

Standards & Guidance:

Intra and Inter-Hospital Critical Care Transfers (Adult Patients)



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Summary

It is recognised that the transfer of critically ill patients may be necessary to ensure patients are able to access clinical and specialist treatment. The transfer of critically ill patients is not without risk and should not be undertaken lightly. All attempts should be made by provider organisations to manage the need for transferring critically ill patients, resulting from inadequate critical care capacity. The requirement for patient transfer between organisations for a higher level of care is likely to increase over the years as reconfiguration of surgical and specialist services change across the North West.

The development of guidance is therefore required to underpin and support safe clinical practice and address the risks associated with transferring critically ill patients.

This document aims to assist organisations and individuals in improving the treatment of patients who require transfer within or between various hospital settings including:

- general wards/emergency care/theatres and critical care
- general wards/critical care & diagnostic services
- primary, secondary & tertiary sites

Clinicians face multiple challenges ensuring transfers are undertaken with minimal risk and in the best interest of the patient. Although published standards for transferring critically ill patients exist^{1, 2}, empirical evidence suggests that these are not necessarily followed³.

These standards and guidelines have been provided by the North West Critical Care Networks to support trusts when developing and reviewing their own transfer policies as part of an effective approach to clinical governance. Each trust should undertake a detailed risk assessment at organisational level for transfers of critically ill adults. This must be reviewed and escalated where appropriate and placed on the trust/unit risk register. A copy should be sent to the relevant Critical Care Network.

1.0 Introduction

- 1.1 This document has been produced to support acute trusts throughout the North West, and is to be used to assist in the development of local guidelines/policies as required.
- 1.2 The primary aim for all transfers is to ensure patient safety and minimise potential risk at all times. This principle applies to both intra- and inter-hospital transfers.
- 1.3 For all critically ill patient transfers there should be adherence to the principles of the “Management during Transfer” section of the Intensive Care Society ‘Guidelines for the Transportation of the Critically Ill Adult Patient’¹.

2.0 Definitions

- 2.1 For the purpose of this document ‘critically ill’ is defined as requiring a level of care greater than normally provided on a standard hospital ward^{4, 5} and essentially relates to Level 2/3 transfers

Level 0	Patients whose needs can be met through normal ward care in an acute hospital
Level 1	Patients at risk of their condition deteriorating, or those recently relocated from higher levels of care, whose needs can be met on an acute ward with additional advice and support from the critical care team
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 advanced 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

(Department of Health, 2000)

- 2.2 **Rehabilitating patients:** are defined as those who are recovering from critical illness and require transfer to areas providing lower levels of care, i.e. levels 0, 1 or 2. For more detailed information about levels of care please refer to the Intensive Care Society Levels of Critical Care for Adult Patients⁴.
- 2.3 **Capacity Transfer:** A transfer carried out for the purposes of receiving treatment or investigations normally provided at the referring hospital but not available at the time. Although such transfers may be carried out due to lack of available capacity, they may nevertheless remain clinically necessary and potentially time-critical.
- 2.4 **Clinical transfer:** refers to those patient transferred for specialist treatment/investigation not provided at the referring (parent) hospital, e.g. for more specialised critical care or discrete surgical, radiological or medical interventions such as angiography, TIPPS, neurosurgery, general surgery and vascular surgery.

- 2.5 Primary transfer:** Movement of a patient from the scene of injury or illness to the nearest receiving hospital.
- 2.6 Secondary transfer:** Movement of a patient from any hospital facility (e.g. emergency department/ward/critical care or theatre) to another hospital site.
- 2.7 Extended primary transfer:** Movement of a patient from the scene of injury or illness to a specialist centre, **by-passing** the nearest hospital to reach a centre more appropriate to the patient's needs.
- 2.8 Repatriation:** Movement of a patient being transferred back to the initial referring (parent) hospital or to a hospital nearer to the patient's home.

3.0 Transfer Definitions

3.1 Intra-Hospital Transfers: Are described as the movement of a patient between areas/departments within the same Trust and happen for a variety of reasons:

3.1.1 Movement between emergency department, general wards and critical care units in response to a change in the level of care required by the patient.

3.1.2 Movement from critical care units to diagnostic areas (e.g. for CT/MRI scanning) and other treatment areas (e.g. operating theatres, endoscopy suites & interventional radiography).

3.2 Inter-Hospital Transfers: Are described as the transfer of patients between hospitals. The reasons for inter-hospital transfers include:

3.2.1 The need for specialist treatment or interventions, e.g. major trauma, neurosurgery, cardio thoracic surgery, ECMO, burns or vascular management (clinical transfer).

3.2.2 Lack of a critical care bed (capacity transfer).

3.2.3 Repatriation of a patient back to the referring (parent) hospital or a hospital closer to the patient's home.

NB. It is not considered acceptable or safe practice to transfer critically ill/high risk patients between trusts hospital sites, in order to maintain operational function at the transferring site, unless this forms part of local/network contingency plans for managing escalation and /or major incidents.

4.0 The Decision to Transfer

4.1 The decision to transfer any critically ill patient will always be a balance of associated benefits and risk. The decision must be made by a consultant in intensive care medicine or anaesthesia at the referring (parent) hospital, in discussion with consultant colleagues from the receiving hospital and the patient to be transferred when possible. The final decision to accept a patient lies with the critical care consultant in the receiving hospital. Assessment of risks associated with any inter-hospital transfer must take account of the benefits of transfer and the timing of transfer will reflect factors such as the need for time-critical interventions.

NB. There may be occasions when decisions for time critical transfers are made without a consultant in intensive care medicine, this would include situations where guidelines exist to support decision making and immediate transfer for time critical specialist management (for example PCI).

4.2 Transfers should not take place until:

4.2.1 The patient's condition is deemed adequately stable for transfer

4.2.2 Transfer equipment is checked and in working order

4.2.3 Appropriately skilled staff are available

4.2.4 The receiving hospital area has identified they are ready to receive the patient

4.2.5 All lines, tubes, leads are appropriately secured

4.2.6 The Critical Care Networks have locally agreed Checklists for pre transfer and units should use these to ensure all key elements above are checked and in place before a transfer occurs (appendix 5a).

4.3 When considering a capacity transfer, all internal critical care escalation options should be exhausted and transferring the patient to another hospital should only occur as a last resort. Recommended strategies should include:

- Expedite delayed discharges.
- Review current patient case mix and identify any additional patients for safe discharge from critical care Obtain additional appropriately trained staff and utilise un-commissioned critical care bed spaces

4.3.1 Post-operative cases being managed in theatre recovery area, dependent on local policies and staffing arrangements.

4.3.2 Patients with predominantly cardiac problems may be managed in a coronary care unit following discussions with the duty Cardiologist, dependent on facilities.

4.3.3 Some patients may be cared for in the general ward environment where there are sufficient numbers of skilled staff and/or with the support of the Critical Care Outreach Team, where these are available. For example non-invasive ventilation may be carried out on designated wards, and patients with tracheostomies may well be managed safely on cohort wards.

4.3.4 As a short term plan, evaluating patient/nurse dependency ratios and service capability within the critical care environment, thereby assessing if an additional patient can be accommodated.

4.4 Where patients require transfer to another hospital for specialist treatment e.g. neurosurgery, arrangements should be made to move the patient in a safe timely manner acknowledging that unnecessary delays in transfer can adversely affect outcomes for the patient.

- 4.5** Patients should be appropriately resuscitated and stabilised prior to transfer to reduce the physiological disturbance associated with movement and reduce the risk of deterioration during the transfer.
- 4.6** Where patients need immediate transfer to a tertiary centre the benefits of being managed by a specialist team may outweigh the value of delaying the transfer to stabilise a patient which could be continued on route. This should be identified through discussions with the tertiary team clinicians.

5.0 Organising a Critical Care Transfer

5.1 Consultation Process

5.1.1 If a critical care transfer is required the Directory of Services (DOS) system should be utilised to ascertain local bed availability within the local Network.

<https://nww.pathwaysdos.nhs.uk/app/controllers/login/login.php>

5.1.2 Any intra- or inter-hospital transfer to or from a critical care unit must always involve discussions with the Critical Care Consultant and Critical Care Nursing Shift Leader.

5.1.3 Once an available critical care bed has been located, it is the responsibility of the consultant in the referring (parent) hospital to decide upon the suitability of patients for transfer and conversely the responsibility of the consultant in the receiving hospital to determine the suitability of the patient for admission.

5.1.4 The decision to transfer a critically ill patient may also involve consultants from other specialities. Patients should not be transferred without a consultant from the parent clinical team at the referring (parent) hospital taking responsibility for the ongoing management of that patient.

5.1.5 A consultant or nominated other will be responsible for organising the transfer and identifying appropriate transfer staff.

5.1.6 Contact must be made with the receiving hospital consultant to discuss clinical details and take advice on the need for any specialist management prior to, and during transfer.

5.1.7 The patient continues to be the responsibility of the transferring team until the patient has been formally handed over to the receiving hospital post-transfer.

5.1.8 In the case of transfers from the Emergency Department, the ED Consultant may take overall responsibility but must liaise with colleagues from anaesthetics or critical care at the referring hospital. The transfer must be accepted by the receiving hospital using the same principles given above.

5.1.9 If a capacity transfer is required, it is recommended that such transfers take place within the Network if at all possible and such transfers are recorded as a critical incident.

6.0 Selection of Transport Mode

- 6.1** For the majority of inter-hospital transfers, road ambulance is the most appropriate mode of transport. Road transportation has the advantage of rapid mobilisation time, less limitations by adverse weather conditions, less potential for physiological disturbances, easy patient monitoring and lower overall cost. Ambulance Control should be informed immediately that a critical care transfer is to take place and they will require details regarding patient status, escorting personnel, estimated time the patient will be ready for transfer and whether a 'P1' transfer will be required. Appendix 1 provides details for selection of appropriate transportation.
- 6.2** Helicopter or fixed wing transfers should only be considered for longer journeys and when road access is difficult. Vibration, altitude and acceleration/deceleration forces adversely affect patient haemodynamics and monitoring. Arrangements for air transfers are made through Ambulance Control. *It should be noted that it is unlikely that the escorting personnel will be returned by helicopter;* therefore alternative arrangements will need to be made to return staff to their base.

NB. Only staff with additional specialist training should undertake air transfers, whether fixed or rotary wing. Ambulance Control may on occasion advise that air transfer is preferable to road.

7.0 Accompanying Personnel

- 7.1** The Networks recommend that critically ill patients should normally be accompanied by two suitably trained, experienced and professionally competent attendants during transfer, one of which should be a medical practitioner. The background of the accompanying staff (medical/nursing/other) and the competencies required will depend on the nature of the underlying illness, co-morbidity, level of dependency and risk of deterioration during transfer. More details can be found in Appendix 2, 3 and 4.
- 7.2** The seniority of the escorting staff should be determined by the consultant arranging the transfer in partnership with the senior nurse/shift coordinator. This decision will be based on the condition of the patient and the level of expertise required.
- 7.3** Prior to each transfer the level of risk should be established and recorded by undertaking a risk assessment which may include:
- 7.3.1** Patient's current clinical condition (assessed using a physiological track and trigger score where appropriate, and other physiological parameters relevant to the patient's condition).
 - 7.3.2** Specific risks related to the patient's condition.
 - 7.3.3** Risks related to movement /transfer.
 - 7.3.4** Likelihood of deterioration during transfer.
 - 7.3.5** Potential for requiring additional monitoring/intervention/treatment.
 - 7.3.6** Duration and mode of transfer.

NB: The outcome of the risk assessment should be used to determine the competencies of the staff required to accompany the patient during transfer.

- 7.4 Ideally the escorting staff should have been directly involved with the care of the patient and be able to provide the required handover of patient and clinical information.
- 7.5 All personnel involved in transferring patients should have appropriately knowledge and skills in the transfer of critically ill patients and assessed as competent.
- 7.6 Staff escorting critically ill patients should be appropriately insured. This is usually covered through the trusts staff indemnity clause.

8.0 Preparing for Transfer

- 8.1 Prior to transfer, measures must be taken to ensure the patient's condition is stable. Meticulous resuscitation and stabilisation will reduce complications during the journey, although this needs to be balanced against the need for immediate transfer for specialist life-saving intervention.
- 8.2 Prior to departure, escorting staff should ensure they check and have available appropriate transfer bag and associated equipment.
- 8.3 Staff who have not been involved in direct care of the patient should familiarise themselves with the patient's history, treatment and investigations undertaken. Results from pathology and diagnostic services should be reviewed and recorded. A full clinical assessment including a physical examination should be performed and documented.
- 8.4 The airway should be assessed, secured and protected. Comatose and burns/smoke inhalation patients pose a particular risk from airway obstruction developing during transport and so careful consideration must be given to intubation prior to setting off.

NB. Significant swelling will occur in major burns 6 -12 hours after injury; therefore it is recommended that endotracheal tubes should not be cut.

- 8.5 Adequate sustainable gas exchange must be achieved before transportation commences. It is therefore recommended that patients are attached to the transfer ventilator for a period of at least 15 minutes prior to transfer, which allows for blood gas analysis before departure. However, clinical emergency to transfer the patient may limit this assessment/process and decision to transfer must be based on experienced clinical judgement. Advanced ventilator settings such as inverse ratios may not be achievable on portable ventilators.
- 8.6 Intubated patients should normally be sedated, paralysed and mechanically ventilated. Inspired gases should be humidified using a heat moisture exchange filter (HME).
- 8.7 Inspired oxygen should be guided by oxygen saturation and ventilation by end tidal carbon dioxide monitoring (EtCO₂) with a trace displayed on the transport monitor.
- 8.8 Where a pneumothorax is present or suspected, chest drains should be inserted prior to departure as part of meticulous resuscitation and management of risk/complications during transport¹.

- 8.9** Secure venous access is mandatory and at least two intravenous cannulae (central or peripheral) are required during transfer. At least one of these should be large bore. Suitably secured arterial cannulae for blood pressure monitoring where possible would be considered best practice.
- 8.10** Hypovolaemic patients do not tolerate transfer movement well. The source of continuing blood loss should be identified and controlled. Circulating volume should be optimised wherever practicable; however this may require ongoing intervention during transfer. If inotropes or other vasoactive drugs are being used to optimise haemodynamic status, patients should be stabilised prior to leaving the referring unit. Sometimes, in time-critical situations such as major trauma, circulatory stability can only be achieved following definitive surgical intervention.
- 8.11** A naso*/oro-gastric tube and urinary catheter should be passed and on free drainage unless there is a clear clinical indication not to do so.

**NB: Should be avoided in head injury patients*

- 8.12** When cervical spine injury is suspected, full spinal immobilisation must be implemented until clearance has been given. The injury should be confirmed or excluded at the first possible opportunity. Fractures should receive, at the very least, a basic toilet and splinting.
- 8.13** When transferring a patient with spinal cord injury the patient must be aligned, secured and protected. The preference is to use a vacuum mattress. If a spinal board is to be used, ensure that pressure area protection is provided in the form of a specialised pressure blanket.
- 8.14** A pre-departure checklist is recommended for use by escorting staff to help ensure that all preparations have been completed (appendix 5a).
- 8.15** Conscious patients should be kept fully informed of the transfer and other relevant information. Relatives should similarly be kept informed of travel arrangements.
- 8.16** Before departure the receiving unit should be contacted with an update on the patient's condition and to provide an estimated time of arrival.
- 8.17** To ensure adequate communication for inter-hospital transfers, a mobile phone, contact numbers and money should be available during transfer for emergencies.
- 8.18** Inter-hospital transfer personnel should have high visibility and warm clothing in case they need to leave the vehicle.

9.0 Management During Transfer

9.1 The Ambulance

9.1.1 The Committee for European Standardisation⁶ dictates that all patient trolleys for the purpose of inter- or intra-hospital transfer will be expected to meet the minimum European standards of safety and it will become the responsibility of the user to assure that this level is attained.

9.1.2 It is good practice to prepared critically ill patients for transfer before requesting transportation to ensure effective 'turn-around time'.

9.1.3 Patients should be secured to the transport trolley by means of appropriate restraint.

9.1.4 Pressure areas should be appropriately protected and warming/insulating blankets should be used to keep the patient warm unless clinically contraindicated.

9.1.5 Indwelling lines and tubes should be secure, visible and accessible.

9.1.6 All equipment must be securely mounted/stowed. Equipment should be either fastened to the transfer trolley or stored in lockers within the ambulance. Under no circumstances should equipment (e.g. syringe driver) be placed 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. Monitors should be clearly visible by the transferring team from their seated position.

9.1.7 During ambulance transfers staff should remain seated at all times and wear available seat belts. When emergency patient intervention is required the ambulance must first be stopped. Adequately resuscitated and stabilised patients should not normally require any significant changes to treatment during transport. If, however, despite meticulous preparation, unforeseen clinical emergencies arise and the patient requires intervention, this should not be attempted in a moving vehicle. The vehicle should be stopped in a safe place before administering treatment.

10.0 Equipment

10.1 All transfer equipment and medications, should be checked prior to departure; it is especially important that the escorting personnel are familiar with and competent in the operation of all equipment used in the transportation process.

NB: NWAS vehicles are well stocked with equipment to support transfer of the critically ill patient. Do not take unnecessary amounts of equipment as space is limited within vehicles.

10.1.2 Oxygen supplies must be adequate to cover the transportation process, e.g. from bed to bed, with sufficient reserve to allow for delays; it is recommended to have at least twice as much as anticipated. It is the responsibility of the escorting personnel to calculate requirements prior to departure.

10.1.3 Escorting personnel must ensure they are competent in the use of the defibrillator should it be required during a transfer.

10.1.4 Transfer monitors should allow clear display of the physiological parameters. Monitor alarms should be both audible and visible. The monitor should be adequately charged and also have a back-up battery pack. All equipment should be checked for compatibility with the ambulance power supply.

10.1.5 Portable ventilators must have disconnection & high pressure alarms and the facility for PEEP, the ability to allow manipulation of oxygen concentration, inspiratory: expiratory ratios, respiratory rate and tidal volume as a minimum specification. In addition the ability to provide pressure controlled ventilation and

continuous positive airway pressure (CPAP) is desirable. CO₂ analysis including waveform display is mandatory, side stream technology is recommended.

10.1.6 Infusion pumps with the facility to run on battery, sufficient in number to allow delivery of essential medications and fluids. This equipment should be fully charged prior to departure and additional syringes of medications e.g. inotropes and sedatives should be carried to ensure timely exchange⁷.

NB: Gravity dependent drips are recognised as unreliable for use in moving vehicles and should be avoided.

10.1.7 Daily checks of transfer equipment should be undertaken and documented to ensure that equipment is fully functional and ready for use at all times. Equipment must be kept on charge when not in use. It is the responsibility of the transferring staff to check the equipment is safe to use prior to transfer.

11.0 Monitoring During Transfer

11.1 The standard of care, monitoring and documentation during transport should be at least as good as that at the referring hospital or base unit. The minimum standards for monitoring are:

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

11.2 *Intermittent non-invasive blood pressure monitoring is sensitive to motion artefact and is unreliable in a moving ambulance. It is also a significant drain on the battery supply of monitors. Therefore continuous invasive blood pressure monitoring through an indwelling arterial catheter should be used.

11.4 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.

11.5 In mechanically ventilated patients the oxygen supply, inspired oxygen concentration ventilator settings and airway pressure should be monitored.

11.6 The recording of patient physiological parameters, treatments and clinical events during transportation must be recorded on the Network Transfer form.

12.0 Documentation

12.1 A Network transfer form should be used for every level 2 or 3 inter-hospital critical care transfer. This form enables the networks to monitor the safety/reasons for transfer, responses to treatments, physiological data and any untoward events. Local network transfer forms should be completed and copies returned to the Network as instructed on the form.

NB: it is the responsibility of the transferring clinician from the referring hospital that all fields and required information are completed, and the form posted to the appropriate Network office.

- 12.2** The recording of physiological parameters, treatments and clinical events during transportation should be recorded on the Network Transfer form along with the names of transferring party and receiving medical staff.
- 12.3** When the patient arrives at the receiving area/hospital, there should be a formal handover from escorting personnel to the medical and/or nursing staff of the receiving unit.
- 12.4** Handover should include a verbal and written account of the patient's history, vital signs, therapy and significant clinical events during transport. X-rays, scans and other investigation results should be described and handed over to receiving staff. The use of formal structures to aid safe communication of information such as the SBAR (Situation-Background-Assessment-Recommendation) tool or a Transfer Receiving Checklist such as in appendix 5b is recommended.
www.institute.nhs.uk/quality_and_service_improvement_tools
- 12.5** It is recognised that medical records and investigations will need to travel with the patient. Careful consideration should be given as to **how** they are transported.
- 12.5.1** Medical notes and loose documentation not required during travel should ideally be placed in a sealed and clearly marked envelope or bag.
- 12.5.2** A member of the transferring team should be identified to take responsibility for the transfer of the documentation.
- 12.5.3** Local information governance policies should be in place to inform this process and outline procedures should any documentation go missing.

13.0 Untoward Incidents

- 13.1** Any untoward incidents that occur during transfer of patients should be reported by the transferring clinician on the Network transfer form and also on return to the referring hospital, using the trust/critical care adverse incident system. Occasionally an adverse incident associated with a transfer will manifest itself after the patient has arrived on the receiving unit; this should be recorded by the receiving clinician and reported to their own Critical Care Network.
- 13.2** All critical incidents pertaining to critical care transfers should be discussed at the Trust Critical Care Delivery Group and the Critical Care Networks' Transfer forum with lessons learned shared to enhance best practice. Any remedial action required should be recorded in an accompanying action plan.

14.0 Auditing of Inter-Hospital Transfers

- 14.1** All transfer forms should be completed and returned to the trusts local critical care Network for audit purposes. The audit aims to measure the quality of inter-hospital transfers of critically ill patients through retrospective audit. All sections of the transfer form are used in the overall assessment of quality and safety. The assessment is made of the quality of the record and evidence of quality of clinical management

derived from recorded information. Transfer audit results will be shared and discussed at local and NW Network meetings.

15.0 Management of 'Outliers'

15.1 It is the responsibility of each critical care unit to monitor the outliers transferred due to capacity pressures. Information on patients expected to be repatriated should be conveyed and acted upon at unit/trust bed management forums/meetings.

15.2 The ethos of the Networks is that the facilitation of repatriation should be undertaken as a priority, if clinically appropriate, and that repatriation of outlying patients' should be considered within local operational policies. Guidance related to the repatriation of critical care patients is available in appendix 6.

16.0 Transfers from Independent Hospitals into the NHS

16.1 When the occasion arises that patients being cared for in the independent sector require admission to a critical care unit within a network, policies for 'Emergency Transfer of Critically Ill Patients from the Independent to NHS Care' should be referred to.

16.2 Level 3 beds are limited within the independent hospitals located within the NW and the provision of level 2 beds also varies across the sector.

References

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TRANSPORTATION CHOICES FOR CRITICAL CARE PATIENTS

The tables below provide details of priority categories for NWS transportation requests. Critical Care Units should identify the most appropriate priority required against the listed criteria, these are generally a P2 transfers. Further details on NWS transferring personnel and equipment for each of the priorities can be found on the preceding pages.

P1	P2	P3a	P3b	P4
<ul style="list-style-type: none"> • Trauma Unit to MTC blue transfer • Rescue/Primary PCI • Acute Stroke going for Thrombolysis • Surgical team waiting: patient for immediate operative intervention on arrival at the destination unit • Obstetric emergencies requiring immediate operative intervention on arrival at the destination unit • IABP (in situ) Transfers • Crash Transfer Protocol 	<ul style="list-style-type: none"> • Critical Care Department (ICU/HDU) transfers requiring a 'blue light' response, but do not meet any P1 criteria e.g. intubated and ventilated patients. <p>There must be a clear medical need for a blue light transfer.</p> <p><i>For non-blue light transfers, please book as P3A or discuss with Consultant/Transfer Coordinator.</i></p> <ul style="list-style-type: none"> • Rapidly deteriorating patient, with a new EWS >6 and/or new GCS <10 (Requires transfer despite deteriorating condition for specialist care) • Active ECMO Transfers • New active cardiac problems with recurring symptoms and need for continuous cardiac monitoring • Need for on-going monitoring due to A/B/C/D 	<ul style="list-style-type: none"> • Condition unstable • EWS of 3-5 or SpO2 88-92% or GCS >10 • GCS 10-15 suitable dependent on patient condition and patient's normal GCS • Requires crew/escort monitoring during the journey e.g. SpO2, NIBP. • Routine cardiac monitoring e.g. going for routine PCI 	<ul style="list-style-type: none"> • Condition stable • EWS <4 and clinically stable • EWS <3-5 and agreed DNAR • GCS 15/15 or reduced normal for patient • Unmonitored cardiac journeys, e.g. routine PCI, pacemaker clinic • Patients with IV infusions which can be capped off/stopped for the journey 	<ul style="list-style-type: none"> • GCS 15/15. EWS = 0-2 • Ambulant & self-caring patient.
<p>To request a vehicle from NWS for a critical care patient transfer telephone:</p> <p>.....</p> <p>Incidents or issues related to patient transfers should be reported to: inter-facility.transfers@nwas.nhs.uk</p>				

PRIORITY	Risk assessment	NWAS Priority	(NWAS) Vehicle specification	(NWAS) Vehicle staff	Escort staff	Other staff	Equipment
P1	<p><u>Eligibility Criteria</u></p> <ul style="list-style-type: none"> • Rescue/Primary PCI • Acute Stroke going for Thrombolysis • Surgical team waiting: patient for immediate operative intervention on arrival at the destination unit • Obstetric emergencies requiring immediate operative intervention on arrival at the destination unit • IABP (in situ) Transfers • Crash Transfer Protocol • Trauma Unit to MTC blue transfer <p>P1 is a BLUE LIGHT TRANSFER</p> <p>NB. All Critical Care & Major Trauma transfers will require network transfer form</p>	< 8 min	<p>Emergency vehicle (Post 55 plate if transfer trolley or infant pod used)</p> <p>Transferring unit must specify whether transfer trolley/infant pod is being utilised to ensure correct vehicle turns up and the transfer is not delayed</p>	<p>EMT2 or above</p> <p>(EMT2 = Emergency Medical Technician grade 2)</p>	Physician with Critical Care transfer competencies & advanced airway skills	RGN / ODP with competencies to support specific patient needs and any accompanying medical staff	<p style="text-align: center;">As deemed necessary by booking Unit</p> <p>NWAS Crews will not always be able to undertake returning staff or equipment</p>

PRIORITY	Risk assessment	NWAS Priority	(NWAS) Vehicle specification	(NWAS) Vehicle staff	Escort staff	Other staff	Equipment
P2	<p><u>Clinical condition deteriorating</u></p> <ul style="list-style-type: none"> • Rapidly deteriorating patient, with a new EWS >6 and/or new GCS <10 (e.g. time critical specialist patients) • Active ECMO Transfers • New active cardiac problems with recurring symptoms and need for continuous cardiac monitoring • Need for on-going monitoring due to A/B/C/D concerns • Level 2 or 3 critical care patients that do not meet the P1 criteria <p>P2 may require a BLUE LIGHT TRANSFER IF CONSIDERED MEDICALLY APPROPRIATE NB. All Critical Care & Major Trauma transfers will require network transfer form</p>	<19 mins	<p>Emergency Vehicle (Post 55 plate if transfer trolley or infant pod used)</p> <p>UCD may contact the booking unit during periods of high demand/call volume</p> <p>If high demand is experienced other private vehicle's may be considered</p>	EMT2 or above	<p>Appropriately qualified HCP is likely to be required to assist with care of deteriorating patient - infusions, infusion controllers or syringe pumps</p> <p>If sedated or anaesthetised: Physician with Critical Care transfer competencies</p> <p>If intubated: Advanced airway skills</p>	<p>Some circumstances may highlight the need for a medical escort and the competencies required of that person</p> <p>HCP with competencies to support Critical Care interventions and medical devices</p>	<p>As deemed necessary by booking Unit</p> <p>NWAS Crews will not always be able to undertake returning staff or equipment</p>
P3a	<p><u>Condition unstable</u></p> <p>EWS of 3-5 or SpO2 88-92% or GCS >10</p> <ul style="list-style-type: none"> • GCS 10-15 suitable dependent on patient condition and patient's normal GCS • Requires crew/escort monitoring during the journey e.g. SpO2, NIBP. • Routine cardiac monitoring e.g. going for routine PCI <p>Critical care repatriations Patients with a tracheostomy</p> <p>NB. All Critical Care & Major Trauma transfers will require network transfer form</p>	1-2 hours	<ul style="list-style-type: none"> • Intermediate Tier (for patients requiring continuous cardiac monitoring) • VAS (St. John or other voluntary aid resource) <p>UCD may screen these calls during operational hours to assess best available resource to send</p>	EMT2 or VAS II VAS= Voluntary Aid Service (St John's)	<p>May be required depending on the patients dependency (e.g. tracheostomy patients or critical care repatriations)</p> <p>Qualified HCP will be required if infusions, infusion controllers or syringe pumps running or cannot be:</p> <ul style="list-style-type: none"> • switched off • removed • contain medication outside crew scope of practice 	<p>May be required depending on patients dependency</p>	<p>May be required if tracheostomy patient or critical care repatriation</p> <p>Intermediate tier will provide continuous cardiac monitoring</p> <p>VAS will provide standard monitoring (e.g. pulse oximetry, NIBP)</p>

PRIORITY	Risk assessment	NWAS Priority	(NWAS) Vehicle specification	(NWAS) Vehicle staff	Escort staff	Other staff	Equipment
P3b	<p><u>Condition stable</u></p> <p>EWS <4 and clinically stable EWS <3-5 and agreed DNAR</p> <ul style="list-style-type: none"> • GCS 15/15 or reduced normal for patient • Unmonitored cardiac journeys e.g. routine PCI, pacemaker clinic • Patients with IV infusions which can be capped off/stopped for journey 	Within 4 Hrs	<ul style="list-style-type: none"> • Urgent Care Service or Intermediate Tier • VAS (St. John or other voluntary aid resource) <p>UCD may call to assess suitability for PTS to deal if resources are available or if there is high call volume or service demand</p>	<p>UCS or VAS I</p> <p>UCS= Urgent Care Service</p>	<p>Qualified HCP will be required if infusions, infusion controllers or syringe pumps running or cannot be:</p> <ul style="list-style-type: none"> • switched off • removed • locked out (DNAR) • contain medication outside crew scope of practice 	Not normally required	<p><u>Normally</u> no external medical devices (e.g. pumps / drivers) or monitoring required for journey</p>
P4	<p>GCS 15/15. EWS = 0-2</p> <p>Ambulant & self caring patient.</p>	Planned care booking or same day	<ul style="list-style-type: none"> • Planned Care • Consider Hospital Taxi 	Planned Care crew	Not normally required	Not required	No external medical devices unless self managed.(e.g. pumps / drivers) or monitoring required

Clinical terminology glossary

PCI	Percutaneous coronary intervention
IABP	Intra-aortic balloon pump
MTC	Major Trauma centre
EWS	Early warning score
GCS	Glasgow coma score
ECMO	Extra-corporeal membranous oxygenation
A/B/C/D concerns	Airway/breathing/circulation/disability
Critical care	Patients with one or more organ failure requiring acute intervention/support
ICU/HDU	Critical care levels of care. Intensive care unit (level 3) or high dependency unit (level 2)*
SpO2	Saturation of oxygen
NIBP	Non-invasive blood pressure
DNAR	Do not attempt to resuscitate (formal order)
IV	Intra-venous infusion

Critical Care Transfer Competencies – Intensive Care Society (2011)

1a Core competencies required of all staff (levels required appropriate to role)	
Knowledge	<p>Knowledge of local / Network / National Transfer guidelines</p> <p>Understands the principles of safe transfer of patients</p> <p>Knowledge of ambulance / transfer environment and associated health and safety issues / relevant legislation</p> <p>Knowledge of Advanced Life Support guidelines</p>
Skills	<p>Use of oxygen, respiratory therapies and portable ventilators</p> <p>Use of basic monitoring (ECG, NIBP, pulse oximetry)</p> <p>Use of transport equipment</p> <p>Competent to carry out advanced life support</p>
Attitudes and Behaviour	<p>Evidence of good team working</p> <p>Evidence that plans for and prevents problems during transfer</p> <p>Understands the benefit of pre-transfer check lists and uses these in clinical practice</p> <p>Understands the need for good communication with referring and receiving institutions & teams and evidence of this in practice</p> <p>Completes all required documentation including clinical notes/observation charts/audit forms</p> <p>Seeks support from senior/more experienced colleagues appropriately</p>

1b Additional competencies which may be required by medical staff to undertake level 2/3 transfer, depending on the clinical condition of the patient and the outcome of the pre-transfer risk assessment	
<p>Note: not all competencies will be required in every case. In many cases the parent team should have the competencies required.</p>	
Knowledge	<p>Knowledge of physiology of critical illness</p> <p>Knowledge of pharmacology of drugs including sedatives / muscle relaxants / inotropes and vasopressors</p> <p>Knowledge of the physiological effects of the transfer process and acceleration / deceleration forces in the critically ill</p>
Skills	<p>Use of a structured approach for assessment of critically ill patient prior to transfer</p> <p>Ability to interpret blood gases, and other clinically relevant investigations</p> <p>Ability to identify potential needs of patient prior to, and during transfer</p> <p>Ability to respond to changes in the patient's condition during transfer including ability to undertake the following procedures if required</p> <ul style="list-style-type: none"> • Basic / advanced respiratory support • Bag mask ventilation • Intubation

	<ul style="list-style-type: none"> • Emergency needle decompression / chest drainage • Resuscitation/optimisation of haemodynamic status including appropriate use of fluids / inotropes / vasopressors • Management of dysrhythmias including cardiac arrest • Ability to care for arterial lines / central lines and other indwelling catheters and to use/access appropriately
Attitudes and Behaviours	<p>Ability to assume leadership role during transfer</p> <p>Ability to provide clear and precise structured handover to receiving unit</p>

1c. Additional competencies required for second attendant accompanying level 2/ 3 patient

Knowledge	<p>Knowledge of the physiology of critical illness</p> <p>Knowledge of the administration of drugs likely to be required during transfer (includes sedatives / muscle relaxants / inotropes and vasopressors)</p> <p>Knowledge of the potential problems associated with movement acceleration / deceleration forces</p>
Skills	<p>Ability to carry out appropriate nursing observations and nursing care in the transport environment.</p> <p>Ability to assist with:</p> <ul style="list-style-type: none"> • Airway support - including intubation • Respiratory support - including oxygen therapy devices • Basic ventilator operation • Cardiovascular resuscitation • Fluid management including the preparation of infusions • The use of sedative drugs, and the use of syringe pumps
Attitudes and Behaviours	<p>Ability to provide clear and precise structured handover to receiving unit</p>

STAFF GUIDANCE FOR INTRA-HOSPITAL TRANSFER OF PATIENTS

PATIENT	(Minimum) ACCOMPANYING PERSONNEL	SKILLS REQUIRED	ESSENTIAL EQUIPMENT
Level 0	Porter or HCA or Nurse	BLS	
*Level 0.5 (Elderly/Confused)	Porter and HCA or Nurse	BLS	
Level 1	Suitably experienced Nurse/HCA and porter, appropriate to the needs of the patient	BLS and Gas Cylinder Training. Appropriate competency in: - Specific Drug Delivery - Recognition of Deterioration - Suction and Tracheostomy Care	- Oxygen - Suction (if Tracheostomy present) - Portable IV stand - Battery operated infusors - Pulse-Oximeter
Level 2	Nurse and Porter	All of above plus competency in: - Use of airway adjuncts - Use of bag and mask Appropriate competency in: - Use of defibrillator - Care of arterial catheter	All of the above plus: - HR and BP monitors - Defibrillator (transfers from Trauma Unit/Centre)
Level 3	Doctor, nurse and porter	All of the above plus competency in: - Management of the acutely ill patient, - ILS and/or ALS. - Advanced airway skills	Full ICU portable monitoring and transfer equipment

Adapted from LTHTR Patient Transfer Guidelines

NB. * Additional level in recognition of this group of patients, which require more additional transfer personnel.

Level 1, 2 and 3 patients should have personnel with appropriate skills with them at all times whilst away from the ward environment.

Level 0, Level 0.5 and Level 1 patients may be escorted by Pre Reg Nurses depending upon their level of competency/stage of training and the considered value of the learning opportunity.

STAFF GUIDANCE FOR INTER-HOSPITAL TRANSFER OF PATIENTS

PATIENT	(Minimum) ACCOMPANYING PERSONNEL	SKILLS REQUIRED	ESSENTIAL EQUIPMENT
Level 0	Ambulance Crew	BLS	
*Level 0.5	Ambulance Crew and HCA	BLS	
Level 1	Nurse and EMT 2Crew	BLS and Gas Cylinder Training Appropriate competency in: - Specific Drug Delivery - Recognition of Deterioration - Suction and Tracheostomy Care	- Oxygen - Suction (if Trachy) - Portable IV stand - Battery operated infusors - Pulse-Oximeter
Level 2	Doctor, Nurse and EMT2 Crew	All of above plus competency in: - Use of airway adjuncts - Use of bag and mask - Use of defibrillator (Trauma staff) - Care of arterial catheter (Trauma staff)	All of the above plus: - HR and BP monitors - Defibrillator (transfers from Trauma Units/Centre)
Level 3	Doctor and Nurse/ODA and EMT2 Crew	All of above plus competency in: - ILS and/or ALS - Endotracheal intubation - Management of critically ill patient - Transfer/transportation	Full ICU portable monitoring and transfer equipment. Network Transfer Form

Adapted from LTHTR Patient Transfer Guidelines

These guidelines are not completely inclusive.

NB - Level 1, 2 and 3 patients should have personnel with appropriate skills with them at all times whilst away from their ward. The highest single factor present denotes the level the patient is in. Level 0, Level 0.5 and Level 1 patients may be escorted by Student Nurses depending upon their level of competency/stage of training and the considered value of the learning opportunity. The purpose of these guidelines is to ensure the safety and well-being of patients who are moved around the hospital.

Checklist for Critical Care Transfers		NHS North West Critical Care Networks
1. Preparation		
Patient fit for transfer		
Transfer trained medical and qualified nursing or ODP staff available		
Bed confirmed at destination		
Named accepting specialty consultant and critical care consultant identified		
Case notes and investigations photocopied or printed		
Patient and/or relatives informed		
Patient valuables secured		
Ambulance service contacted, appropriate personnel and vehicle for transfer trolley en-route		
Destination hospital and department location confirmed		
2. Patient Checks		
Airway	Disability	
Safe and secure	Seizures controlled	
ETT / Tracheostomy position confirmed	ICP managed	
NGT in position	Sedation +/- Paralysis	
Breathing	Exposure / Metabolic	
Ventilation established	Temperature maintained	
Arterial blood gas checked	Urinary catheter checked	
Capnography in use	Glucose > 4 mmol/l	
Bilateral breath sounds	Potassium < 6, ionised calcium > 1mmol/l	
Chest drains secure		
HMEF	Monitoring	
	ECG, BP, SaO ₂ , ETCO ₂	
Circulation	Indwelling lines, tubes, secure/accessible	
CVS stable	Trauma	
Hb adequate	C-Spine stable/ protected	
Minimum two routes of IV access	Pneumothoraces drained	
A-Line + CVC working and zeroed	Thoracic /Abdominal bleeding controlled	
Blood for transfer checked	Long bone/pelvic fractures stabilised	
2. Immediate Pre-Departure Time Out Read aloud with all transfer team members present, including paramedics		
Introductions of staff completed		
Patient stable on transfer trolley and monitoring in place		
Emergency airway equipment available		
Oxygen & batteries adequate (use ambulance oxygen and electrics)		
Intra-venous access established and checked		
Infusions running and secure		
Spare sedatives / vasopressors / inotropes / fluids available as required		
Blankets / heat-loss measures in place		
Pressure points protected		
Mobile telephone available		
Transferring & receiving unit phone numbers available		
Receiving unit informed of departure		
Directions to destination department at receiving hospital known		



Transfer Checklist

At Receiving Hospital:

Transfer of Care/ Handover for patient coming from another hospital

1. Introductions

All staff to introduce themselves (accepting and receiving teams)	
Introductions complete.	
Who will control airway and supervise transfer?	

2. Procedures

Handover procedures	
ALL Lines free and tubing will reach. Patient transferred onto receiving unit bed	
Patient established on ventilator with capnography in place	
Infusions transferred to receiving units pumps	
Monitoring transferred	
Patient belongings off-loaded (After handover)	
Transfer equipment re-loaded (After handover)	

3. Handovers (All staff to listen to both handovers)

Medical handover	
History current problem and mechanism of injury	
Ventilator Settings/ airway problems	
Interventions during resuscitation and transfer and any problems	
Current medications	
Tubes and lines	
Wounds and drains	
Past medical history as known	
Allergies and previous medications as known	
Other problems/ issues for handover	
Nursing handover	
Pressure areas/ tissue viability	
Property	
Religious/ spiritual needs	
Relative information handed over	
Documentation & case notes handed over	
Infection control issues/HCAIs	

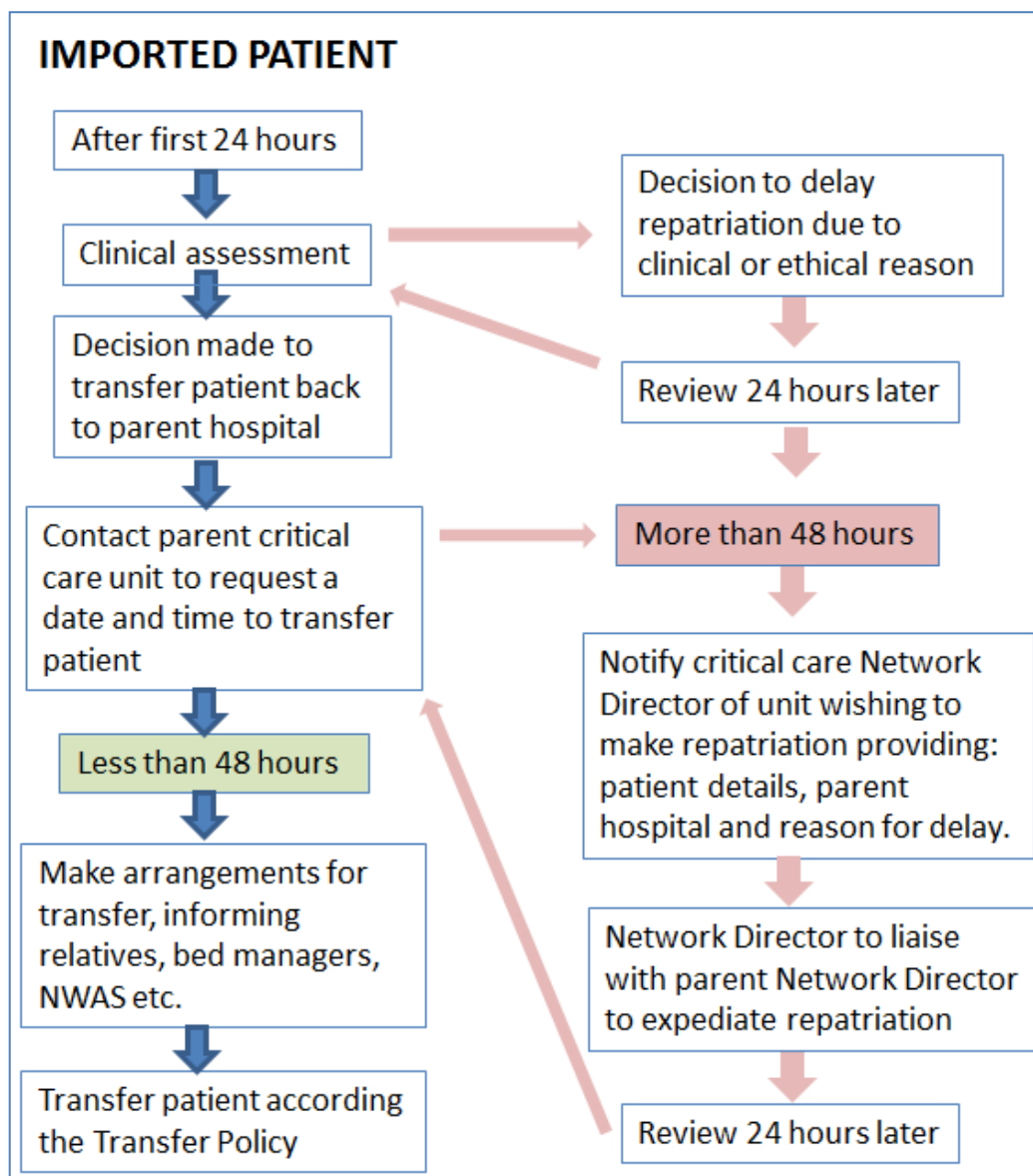
Email information about transfer

Transferring and receiving unit doctors to ensure email is sent to: CCN.transfer@cmft.nhs.uk to inform of date, transferring unit and receiving unit BEFORE transfer team leave unit.	
Ensure use of the check list has been recorded in tick box on transfer form	
Check all equipment re-loaded and patient belongings off loaded.	
White form stays with patient's new hospital notes, Yellow in transferring hospital notes, Pink form post to network	

Please email any comments on this pilot transfer checklist to l.coleman@doctors.org.uk

Repatriations of Out of Network Critical Care Patients

The aim of the following process is to help address the current situation of delayed critical care repatriations specifically between Critical Care Units in the North West.



Northwest Critical Care Network Directors:

- Cheshire & Mersey: Sarah Clarke, Tel: 0151 55 63258 or 0151 55 63260
- Greater Manchester Critical Care Network: Alan Stevens, Tel: 0161 876 1506
- Lancashire & S Cumbria: Andrea Baldwin: Andrea Baldwin, Tel: 01257 245484

Definitions

- **An Imported Patient** – is a patient that has been transferred from one Network into a Critical Care bed within another.
- **The Host Hospital** – is the hospital from which the patient was originally transferred.
- **A delayed repatriation** – is a patient that has been recognised as being clinically stable enough to be transferred back to his/her host hospital, the host hospital has been requested

to make arrangements to receive the patient and a period of time in excess of 48hours has lapsed since both the above were actioned.

Appendix 7

NW Provider Units

Units included are:-

	Acute Trusts
1.	Aintree Hospitals NHS Trust
2.	Blackpool Teaching Hospitals NHS Foundation Trust
3.	Central Manchester and Manchester Children's University Hospitals NHS Trust
4.	Countess of Chester Hospital NHS Foundation Trust
5.	East Cheshire NHS Trust
6.	East Lancashire Hospitals NHS Trust
7.	Lancashire Teaching Hospitals NHS Foundation Trust
8.	Liverpool Heart and Chest Hospital NHS Trust
9.	Liverpool Women's NHS Foundation Trust
10.	Mid Cheshire Hospitals NHS Trust
11.	North Cheshire Hospitals NHS Trust
12.	Pennine Acute Trust
13.	Royal Bolton Hospital NHS Trust
14.	Royal Liverpool and Broadgreen University Hospitals NHS Trust
15.	Salford Royal Hospitals NHS Foundation Trust
16.	South Manchester University Hospitals Foundation Trust
17.	Southport and Ormskirk Hospital NHS Trust
18.	St Helens & Knowsley Hospitals NHS Trust
19.	Stockport NHS Foundation Trust
20.	Tameside And Glossop Acute Services Foundation Trust
21.	The Christie Hospital Foundation NHS Trust
22.	The Walton Centre for Neurology and Neurosurgery NHS Trust
23.	University Hospitals of Morecambe Bay NHS Foundation Trust
24.	Wirral Hospitals NHS Trust
25.	Wrightington Wigan and Leigh NHS Trust

Useful Contact Numbers

Directory of Services – Critical Care Capacity Grid (logon & view)	www.pathwaysdos.nhs.uk
Directory of Services Queries/Issues	0113 397 3030 Email: PathwaysOperations@hscic.gov.uk
Intensive Care Bed Information Service (ICBIS)	0161 720 2420
Cheshire & Mersey Critical Care Network (CMCCN)	Office: 0151 556 3260
Greater Manchester Critical Care Network (GMCCN)	Office: 0161 876 1506/1500
Lancashire & South Cumbria Critical Care Network (LSCCCN)	Office: 01257 245483

Lancashire and South Cumbria Critical Care Network
Network Office

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