cold drug box from their fridge.
- The pre-departure checklist on the back of the MTCCN sheet should always be completed prior to departure so that nothing is forgotten
- Transferring staff that are out of the hospital **must** wear a hi-vis garment
- Make sure the receiving unit is aware of your departure time and ETA
- Due to changes in the ambulance fleet it is wise to make sure that the transferring trolley 'fits' into the ambulance
- Regarding returning home: If the ITU trolley is used it is highly unlikely that you will be 'stranded' at the accepting hospital as the trolley must be returned to destination. If this fails ensure that the trolley has a route to get back to base and call a taxi. If you are transferring without the trolley and are stranded then call a taxi, the taxi will be funded by the hospital via the on-call manager.
- Safety in the ambulance.

- The trolley 5 point harness system should be used. Pressure areas (including neurovascular bundles) should be appropriately protected. Warming / insulating blankets should be used to keep the patient warm unless otherwise contraindicated. Indwelling lines and tubes should be secure and visible / accessible
- All equipment (including transfer bags) must be securely stowed. Equipment should be either fastened to the transport trolley or securely stored in appropriate lockers in the ambulance. When this is not possible, equipment should be placed on the floor against the bulkhead wall. Under no circumstances should equipment (e.g. syringe pump) be left on top of the patient trolley. This may become a dangerous projectile in the event of a sudden deceleration. Gas cylinders must be held in secure housings at all times
- Staff should remain seated at all times and wear the seat belts provided. Adequately resuscitated and stabilised patients should not normally require any significant changes to treatment during transport. If, however, unforeseen clinical emergencies arise and the patient requires intervention, this should not be attempted in a moving ambulance. The vehicle should be stopped appropriately in a safe place before administering treatment
- High speed journeys should be avoided except where strictly necessary. Blue lights and sirens may be used to aid passage through traffic to deliver a smooth journey.

5.8 INTRA-HOSPITAL TRANSFER

Preparation and monitoring should be no less thorough than for inter-hospital transfers.

Intra-hospital transfer equipment and paperwork will depend on the origin of the patient.

- Any patient originating from ICU / HDU, the wards or theatres will use the Bridge / Green bag / Yellow drug bag as per Section 3
- Any patient originating from ED will use their equipment as per

General notes on intra-hospital transfer:

- An ODP should ideally be in attendance; however a suitably experienced ICU or ED nurse can also perform the role of anaesthetic assistant
- Minimal monitoring standards must be followed
- Non-invasive blood pressure is appropriate to use in some circumstances but only if the patient is cardiovascularly stable and for short transfers
- Maintaining the patient's temperature and dignity is important – remember to keep them covered as much as possible.

See 5.10 for guidelines on specialist areas of the hospital where most intra hospital transfers happen.

Aagbi safety guideline

5.9 HANDOVER

"On arrival at the receiving hospital, there should be a formal handover between the transport team and the receiving medical and nursing staff who will assume responsibility for the patient's care. "

The thoroughness of a handover will depend on whether the patient is being returned to their point of origin and the same clinical team or whether they are being transferred to a new place and team. Even if the patient is being returned to the point of origin a quick handover of how the patient has been during transfer and any adverse events that occurred must be communicated to the staff looking after the patient.

For patients being transferred to a new team / hospital:

- Handover should be given to the whole clinical team taking over the patient's care and should be done during a "stop moment" before or after moving the patient NOT whilst transferring the patient
- Handover should include a written and verbal history, vital signs and any relevant investigations such as blood results, x-rays and scans. Any adverse events during transfer must also be reported and written clearly on the form

- For intra-hospital transfers, the transfer form should be completed and filed in the patient's notes.

- Your transfer is not complete until the equipment you used has been cleaned and re-stocked.

5.10 SPECIALIST AREAS

5.10.1 Paediatric

Equipment
Specialist kit for paediatric emergencies and transfers is kept in theatre:

- The transfer bag containing circulation and airway equipment is kept in theatre 1 anaesthetic room
- Drugs are kept in a yellow bag in the locked fridge in main Recovery.
- Both bags are fully labelled for ease of use
- These should be taken to any paediatric emergency outside of ED.

It is the responsibility of the team using the equipment to check and replace any items used after they have finished. A checklist / tag system is in place.

Also in the **Paediatric "HDU" room on ward 1** there is:

- 2 Ventipac 200D ventilators specifically for peads. The set up instruction for these are kept in the Emergency folders in each theatre (see attached)
- Easy IO drill
- Plus other paediatric specific kit.

Backup

Any staff looking after a child should be competent in paediatric airway. The on call Consultant's in Paediatrics and Anaesthetics should always be informed of any paediatric emergency. It is up to them if they attend immediately or wait until the junior calls them.

Retrieval and specialist advice is provided by the Birmingham Children's Hospital "KIDS – kid's intensive care and decision support". Phone number 0300 200 1100.

The policy is a link to their website which has a lot of useful information to guide clinical care including clinical guidelines for a range of pathologies and a drug calculator:

http://kids.bch.nhs.uk/healthcare-professionals-2/

See also Policy Number WC/NP/102P Paediatric High Dependency Care.

Transfers

In most circumstances the Retrieval team will come and pick up a sick child however rarely we need to transfer the child – usually in time critical scenarios related to head injury or trauma.

Time critical Transfers

Inter-hospital paediatric time critical transfers will be undertaken by the on call anaesthetist (after consultation with the retrieval team and concerned specialty e.g. paediatric neurosurgeon).

If an inter-hospital transfer is necessary then equipment to take is:

- The trolley
- Paediatric green equipment bag
- Paediatric yellow drug bag
- Appropriate drugs – should be calculated and prepared before setting off. KIDS guidelines and drug doses should be followed.

5.10.2 Radiology

The commonest transfers in the hospital are from ED or ICU to radiology, specifically CT.

Equipment available in CT:

- Piped oxygen with Schrader valve from ceiling above CT bed
- Pipeline suction unit on far wall plus suction in waiting area outside CT2
- Oxygen unit with flowmeter & tubing for spontaneously breathing patients on far wall
- Wheeled trolley with cannulation equipment in CT room
- In control room: Spare monitor - NIBP, SpO2, ECG and Crash trolley with Defib in case in bottom drawer.
-

*******PLEASE NOTE THERE IS NO ANAESTHETIC MACHINE IN CT********

Equipment for transfer depends on where you are originating from:

- If from ED – ED provides equipment if patients are to return there pending clinical decision making post scan. See ED section. Drugs can also be brought from ED but need to be drawn up in advance and transported in a suitable container
- If from ICU or other area of hospital – use bridge, ICU yellow drug bag and green transfer bag as above. Remember to collect cold drugs from fridge. As per Section 3.

<u>Specific issues in radiology</u>

1. Care with moving and handling:

   - Larger patients, moving unconscious patients limbs/neck etc
   - Careful packaging for movement through the scanner – elbows etc
   - Care with IV and other lines so that they stretch
   - Monitors / pumps – care with moving and placement to avoid dropping / damage equipment or hurting the patient.

2. Limited access once in scanner – access to head and neck, lines etc
3. Monitoring view – placing monitors so that screens can be seen from the control room.
4. ODP / anaesthetic assistant should remain present throughout.
5. Remote location – if help is needed it is going to take time to get people and kit there so be prepared for the worst case scenario.

*******Burton does not have equipment for delivery of anaesthesia, or for monitoring of patients who are sedated or have a reduced level of***

consciousness in the MRI. The anaesthetic department can therefore not offer this service****

5.10.3 ED Resuscitation area

- NAP4 found that most incidents in ED were complications of RSI
- Careful preparation and having the correct staff present is the key to safety
- If there is any debate about the decision to intubate the Consultant on call should be called
- An ODP or suitably trained ED nurse acting as anaesthetic assistant MUST always present.

***Equipment in each bay**:*

1. Intellivue MX700 monitor - with the small removable monitoring box that can be used for transfers.
2. Airway Trolley – Checked and tagged by the ED staff. Each drawer has a laminated card of the equipment it contains.
3. Defib trolley – checked by ED.
4. An emergency induction checklist is on the wall behind each trolley.

Extra equipment:

- Oxylog 2000 ventilator with disposable tubing attached and a spare set in bag. – checked daily by ODP. (far left hand corner)
- Syringe drivers are kept in the medical equipment library on the way into Ressus therefore need to be requested from the nursing staff
- Level 1 is kept in the far right corner opposite the pead bay
- Portable suction unit (kept in ED Minors area on the desk).

For transfers:

There are two choices.

1. If the patient is going straight to ICU/theatres or to ICU/theatres via Radiology or another department, the Bridge/ ICU drug bag should be brought down from ICU as per 5.3.
2. If the patient is returning to ED then either the above equipment can be used or you can use the ED's own equipment comprising:

   - Oxylog ventilator
   - Intellivue mini-monitor with C02 analyser
   - Syringe pumps
   - Portable suction unit (kept in ED Minors area on the desk).
   - Drugs – need to be drawn up beforehand and transported in a suitable container.

6. <u>Monitoring Compliance and Effectiveness</u>

The key requirements will be monitored in a composite report presented on the Trusts Monitoring Report Template:

7. References

Source of data	Date of publication/issue	Detail of requirement
ICS	2011	Guidelines for the transport of the critically ill adult – 3rd ed.
MTCCN	2017	Operational policy

Ref 1. http://www.midtrentccn.nhs.uk/

Ref 2 The Intensive Care Society : Guidelines for the transport of the critically ill adult (3rd Edition 2011).

8. Documentation Controls

Development of Guideline:	Paul Smith
Consultation with:	Anaesthetic and Intensive Care staff
Approved By:	Anaesthetics/ITU - Dec 2018 Surgical Division - June 2019
Review Date:	July 2022
Key Contact:	Lead ITU consultant QHB

Reference Number POL-CL/2844-310/2018	**Version:** 2.0		**Status** Draft	**Author:** Kitty Duncan **Job Title** Intensive Care
Version / Amendment History	Version	Date	Author	Reason
	1.0.0	19/02/2016	Kitty Duncan	New policy
	2.0	06/12/18	Paul Smith	Review & Harmonisation
Intended Recipients: Anaesthetists, ODPs, ICU staff and Theatre staff				
Training and Dissemination: ED, Peads, Anaes, Crit care				
To be read in conjunction with: Transfer of Patients Policy, Mid–Trent Critical Care Network Operational Policy, Intensive Care Society Guidelines				
In consultation with and Date: Anaesthetic and Intensive Care staff				
EIRA stage One Completed No stage Two Completed No				
Procedural Documentation Review Group Assurance and Date	Yes / No and Date			
Approving Body and Date Approved				
Date of Issue	February 2019			
Review Date and Frequency	02/2022 every 3 years			
Contact for Review	Lead ITU consultant QHB			
Executive Lead Signature				
Approving Executive Signature				

Appendix 1

MID TRENT CRITICAL CARE NETWORK TRANSFER FORM

INSTRUCTIONS FOR USE OF THIS FORM

To be used for all level 2 and 3 patient transfers - This is a legal record of transfer

PATIENT DETAILS

Patient Name .....
Address .....
..... Postcode .....
Age or DOB .....
Male/Female .....
Patient NHS No .....

REFERRING HOSPITAL

Referring Hospital .....
Receiving Hospital .....
Date of Admission to Hospital .....
Date of Transfer .....
Time .....
Form Number .....

Brief Clinical Details

Pre-Sedation GCS

HISTORY & CLINICAL FINDINGS

Transferred From: ICU ☐ WARD ☐ A&E ☐ THEATRE ☐ OTHER

Is this a Trauma Patient: Yes ☐ No ☐

Major Trauma Patient destined for ITU: Yes ☐ No ☐

Clinical ☐ Non Clinical ☐

Reason for Transfer

Urgency of Transfer: Priority 1 / Priority 2 / Priority 3 / Routine

TIME

Time decision for transfer made
Time of first contact with ambulance service
Time of departure from referring hospital
Time of arrival at receiving hospital

TRANSPORT DETAILS

Job Number:

Type of vehicle: Ambulance ☐ Helicopter ☐

STAFF ARRANGING TRANSFER

Most Senior Doctor assessing patient for transfer:

Consultant ☐ Specialty Doctor ☐ SIR ☐ CT/ST ☐
Speciality: Anaesthesia / ITU ☐ Surgical ☐
Medical ☐ A&E ☐

N.B. Please advise name of accepting and referring Consultant

Name: .....

ESCORTING PERSONNEL

Staff accompanying patient during transfer:

Consultant ☐ CT/ST ☐ Retrieval team ☐
Spec. Doc ☐ Nurse / ODP ☐ Helicopter Medical
SIR ☐ Paramedic ☐ Staff ☐

Doctor

Name: .....
Grade: ..... Spec .....
Has medical escort had transfer training?* YES ☐ NO ☐

At Recipient Unit

Name: .....
Grade: ..... Spec .....

Nurse ☐ ODP ☐

Name: .....
Grade: ..... Spec .....
Has nursing escort had transfer training?* YES ☐ NO ☐

*see definitions of transfer training on reverse of back copy

VENTILATION DURING TRANSFER

Please tick appropriate boxes: Spontaneous ☐ Mechanical ☐ Ambu Bag ☐

Trachy / ET Tube Size
Ventilator Mode
Tidal Volume (V_t)
Peak Inflation Pressure
Peep
FiO_2
RR

No. and site of lines

MONITORING

Please tick appropriate boxes: ECG ☐ NIBP ☐ IABP ☐ CVP ☐ SpO_2 ☐ $ETCO_2$ ☐ Ventilated ☐ Temp ☐

Other (please state)

Number of infusion devices

Time												
Drugs During Transfer												
Fluids												

Pre-Transfer pupil size and reaction		Pupil Size	Reaction Yes/No
	Left		
	Right		

Post-Transfer pupil size and reaction		Pupil Size	Reaction Yes/No
	Left		
	Right		

SpO_2												
$ETCO_2$												
Pulse												
Blood Pressure												

TRANSFER COMMENTS: (Including description of adverse events)

Please see reverse of green sheet for patient transfer checklist

Print name of Escorting Doctor / Nurse: .....

CRITICAL / CLINICAL INCIDENTS ☐ Clinical ☐ Non Clinical

What effect did the incident have on the patient?

1. No effect on anybody
2. Transient abnormality unnoticed by patient
3. Transient abnormality with full recovery
4. Potentially permanent but not disabling harm
5. Potentially permanent disabling harm
6. Death

How preventable was the incident?

1. Probably preventable within current resource
2. Probably preventable with reasonable extra resource
3. Possibly preventable within current resource
4. Possibly preventable with reasonable extra resource
5. Not obviously preventable by any change in practice

INSTRUCTIONS

After arrival at the hospital, please file Front Copy with Patient Notes.

2nd Copy for Referring Hospital.

Appendix 2

Intra-Hospital Transfer Document

Affix Patient Label

Name.....

DOB.....

Unit Number B.....

Date: ...../...../20..... Time left Unit ..... hrs	Time back on Unit ..... hrs
Reason for transfer CT ☐ Theatre ☐ Other ☐	
Level of care at transfer 1 ☐ 2 ☐ 3 ☐	
Name of Doctor(s) transferring:..... ..... Grade: CT1/2 ☐ ST or Trust Grade ☐ Consultant ☐	
Name of nurse/others present:.....	

Pre-transfer Preparation

Medication	Done	N/A
***Sedative /opiate infusions** - enough for transfer time?		
***Muscle relaxant** (if ventilated)		
***Inotrope infusions** – spare if needed or Syringe of injectable vasopressor made up if not?		
Colloid bags x 2 available		
Stop insulin if indicated (not if IDDM)		
Oral contrast given for CT (if needed)?		
Stop feed and disconnect (flush NG if needed)		

Equipment/Materials	Done	N/A
***Transfer bag/drugs (yellow) bag checked**		
*Monitor/ventilator batteries fully charged		
***Self-inflating bag present**		
***Adequate oxygen cylinder supply (see page 3)**		
*All IV infusion lines patent and of sufficient length. ***All tubes/lines secured**		
***If IV contrast CT – distal** lumen of CVC patent (aspirated), flushed and available? ***If no CVC, 20G minimal** peripheral cannula in-situ, free to use and patent?		

Transfer Monitoring	Done	N/A
Check monitor power supply connected/working		
Calibrate transducers. Set alarm limits. NIBP on auto.		
Capnography monitor connected – alarm limit set		

ETT length at teeth:.....cm

Transfer Ventilator Check (level 3 patient)	Done	N/A
Plug ventilator O_2 pipeline into wall socket		
O_2 pipe to wall/transfer bridge connections secure (tug test both)		
Check ventilator power supply (plug bridge into mains)		
Check settings (tidal volume/rate/PEEP) similar to ITU ventilator measured settings (doctor) Set high pressure alarm limit (40 cmH_2O usually)		
Connecting to test lung, switch on ventilator(to IPPV) and check ventilator function is normal		
Check FiO_2 required – use 'Airmix' (FiO_2 0.6) only if patient requiring < FiO_2 0.5 and low PEEP (<10) on Unit ventilator		
Ensure HME connected at ETT and ensure capnography is connected correctly Connect patient to transfer ventilator - sedate/paralyse patient first (doctor) and observe closely		

1

Intra-Hospital Transfer Document

At Destination

Procedure	Done	N/A
Plug oxygen supply into wall (disconnect from bridge cylinder supply)		
Plug bridge electrical supply into mains		
Check ventilator function/alarms		
Check lines/tubes reach adequate at maximum insertion into scanner		
Check monitor/ventilator gauge visible from control room		

Medications (extra to all continuous infusions) given

DRUG/FLUID/DOSE	TIME GIVEN

Observations

Vital Sign	Pre-transfer (time.....hrs)	20 mins (time.....hrs)	40 mins (time.....hrs)	60 mins (time.....hrs)	Post-transfer (time.....hrs)
HR					
BP					
SpO_2					
$ETCO_2$					
FiO_2					
Resp Rate					
PEEP					

Adverse Incidents (complete incident report on intranet on return and document in notes)

Description of event(s)and action	Time

2

Appendix 3

Burton Hospitals NHS Foundation Trust
Division of Surgery
Department of Paediatrics

Setting up the Paediatric Transport Ventilator

1) Connect white O2 hose to wall oxygen point. (Remember you will need a second O2 outlet to run your bag-valve-mask/anaesthetic circuit).
2) Ensure the hose will reach the patient without stretching.
3) Set Relief/Alarm Pressure (essentially PIP) limit dial to 20cmH2O (25cmH2O in children over 5 years).
4) Set Inspiratory Time (TI) dial to1 second.
5) Set Expiratory Time (TE) dial to about 2 seconds. (This combination will give a Rate of approximately 20 breaths/minute)
6) Set the flow rate to minimum.
7) Set Air Mix dial to 'No Air Mix'
8) Calculate required flow rate:
   Required Flow (l/sec) = TI (secs) x Tidal Volume (mls)/1000
   Tidal Volume (mls) = Weight (kg) x 8ml
   E.g. 10 kg child tidal volume 80ml tI = 1s to deliver 80 ml in 1 sec requires 0.08 L/sec So Required Flow (l/sec)(VDEL)= TI (secs) x Weight (kg) x 8/1000 (This can also be read off the top of the ventilator)
9) Turn on ventilator by turning dial from CMV to CMV/Demand. (All lights will flash and alarms sound as 'self-test' and ventilator will then begin to cycle. Unless connected to patient or 'lung' the 'disconnect' alarm will sound.
10) Connect ventilator tubing to patient's ETT.
11) Increase flow rate slowly towards calculated flow rate and watch for chest movement. (All patients will have slightly different tidal volumes and uncuffed tubes sometimes used in children will have a leak so the final flow rate may be a bit different to that calculated. If you are unable to obtain adequate chest movement you may need to increase the Relief/Alarm Pressure limit - watch the pressure dial and listen for alarm). All initial settings are approximate and may need to be adjusted according to response, especially in children with specific chest disease. If you are unsure seek advice from someone with more experience.

Audit: Compliance with guidelines