



Llywodraeth Cynulliad Cymru  
Welsh Assembly Government

# Designed for Life:

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Welsh guidelines for the  
transfer of the critically ill adult

March 2009



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## Contents

Section	Page
1. Introduction	1
2. Recommendations	2
3. Transfer arrangements within Critical Care Networks and Trusts	3
4. Decision to transfer and ethics	4
5. Equipment: All transfers	6
6. Equipment: Road Transfers	7
7. Equipment: Air transfer	8
8. Modes of transport	9
9. Personnel	11
10. Minimal monitoring	12
11. Preparation and stabilisation for transfer	13
12. Management during transfer	14
13. The handover	15
14. Communication	16
15. Documentation, audit and quality assurance	17
16. Insurance and indemnity	17
17. Education and training	18
18. Internal transfers	18
19. Independent hospitals	19
20. References	21
21. Acknowledgements	22
 <b>Appendices</b>	
1) Standards for adult critical care in Wales	24
2) Intra-hospital transfer competencies	25
3) Inter-hospital transfer competencies	26
4) Level-3 patient transfer competencies	28
5) Transfer checklist	31
6) Standard operating procedure for Welsh Ambulance Service	33
7) (Ambulance Control) Cue Cards	37
8) Role of a regional transfer group	40



## Foreword



I am pleased to be able to introduce the Guidelines for the Transfer of the Critically Ill Adult in Wales. These guidelines will provide a tool for the NHS and associated agencies giving comprehensive guidance and providing an all Wales standard for procedures involved in the process of the transfer of critically ill adults. The transfer of critically ill adults requires the seamless and well organised collaboration of all agencies involved in the transfer.

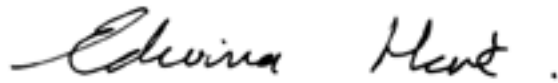
These guidelines clarify the roles, capabilities and responsibilities of those involved in the transfer of critically ill patients across Wales. It sets out the key actions to direct and guide activity ensuring that transfer services are planned, organised and delivered in the most efficient and sustainable way.

A key feature of managing critical care service delivery is the provision and planning of services by multi-disciplinary teams. These guidelines would not have been possible without the close collaboration, hard work and enthusiasm of the All Wales Critical Care Advisory Group, the All Wales Critical Care Networks, NHS Trusts, the Ambulance Service, and the Royal Air Force.

The Quality Requirements for Adult Critical Care Services in Wales were published in March 2006, along with the first strategic framework to direct and guide implementation up to March 2008.

The second strategic framework 2008-11 which guides the implementation of the quality requirements was issued in August 2008 and indicated that the Welsh Assembly Government would publish Guidelines for the Transfer of Critically Ill Adults. The development of All Wales Guidelines for the Transfer of Critically Ill Adults is part of the progressive implementation of the quality requirements.

All healthcare organisations will need to ensure that they are achieving and adhering to these guidelines. The guidelines will ensure that transfer services for the critically ill adult are delivered to a consistent standard, the quality of service is improved, inequalities of care across Wales are reduced and that patients receive the best possible standard of care.

A handwritten signature in black ink, reading "Edwina Hart". The signature is written in a cursive style with a period at the end.

**Edwina Hart AM**

Minister for Health and Social Services

## 1. Introduction

Critical Care Networks have been set up in Wales since mid 2007. Since then we have been striving to plan and deliver guidance and promote excellence for critical care in the Principality along with other health care bodies. One such task is the production of an all Wales transfer guideline. This guideline attempts to rationalise advice from a number of sources and also incorporates the unique challenges critical care faces in Wales. This document takes its framework from the Intensive Care Society Standards 2002 and the unpublished Welsh Intensive Care Society Guidelines for Transfer of the Critically Ill Adult Document.

It is important, when discussing critical care, to understand the complexities of the various levels of care. A précised version of the Welsh levels of care is set out in appendix 1. For a full description of the Welsh levels of care please visit:

<http://www.wales.nhs.uk/sites/documents/371/Final%20version%20CCDGstandardsJan%202003.pdf>

These transfer guidelines apply to level 2 and level 3 critically ill adults in the main, but level 1 patients may need to be considered. The guidelines pertain to transfers outside of the critical care department, be it an internal transfer (intra-hospital) to the CT scanner or an inter-hospital transfer (to another hospital). Such transfers may originate from the critical care unit, the accident and emergency department and sometimes the wards. This document only applies to secondary transfers. Primary transfers in the UK are generally carried out by paramedic and technician ambulance crews. Secondary transfers take place for one reason or another once the patient has been stabilised in hospital.

Transferring a critically ill patient requires co-ordination with many parts of the health service and other bodies including the ambulance service and the Royal Air Force, all with the common goal of providing patients with the best possible standard of care. This document attempts to harmonise this procedure by clarifying roles, capabilities and responsibilities.

## 2. Recommendations

- a) The Critical Care Networks should set up regional transfer groups with representation from all its stakeholders. Meetings of this group will be held at regular intervals and should plan and organise the structure of the transfer system in the region. The group should review transfer data from the 'critical care minimum data set' and the audit data generated by the transfer charts.
- b) Critical incidents which occur during a transfer must be reported through local Trust risk reporting processes. The local transfer group must also be informed.
- c) Critical Care Networks should develop an all Wales transfer form for the purpose of standardisation and audit.
- d) The Critical Care Networks should develop an all Wales database for the purpose of audit using information from the transfer forms. This information should be disseminated to the stakeholders at regular intervals.
- e) The Critical Care Networks should facilitate training for transfers but it is the responsibility of the Trusts to organise, plan, deliver and finance such undertakings.
- f) All Trusts and independent sector hospitals must be able to stabilise and resuscitate critically ill patients.
- g) All Trusts and independent hospitals must have access to transfer equipment which meets the minimum monitoring standards and allows for both road and air transfer.
- h) The quality of care during the transfer must be as good as the patient would get in the critical care unit at their base hospital.
- i) There must be a designated consultant and senior nurse in each Trust and independent sector hospital responsible for the organisation and development of a transfer service. These designated people must work in collaboration with their regional critical care network and regional transfer group.
- j) All patients must be adequately resuscitated and stabilised before transfer.



- k) Transfers should only be undertaken by competent medical staff, nursing staff and other health care professionals. They should all attend an appropriate transfer course and obtain competencies, qualifications and experience. (See appendices 2, 3 and 4)
- l) Sending hospital personnel on transfers must not jeopardise the care of existing patients in the unit by leaving inadequate staff numbers and skill mix. Each Trust must develop protocols to prevent this.
- m) Trusts must ensure that all staff members are adequately insured to perform transfers. All staff must be made aware of the terms and conditions of this policy.
- n) Arrangements must be in place to ensure that personnel and equipment are able to return to base after transfers.
- o) Trusts must have dedicated equipment for both road and air transfer to the recommended standard including a dedicated transfer bag.

### **3. Transfer arrangements within Critical Care Networks and Trusts**

Critical care networks, Trusts, the ambulance service and the Royal Air Force must work in close collaboration to achieve the common goal of safe transfer of critically ill patients.

It is the responsibility of the networks to form transfer groups involving critical care nursing and medical staff from the Trusts within the network and those outside the network to which they regularly send patients for specialist care (see appendix 7). Ambulance, air ambulance and the RAF should also be represented on this group. These groups should decide on local policy and decide on which transfer model to use. The three options are;

- a) Retrieval service. This will consist of a centrally placed transfer team (usually at a 3T centre) which will retrieve all patients from within the network and bring them to the most appropriate hospital.
- b) Local transport teams. Each Trust will provide their own transfer team based within the Trust and will be able to transfer their own patients to another hospital.

- c) A combination of the above where some Trusts will continue to send patients with their own teams and others within a network will be retrieved.

All acute hospitals must have in place a system to resuscitate, stabilise and transport critically ill patients regardless of which transfer model is used.

A named consultant and senior nurse should be responsible for the organisation and development of transfer services within the Trust and work closely with the Network regional transfer group.

Within each hospital, a named consultant should be available 24 hours a day to arrange and supervise all critical care inter-hospital transfers. This would normally be the intensive care consultant.

Regional bed bureaux should be used (if available) to identify the nearest available and appropriate critical care bed when needed.

## **4. Decision to transfer and ethics**

The decision to transfer a patient needs to be taken at a consultant level.

This decision must not be taken lightly and the risks and benefits must be evaluated. If the potential risks outweigh the potential benefits, then the transfer should not take place.

Once a decision to transfer is made, contact with the receiving unit must be made at a senior medical level.

The patient (if they have capacity) and their relatives must be informed as early as possible of the decision to transfer and the reasons for that decision.

The final decision for transfer lies with the consultant at the receiving unit.

There are three reasons for transferring;

- a) **Transfer for specialist care and investigation**

This is an emergency where efficient transfer is essential for treatment which cannot be provided in the base hospital. It is vital however that these patients are resuscitated and stabilised before transfer, despite the need for urgency.

*NB when contacting the ambulance service these patients may be classified as an 'immediate' transfer, for example emergency neurosurgical haematomas. Some patients however may be classed as 'urgent', for example transferring a patient for renal replacement therapy (appendix 6).*

- b) **Transfer for non-clinical reasons.** (Due to lack of resources, lack of critical care bed or inadequate staffing levels)

Ideally no patient should be transferred if it not in their best interest.

There are however circumstances where demand for critical care beds outstrips supply and a decision to transfer a patient to a unit with spare capacity must be made.

An ethical decision needs to be made whether to transfer a stable patient already on the critical care unit, or the patient requiring the critical care bed, however unstable. It can be argued that the patient requiring critical care should be the one transferred to a unit in another hospital because they are moving from a high risk environment outside critical care to a safer environment. This could not be said of the stable patient already on the unit. There may however be unusual circumstances where moving the stable patient already on the unit is the best option.

*NB when contacting the ambulance service these patients would usually be classified as an 'urgent' transfer-please see below.*

- c) **Repatriation**

These transfers must only take place once the patient has been deemed fit enough for transfer by the consultant looking after them. A full risk/benefit assessment must be undertaken and documented before the decision is made. Once a request is made for repatriation, this should be acted on as a priority in the receiving hospital and should normally take precedence over elective admissions to the unit. This helps preserve good will between units.

*NB when contacting the ambulance service these patients would usually be classified as an 'elective' transfer-please see below.*

Some units have outlying hospitals in their area with medical/surgical intake but with no critical care facilities. Each of these hospitals must have a robust agreement with their local acute Trust to facilitate retrievals. These outlying hospitals must have the personnel and resources to resuscitate and stabilise critically ill patients until the retrieval team arrives.

Once a decision to transfer is made, a clear categorisation of urgency for the arrival of the most appropriate ambulance (and crew) must be established and communicated with ambulance control. (See appendix 6). These categories are;

a) **Immediate**

Ambulance crew will be at the patient's bedside **within 30 minutes** from the time of the call to the ambulance service.

b) **Urgent**

Ambulance crew will be at the patient's bedside **within 2 hours**; at a time specified by you in the hospital.

c) **Elective**

Ambulance crew will endeavour to arrive at a time specified by you in the hospital. This will be at the convenience of the transferring hospital, the ambulance service and the receiving hospital. These will usually be repatriations.

***NB If you require a long distance (out of region) transfer please try to give 24hrs warning to the ambulance service).***

Ambulance control must be informed as early as possible when a decision to transfer is made even if an exact time has not been decided. This enables them to plan deployment more efficiently with regards to breaks and shift changes.

## **5. Equipment: All transfers**

Supplementary equipment may be taken but rationalised in dedicated medical bags supplied within each Trust for transfer. All equipment attached to or associated with the patient should be mounted securely at or below the level of the patient and all must be compliant with Health and Safety law and compliant with current CEN regulations.

Due to operational reasons, there is no guarantee that personnel and equipment will be returned to the base hospital by either the ambulance service or the RAF after a transfer. It is therefore imperative that personnel carry money, credit cards and mobile phones to facilitate repatriation of themselves and the equipment as soon as possible. Any reasonable expense incurred during this process must be reimbursed by the Trust.

Suction devices and defibrillators must be available on inter-hospital transfers and when moving the patient to and from the ambulance or helicopter. These devices are standard on a Sea-King helicopter and the EMS ambulance.

## **6. Equipment: Road transfers**

A standard ambulance trolley is not recommended for secondary transfer. Dedicated transfer trolleys approved by The Welsh Ambulance Service are the recommended system for road transfers.

All Welsh Ambulance Service emergency vehicles have equipment for monitoring and resuscitation as standard.

Equipment must be adequately secured. Volumetric drip counter infusions should be avoided for safety reasons as they are unreliable in a moving vehicle but peristaltic pumps can be used. All infusions should be delivered in syringe pumps. Fluid boluses can be given via free running drips with pressure bags if necessary.

Oxygen supply, flow rate and length of journey must be considered and discussed with ambulance control when requesting a vehicle. Additional unsecured oxygen cylinders are not permitted. All Type B ambulances carry two HX (2300 L each) cylinders and five CD cylinders. These must be checked on entering the vehicle.

If additional oxygen cylinders are permitted on the vehicle, appropriate connections and suitability of the cylinders must be assessed prior to transfer. Cylinders must be secured for the journey.

If oxygen demands require additional cylinders including that carried on the vehicle, air transfer should be considered.

Equipment must be familiar to all staff undertaking transfers.

Battery life must be considered with all equipment purchased and hospitals must ensure that this equipment is always suitably charged for use and checked by medical engineering as appropriate to each device.

Alarms must be audible as well as visual.

Consultation **must** be made with ambulance control and/or the air carrier to give advice regarding equipment requiring electricity during the journey that will not power independently on battery. An electrical supply is available within the road Ambulance and appropriate cable and connections must be used.

Vehicles have heating facilities but additional blankets may be required according to patient condition and season. Temperature of the patient must be monitored continuously to avoid hypo or hyperthermia.

Appropriate clothing and footwear must also be worn bearing in mind that it may be cold, despite heating in the ambulance.

## **7. Equipment: Air transfer**

Standard ambulance trolleys or dedicated road transfer trolleys are not suitable for air transfer. A device is needed for packaging the patient which can be fixed to the floor of the aircraft. A splint type system is appropriate but, whichever system is used, it must be approved by your local air carrier.

Each hospital must provide their own equipment and oxygen. Be self sufficient.

No equipment containing mercury should be taken on board.

Lightweight oxygen cylinders may be used but must be declared to the carrier on initial communication.

Cylinders taken on board must have appropriate adapters on each cylinder to ensure rapid change of cylinders mid flight.

All necessary equipment for airway and fluid maintenance must be taken, rationalised and easily accessible within the transfer bag.

The Zoll 1600D or FR2 defibrillator is provided on board. These are the only defibrillators authorised by the MoD. Only the winch-man is authorised to use this on board the aircraft.

All other equipment e.g. syringe drivers and infusion pumps must be rationalised as there will be limited areas to secure equipment in the aircraft.

The patient and all the equipment should be secured and must be strapped with safety harnesses within the aircraft.

Appliances attached to the patient should be positioned and secured safely on the patients' left hand side due to the positioning of the patient within the aircraft.

The carrying device will be anchored to the aircraft floor by the aircrew prior to departure. Ambulance or additional A&E extraction stretcher may be used if no carrying device available.

Battery life of all equipment must be considered, as there is no electrical supply readily available on the aircraft unless 'to save life'.

Staff clothing for transfer will be decided following risk assessment by individual Trusts. The flight in any season will be cold and appropriate steps should be taken to ensure patient warmth and that staff are dressed accordingly. Staff must have access to warm and waterproof clothing as well as all-weather robust foot-wear.

Mobile phones must be turned off on board the aircraft.

## **8. Modes of transport:**

Selection of transport mode should consider a number of key factors;

- a) Urgency of the transfer
- b) Condition of the patient
- c) Geographical factors
- d) Weather conditions
- e) Traffic
- f) Availability
- g) Suitable landing sites at destination
- h) Distance

The options for patient transport are;

### **a) Welsh Ambulance Service:**

**Availability** 24/7.

**Suitability:** All journeys.

**Durability:** Consideration should be given to type of equipment required and crew. Consideration should be given to feasibility of taking Emergency vehicle out of service for length of time.

**Contact Process:** Ambulance Control.

**b) Air Ambulance-Bolkow 105 Helicopter**

**Availability:** Restricted by daylight and weather conditions.

**Suitability:** Weight restrictions apply. Very restricted space on-board. One professional may escort the patient if necessary. Not suitable for level 2 or 3 transfers.

**Durability:** Any distance within the UK.

**Contact Process:** Ambulance Control.

**c) Air Ambulance- Eurocopter EC135 helicopter- (Not yet in service in Wales)**

**Availability:** Restricted to daylight hours but able to fly in all weather conditions.

**Suitability:** Weight restriction not an issue. More room in the cabin for the patient and two attendants and the paramedic. This may be suitable for level 3 transfers.

**Contact process:** Ambulance control.

**d) Royal Air Force: Air Carrier/Sea-King Helicopter**

**Availability:** 24/7 if aircraft available.

**Suitability:** All journeys.

**Durability:** Any distance within the UK.

**Contact Process:** Ambulance Control initially and thereafter through the Aeronautical Rescue Co-ordination Centre (ARCC).

**e) Fixed Wing**

**Availability:** Goes out to tender on request.

**Suitability:** Long distance only. Some aircraft have restricted cabin space and may not be able to accommodate patients and equipment, especially external fixators. This is a specialist service and will have dedicated medical staff.

**Durability:** Any distance. Usually needed for international transfers.

**Contact Process:** Via Ambulance Control.

It must be noted that the primary role of the Royal Air Force Sea-King helicopter is search and rescue. It must only be used for secondary transfers when other options have been ruled out and the time saved by flying may save life or limb.

If the decision has been made to go by air, any condition likely to be affected by a change in barometric pressure must be declared to the aircrew. The flight altitude can then be limited accordingly by the pilot.



Relative contra-indications for air transfer are pneumoperitoneum and intracranial air.

**Vehicle Types:**

- a) All level 2 and level 3 patients must be transferred in a Mercedes 515 EMS ambulance with a technician crew. Paramedic crews can be requested in exceptional circumstances but this request may cause delay.
- b) All level 0 and level 1 patients can be transferred in the confusingly named HDS (High Dependency Service vehicle) ambulance.
- c) Bariatric EMS ambulances can be requested from ambulance control for patients above 150 Kg where either one or both extension side arms on the trolley are required in the out position (extending the arms pushes the trolley out of alignment with the floor mounted locking system). These bariatric ambulances are specially reinforced and have central floor mountings allowing more room on both sides. Such a request can take time to organise so ambulance control need as much time as possible to prepare.

## **9. Personnel**

All individuals involved in the transport of critically ill patients must be suitably trained and experienced. Competency based training and assessment should be developed. (See appendix 2, 3 and 4).

There are risks associated to both patient and staff with any mode of transport.

A critically ill patient should be accompanied by a minimum of two attendants usually one medical and one from nursing or other health worker. The precise requirement for accompanying personnel will depend upon the clinical circumstances in each case.

Medical and nursing attendants must be willing to undertake transfer.

They will have to work independently.

They are expected to assist in any unpredicted procedure during transfer that may pose as a threat to life if not acted upon.

They may not be able to communicate with other team members during the journey. It is however recommended that mobile phones are carried by the attendants during the transfer with pre-programmed numbers of the base and the destination hospitals. Mobile phones must be switched off during flight.

The attendants must be experienced personnel as they will be working independently in an unusual environment. For level 3 patients, these attendants are usually an anaesthetist and a critical care nurse, operating department practitioner/anaesthetic nurse or an accident and emergency nurse. Ideally, as a minimum requirement, the nurse attendant must be a senior staff nurse with at least two years experience in caring for critically ill patients either in accident and emergency or intensive care. Likewise operating department practitioner/anaesthetic nurses who escort the patient must be senior and appropriately trained. (Appendices 2, 3 and 4).

The medical escort ideally should be a consultant, staff grade or associate specialist grade. This however is not always practical and it may be necessary to send a trainee. These trainees must have a level of competence suitable to the degree of illness of the patient. It is up to the discretion of the critical care consultant to decide this. If there is any doubt, then the trainee should not be sent and a more suitable person found.

Anaesthetists or others with appropriate airway skills are required to attend all level 3 transfers. Level 2 transfers may require anaesthetic involvement if there is a risk of airway/breathing compromise during transfer. This should be decided by the critical care consultant.

Anaesthetists are not required if;

- a) There is unlikely to be any airway/breathing compromise during transfer.
- b) The patient has a 'do not resuscitate' order.
- c) Anaesthetic intervention will not affect outcome.

## 10. Minimal monitoring

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 required for level 2 and level 3 patients are:

- a) Continuous presence of appropriately trained staff
- b) ECG-continuous
- c) Non-invasive blood pressure
- d) Pulse oximetry (SaO<sub>2</sub>)
- e) End tidal carbon dioxide (EtCO<sub>2</sub>) in ventilated patients
- f) Temperature
- g) Airway pressure monitor in ventilated patients

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. Ideally all level 3 patients should have invasive blood pressure monitoring during transfer (this is mandatory in all acutely brain injured patients or any patient where the blood pressure is unstable, has the potential to be unstable, or if the patient is on inotropes).

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

Intracranial pressure monitoring may be required in selected patients.

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

A written record of patient status, monitored values, treatment given and any other clinically relevant information should be completed during the transfer.

## **11. Preparation and stabilisation for transfer**

Thorough resuscitation and stabilisation of the patient should be aimed for before transfer. Hypovolaemia is poorly tolerated by the patient due to acceleration and deceleration forces during a transfer. Due to this, hypovolaemia must be fully corrected before transfer.

Advice can be sought from the receiving unit to guide transfer resuscitation but responsibility rests with the transfer team.

Transport attendants must familiarise themselves with the treatment already undertaken and independently assess the patients condition.

All equipment and drugs must be rechecked by the transporting staff.

The airway must be assessed. Tracheal intubation and ventilation prior to transfer is essential if there are any concerns as to the integrity of the airway. The patient should then be sedated, paralysed and ventilated.

Arterial blood gas analysis should be performed prior to departure after the patient has been on the transport ventilator for at least 15 minutes.

Minimal monitoring standards for the level of the patient are mandatory.

Venous access must be secured before departure. These must be at least 2 wide bore peripheral or central cannulae.

If pneumothoraces are present, chest drains must be inserted with a leaflet valve (Heimlich) prior to transfer. Chest drains should never be clamped.

Nasoenteric (oro- if the nasal route is contra-indicated) and urinary catheters should be passed and free drainage allowed into collection bags.

Departure check lists should be used to ensure that all the necessary preparations have been completed. (See appendix 5)

## **12. Management during transfer**

All patients must receive the same level of care during the transfer as they would get in their base intensive care unit.

Patients must be kept warm and their eyes and ears must be protected during the transfer.

Patients must be secured to the transfer trolley by means of a 5 point harness or if travelling by helicopter, secured to a splint which is itself secured to the floor with strapping.

All equipment must be securely stowed below patient level.

The patient must be monitored continuously throughout the transfer and observations recorded on the transfer chart.

Monitors, ventilator and pumps must be visible at all times to the attending personnel and should be secured to the trolley below patient level.

Oxygen cylinders must be held in secure housing at all times.

For the majority of cases high speed travel is not necessary. The decision to use blue lights and/or police escort rests with the ambulance crew who will take advice from the senior clinician on board.

During road transfer staff, should remain seated at all times and wear seat belts provided. If clinical needs arise where the patient requires intervention, then the vehicle should be stopped in a safe place. Where the staff may be required to move outside the vehicle, high visibility clothing must be worn. On safety issues the attendant staff must obey instructions from the crew.

During air transfer, a fall in barometric pressure will result in reduced alveolar partial pressure which may lead to hypoxaemia. An increased inspired oxygen concentration should be considered when transferring by air.

### **13. The handover**

On arrival at the receiving hospital, there must be a formal handover between the transfer team and the receiving nurses and medical staff who will assume responsibility for the patient.

For retrievals, there needs to be a handover before the transfer.

A copy of the referring hospital's notes must accompany the patient.

This handover should take place in a calm environment once the patient is settled.

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 chart.

One copy of the completed Transfer Form will be retained at the receiving hospital, one copy will be kept by the referring hospital and inserted into the patient's hospital notes and one copy will be sent to the North Wales Critical Care Network in the pre-addressed envelope.

Handover must take place as quickly and efficiently as possible because the ambulance and crew become 'operational' as soon as the patient has been transferred to the ICU bed. Every effort will be made by WAST to repatriate the medical transfer team. However, on occasion, during exceptionally busy times whilst returning from a transfer, the ambulance will become a first responder (attend an emergency) with or without the transfer team on board.

## **14. Communication**

Communication is vital for a trouble free transfer. Many problems which occur in the transfer process are avoidable with good communication.

The patient (if the patient has capacity) and relatives of the patient must be told the reasons for transfer as early as possible and the place to which the patient is being sent. They must be given contact numbers for that unit and told how to get there.

The decision to transfer a patient is the responsibility of the sending consultant. The patient must be accepted by the consultant of the receiving unit before the transfer can take place. If the patient is being retrieved, then these decisions rest with the consultant in the retrieving unit. First contact should be made between consultants in the sending and receiving units where the medical needs of the patient can be discussed.

All subsequent contact can be delegated to one other person, usually the senior nurse of the unit. That person should be the sole communicator with the receiving unit until the transfer is complete. Obviously a shift change may occur but a full handover between the nurse going off shift and the one coming on must take place. This avoids the problems of multiple people getting involved and information being lost.

The dedicated communicator with clinical knowledge of the patient should contact ambulance control requesting an ambulance/helicopter and should be the sole contact for subsequent discussions between the unit and the ambulance service. (See appendix 7)

The dedicated communicator must give a full update of the nursing needs of the patient to their counterpart in the receiving hospital.

It is vital that the transferring team have contact with both the base hospital and the receiving unit to receive medical advice if needed and provide updates of progress. It is recommended that the transfer team carries a mobile phone with pre-programmed numbers.

A full handover must be given to the receiving hospital unit staff by the transfer team on arrival.

## **15. Documentation, audit and quality assurance**

Clear records must be maintained at all stages of the transfer.

Standard documentation in the form of a transfer chart is being developed for Wales and should be used when available.

This documentation will be used as an audit tool by the networks and a National data base will be built up. This data will be disseminated on a regular basis to stakeholders.

It is the responsibility of the Trusts to maintain critical incident reporting regarding transfers using the Trust standard (clinical governance) protocols.

Audit data will be reviewed on a regular basis by the networks and key issues flagged up at regular regional and National audit meetings.

## **16. Insurance and Indemnity**

It is essential that all members of staff who might be involved in transporting patients ensure that adequate financial arrangements are in place for themselves and their dependents in the event of an accident. The Networks are pursuing an all Wales insurance policy but in the meantime, each Trust must provide personal indemnity insurance in addition to corporate insurance for all staff employed within each Trust, including trainee staff. Guidance may be sought from the Welsh Risk Pool.

Membership of the Intensive Care Society or the Association of Anaesthetists of Great Britain and Ireland will confer a degree of personal insurance to that member in the event of an accident during a transfer. Details must be sought from these bodies.

## **17. Education and Training**

Each Welsh Hospital has a responsibility to ensure that personnel involved with the transport of sick patients are adequately trained and experienced to at least the minimum standard (see appendices 2, 3 and 4) and also develop local guidelines appropriate to need.

Courses for the transport of acutely ill patients must be available to each Trust or Network region. They should provide a background level of knowledge and used as an adjunct to appropriate clinical training and experience including supervised transfers.

Competency based training and assessment should be developed to ensure the highest possible standards of care for the critically ill patient requiring transport. This should encompass not just medical staff but all members of the multidisciplinary team who may be potentially involved. (See appendix 2, 3 and 4)

The same level of training should generally be required whether transporting critically ill patients between departments within a hospital (intra-hospital transfer) or between hospitals (inter-hospital transfer).

## **18. Internal transfers**

Minimal monitoring standards, training standards and experience of personnel apply to intra-hospital as well as inter-hospital transfers.

A risk benefit analysis must be considered before all transfers.

Aim to be self sufficient in oxygen and battery power with enough reserve capacity to allow for emergencies, for example, getting stuck in a lift. Electrical equipment should be plugged into the mains and walled oxygen used for the duration of stay at the destination.



Patients being taken to the MRI scanner must have MRI compatible equipment. Personnel must be aware of the potential hazards. If in doubt, check with the radiology staff.

The standard road transfer trolley is not necessary for intra-hospital transfers due to the low speed of such an activity.

All equipment associated with the patient must be at or below patient level. (Not on the patient).

Thorough resuscitation and stabilisation should be aimed for before transfer.

Intra-hospital transfers should be used as supervised training for trainees.

## **19. Independent hospitals**

All independent hospitals must have a written policy for the procedure of transferring a patient who becomes critically ill, to another hospital. This is the responsibility of the independent hospital to ensure that the protocol is in place.

The independent hospital and the designated local NHS Trust must decide how the patient is transferred. The patient can be retrieved by personnel from the NHS Trust or the independent hospital can opt to carry out the transfer themselves using appropriately trained staff.

Transfer minimum standards must be the same in the independent sector as they are in the NHS.

The independent hospital must have equipment for resuscitation and stabilisation of the patient which meets the minimum monitoring criteria.

Patients who become critically ill in the independent sector must be treated promptly by appropriately trained staff.

It is the responsibility of the patient's consultant to ascertain the patient's and family's wishes regarding intensive care intervention and resuscitation prior to transfer. Advice can be sought from the critical care consultant in the designated NHS Trust. Other factors must be taken into account regarding the patient's chronic health status and the likely chances of a recovery.

All patients must be risk assessed prior to admission to a private sector hospital. Patients likely to need critical care should not be admitted and arrangements made for their treatment to be carried out in a hospital with these facilities.

Patients needing transfer from the independent sector to an intensive care facility in the NHS should be recorded as a critical incident by that body and the regional transfer group should also be informed.

Medical staff (usually the consultant) looking after the patient in the independent sector must contact the consultant covering the intensive care unit in the designated NHS Trust. The intensive care consultant will have the final say whether the patient is admitted and may offer advice. If the designated hospital intensive care is full, it is the responsibility of the critical care consultant to identify an alternative critical care bed.

Some NHS doctors may feel uncomfortable with the concept of NHS and private sector interactions. The general principles apply, however that, 'Patients who are entitled to NHS funded treatment may opt into or out of NHS care at any time'. This principle also applies to emergency care.

## 20. References

Committee of the American College of Critical Care Medicine. Guidelines for the transfer of critically ill patients. *Critical Care Medicine* 1993; **21**: 931-7

Australian and New Zealand College of Anaesthetists and Australian College of Emergency Medicine. Minimum standards for the transport of critically ill patients. *Australian College of Emergency Medicine*, 1996.

Guidelines for the transport of the critically ill adult. Standards and Guidelines. *The Intensive Care Society, London*, 2002.

Inter-hospital transfer of the critically ill trauma patient: the potential role of specialist transport team in a trauma system; McGinn GH, Mackenzie RF, Donnelly JA, Smith EA, Runcie CJ,. *Journal Accident Emergency Medicine* 1996; **13**: 90

A comparison of a specialist retrieval team with current United Kingdom practice for the transport of the critically ill patients. Bellingan G, Oliver T, Batson S, Webb A,. *Intensive Care Medicine* 2000; **26**: 740-4

Transfer of the Critically Ill Adult. *Welsh Intensive Care Society* unpublished

Levels of critical care for adult patients. *The Intensive Care Society, London* , 2002

Recommendations for the safe transfer of patients with brain injury. *The Association of Anaesthetists of Great Britain and Ireland* 2006

Inter hospital transfer of the critically-ill patient in the Republic of Ireland. *The Association of Anaesthetists of Great Britain and Ireland* 2006.

Guidelines for the Transport of the Sick Adult: Road and Air. North and Mid Wales NHS Trust 2003. Williams, E. Timmins, M. OC C Flight Royal Air Force, *et al.*

## 21. Acknowledgements

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### Standards for Adult Critical Care in Wales

#### All Wales Critical Care Development Group (September 2003)

<b>Level 0</b>	Suitable for patients whose needs can be met through normal ward care in an acute hospital.
<b>Level 1</b>	Suitable for patients at risk of their condition deteriorating, those recently relocated from higher levels of care, and those whose needs can be met on an acute ward with additional advice and support from the critical care team.
<b>Level 2</b>	Suitable for hospitalised patients requiring more detailed observation or intervention, including support for a single failing organ system, postoperative care and those stepping down from higher levels of care.
<b>Level 3</b>	Suitable for hospitalised patients requiring advanced respiratory support in addition to the above, but the duration of multi-organ support or ability to manage multiple patients might be limited by staffing or equipment constraints.
<b>Level 3T</b>	Organ support and monitoring for most body systems should be available at Level 3T and these facilities would normally be available to multiple patients simultaneously. This level is suitable for critically ill patients requiring prolonged support for multi-organ failure. Such units would have a significant teaching and training role.

### Recommended competencies for intra-hospital transfers of patients

Adapted from the Lancashire Teaching Hospital Trust (LTHTR) patient transfer guidelines

Patient	Accompanying personnel (minimum)	Skills required	Essential equipment
<b>Level 0</b>	Porter or HCA	BLS	
<b>Level 0.5 (Elderly/confused)</b>	Porter and HCA	BLS	
<b>Level 1</b>	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 (ILS) Suction and tracheostomy care	Oxygen Suction (if trachy) Portable iv stand Battery operated infusors Pulse oximetry
<b>Level 2</b>	Nurse and porter	All of the above, plus; Two years critical care experience Use of airway adjuncts Use of bag and mask Use of defibrillator Care of invasive monitoring	All of the above, plus; ECG and BP monitors Immediate access to defibrillator
<b>Level 3</b>	Doctor, nurse and porter	Competency of supervising doctor or the transferring doctor must be at or above the minimum standard See appendix 4	Full ICU portable monitoring, ventilator and transfer equipment up to minimal monitoring standards

### Recommended competencies for inter-hospital transfer of patients

Adapted from the Lancashire Teaching Hospital Trust (LTHTR) patient transfer guidelines

Patient	Accompanying personnel (minimum)	Skills required	Essential equipment and vehicle type
<b>Level 0</b>	Ambulance crew	BLS	<b>HDS vehicle</b>
<b>Level 0.5 (Elderly/confused)</b>	Ambulance technician crew and HCA	BLS	<b>HDS vehicle</b>
<b>Level 1</b>	Nurse and ambulance technician crew	The above plus competency training in; Gas cylinders Specific drug delivery Recognition of deterioration (ILS) Suction and tracheostomy care	<b>HDS vehicle</b>  Oxygen Suction (if trachy) Portable iv stand Battery operated infusors Pulse oximetry
<b>Level 2</b>	Doctor, nurse and ambulance technician crew	All of the above plus competency in; Use of airway adjuncts. ALS provider. Use of bag and mask Use of defibrillator Care of invasive monitoring	<b>Mercedes 515 EMS ambulance</b> All of the above plus; Continuous ECG and BP monitoring Defibrillator
<b>Level 3</b>	Doctor, nurse and ambulance technician crew	See appendix 4	<b>Mercedes 515 EMS ambulance</b>  Full ICU monitor, ventilator and transfer equipment according to minimal monitoring guidelines.



These guidelines are not completely inclusive.

Para-medical crews can be requested from ambulance control in exceptional circumstances.

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

### **Competencies for transferring critically ill level 3 adults on inter-hospital and intra-hospital transfers**

All critically ill adults (level 3) are transferred by 2 attendants. One is a doctor, either an anaesthetist or equivalent with airway training and a nurse or operating department practitioner (ODP). Transfers require a minimum standard of skill from these attendants as they will be working entirely independently. This document will define these competencies.

#### **The doctor**

Must have;

- 1) At least 6 months experience in critical care and with daytime sessions on the intensive care unit.
- 2) Advanced airway skills of at least ST 3 level or equivalent.
- 3) ALS or ATLS provider.

**The ODP** must be at least 2 years post qualification.

#### **The nurse**

Must have;

- 1) Spent at least 2 years working in a critical care environment, either ITU or A/E.
- 2) ALS or ILS providers.

Both practitioners must attend a course for the transfer of critically ill adults. They must be assessed for competencies for the following.

## **Equipment**

### **Ventilator-**

Doctor must show;

- 1) good knowledge of the ventilator modes and functions
- 2) ability to change batteries if required
- 3) ability to change oxygen cylinders and calculate oxygen requirements

The nurse/ODP must show;

- 1) ability to change oxygen cylinder
- 2) ability to change batteries if required

### **Pumps**

Both attendants must show;

- 1) ability to change batteries
- 2) ability to change syringes
- 3) ability to change infusion rates and give boluses

### **Monitor**

Both attendants must demonstrate

- 1) zeroing invasive waveforms
- 2) care of invasive monitoring
- 3) setting up ECG
- 4) setting up capnography
- 5) setting up pulse oximetry

### **Transfer bag**

Both attendants must have full knowledge of the contents of the transfer bag.

### **Transfer trolley**

Both attendants must show how to set up the transfer trolley and secure the equipment and the patient on to it.

### **Splint system for air transfer**

Both attendants must have knowledge of setting up this system for air transfer.

## **Patient packaging**

Both attendants must demonstrate how to package a patient safely, ready for transfer.

## **Communication and guidelines**

Both attendants must demonstrate knowledge of how to communicate with the receiving hospital and ambulance control. They must both have read and understood the local and national transfer policies. They must also have knowledge of the command and control structure for transfers.

## **The transfer**

Both attendants must show knowledge of the pitfalls of transferring a critically ill adult in a moving vehicle, both land and air and be aware of the associated dangers to themselves and the patient.

## **Handover**

Both attendants must know the handover procedures at the receiving hospital.

## **Orientation**

Both attendants must have guided orientation round the inside of a land ambulance and the air carrier aircraft prior to their first transfer. Both should have undertaken level 3 intra-hospital transfers prior to inter-hospital transfers.

## **Minimal monitoring guidelines**

The doctor must have knowledge of the minimal monitoring guidelines.

### Transfer checklist

Tick each task when completed

- ☐ Has the intensive care consultant in the receiving hospital accepted the patient?
- ☐ Has the consultant physician/surgeon at the receiving hospital accepted the patient?
- ☐ Has the receiving hospital ITU/ward been informed of time and date of arrival and accepted the patient?
- ☐ Has the appropriate mode of transport been arranged i.e. helicopter or ambulance?
- ☐ Is the patient adequately resuscitated and intubated if necessary?
- ☐ Is the patient adequately sedated and paralysed if necessary?
- ☐ Is there full monitoring up to minimal monitoring standards including capnography?
- ☐ Are the patient's eyes and ears protected, and measures taken to prevent heat loss?
- ☐ Is the level of experience of the transfer team adequate?
- ☐ Is the transfer team wearing appropriate clothing and footwear?
- ☐ Has the transfer team got money/credit cards and mobile phone in case of being stranded?
- ☐ Ventilator checked?
- ☐ Batteries checked?
- ☐ Adequate oxygen for the journey?
- ☐ Transfer bag checked?

**Continued Overleaf**

- ☐ Letter to receiving consultant?
- ☐ Appropriate drugs? (don't forget fridge drugs)
- ☐ Notes
- ☐ X-rays
- ☐ Blood results
- ☐ Transfer documentation and obs. chart
- ☐ Cross matched blood if applicable
- ☐ Ring receiving hospital just before leaving

Re-check A,B,Cs again and check an arterial blood gas after 15 minutes on the transport ventilator before leaving.

**Ymddiriedolaeth GIG Gwasanaethau Ambiwylans Cymru**

**Welsh Ambulance Services NHS Trust**



**Standard Operating Procedure for  
The Transfer of the Critically Ill Adult**

## Control Services - Standard Operating Procedures

### Receipt of call requesting transfer of the critically ill adult

The hospital responsible for the transfer of the patient will make an assessment and ensure that the patient assessment is in line with one of the following categories -

These categories are;

d) **Immediate**

Ambulance crew will be at the patient's bedside **within 30 minutes** from the time of the call to the WAST.

e) **Urgent**

Ambulance crew will be at the patient's bedside **within 2 hours**; at a time specified by the hospital.

f) **Elective**

Ambulance crew will endeavour to arrive at a time specified by the hospital. This will be at the convenience of the transferring hospital, the ambulance service and the receiving hospital. These will usually be repatriations.

NB If the transfer is of a long distance in nature the hospitals have been advised to try to give 24hrs warning to the WAST.



## Inputting of calls to Computer Aided Dispatch System

### Immediate

Ambulance crew will be at the patient's bedside **within 30 minutes** from the time of the call to the WAST.

The immediate request should be entered into the CAD as an AS2 with no stand down. The nearest resource will be sent (if one not already at hospital). Once patient is on board the vehicle, crew to inform control of their departure and the call upgraded to AS1 in order that emergency procedure can be safely utilised if required.

### Urgent

Ambulance crew will be at the patient's bedside **within 2 hours**; at a time specified by the hospital.

The Urgent request should be entered into the CAD as an AS2 and normal principles applied regarding urgent transport as per the current standard operating procedures. If the patient's condition requires 'blue light' transfer, the crew are to inform ambulance control of this on their departure and the call upgraded as per standard operating procedures.

### Elective

Ambulance crew will endeavour to arrive at a time specified by the hospital. This will be at the convenience of the transferring hospital, the ambulance service and the receiving hospital. These will usually be repatriations.

These patients should follow the current standard operating procedure for repatriation and the resource department will follow their guidelines on attempting to ensure Operational Unit Hour Production is not adversely affected by this type of request.

## **Transfer of the critically Ill adult by Air**

### **Utilisation of WAST Air Ambulance**

It will be the responsibility of the requesting Hospital to ascertain whether or not a transfer by Air Ambulance is required and indeed suitable. On request of an Air ambulance, this request should be passed to the Control Duty Manager and their assessment of availability etc. will determine if an Air ambulance Transfer is possible.

### **Utilisation of RAF Helicopters**

It will be the responsibility of the requesting Hospital to ascertain whether or not a transfer by RAF Helicopter is required and suitable for the patient. This request will be passed to the Control Duty Manager and they will instigate a request through the standard operating procedures for utilisation and activation of RAF.

### **Utilisation of private Air Ambulance**

It will be the responsibility of the transferring hospital to request transport for the critically Ill adult with Private Air Ambulance contractors through ambulance control. A request may be made for WAST to transport a patient from hospital to the Helipad. This must be documented and the relevant paperwork completed in order for reimbursement to be possible.

### (Ambulance Control) Cue Cards

In order to improve the communication between hospital staff and ambulance control room staff 'cue cards' have been developed. They have been written in collaboration with WAST control room staff are designed to provide the clinician with the order of questions that they will be asked. They should also:-

- Avoid clinicians needing to ring 999 for immediate transfers.
- Ensure the appropriate ambulance attends at the appropriate time.
- Avoid ambulance staff waiting unnecessarily whilst the patient is packaged for transfer.

### Critical Care Transfer Cue Card

Calling the Ambulance service:

*Where possible please ring the Ambulance Control room to give prior warning that you will be requiring a Critical Care Transfer soon.*

- Please dial your region's number
- Please state the hospital and unit/ward you are calling from
- Please state that you need an
  - **Immediate** transfer within 30mins or
  - **Urgent** transfer within 2 hours or
  - **Elective** transfer within 24 hours

**North Wales: (01248 689089)**

**South West Wales: (01267 222555)**

**South East Wales: (01633 626118)**

(According to the Welsh Transfer Guidelines - see below for definitions).

You will then be asked

Patients name	
Patients gender	
Patients DOB	
Where you are going to (which hospital)?	
Which dept/ward you are going to (in the hospital)?	
Mobility of the patient	State 'stretcher'
Diagnosis of the patient	State 'sick person'
Time to be at the patient's bedside	Please be realistic about when you will be ready to leave - the aim is not to keep ambulance staff waiting
Are there any staff or, how many staff are escorting the patient?	E.g. 'one anaesthetist, one nurse'
Are there any infections the ambulance crew need to be aware of?	If the patient has MRSA for example just state 'MRSA but covered'
Are there any special requirements (relevant to the crew)?	E.g. slow transfer/blue light transfer etc

## Immediate

Ambulance crew will be at the patient's bedside within 30 minutes from the time of the call to the WAST.

THESE PATIENTS WILL USUALLY BE CLINICAL TRANSFERS I.E. PATIENT REQUIRING IMMEDIATE CARE IN A SPECIALIST CENTRE

## Urgent

Ambulance crew will be at the patient's bedside within 2 hours; at a time specified by you in the hospital.

THESE PATIENTS WILL USUALLY BE NON-CLINICAL TRANSFERS I.E. TRANSFERRED DUE TO LACK OF CRITICAL CARE BEDS IN YOUR HOSPITAL

## **Elective**

Ambulance crew will endeavour to arrive at a time specified by you in the hospital. This will be at the convenience of the transferring hospital, the ambulance service and the receiving hospital.

THESE PATIENTS WILL USUALLY BE REPATRIATIONS. NB If you require a long distance (out of region) transfer please try to give 24hrs warning to the WAST.

### Role of a regional transfer group

Each critical care network must have a regional transfer group, chaired by the critical care network. This must consist of:

- 1) Senior doctor and nurse from each critical care unit in the network.
- 2) Ambulance representation.
- 3) Ambulance control representation.
- 4) Royal Air force search and rescue.
- 5) Air ambulance.
- 6) Out of region tertiary referral centre representation.

The role of this group is to:

- 1) Look at clinical governance issues regarding transfers using audit data from the transfer forms and the Trusts. This data can be analysed by the group and lessons learnt disseminated to interested parties. Clinical governance surveillance however is still the primary responsibility of the Trusts.
- 2) Facilitate transfer training for interested parties.
- 3) Devise a 'transfer model' that best fits the region.
- 4) Act as a forum to discuss practical issues regarding transfers.
- 5) The group should meet at regular intervals. Approximately every 4-6 months



