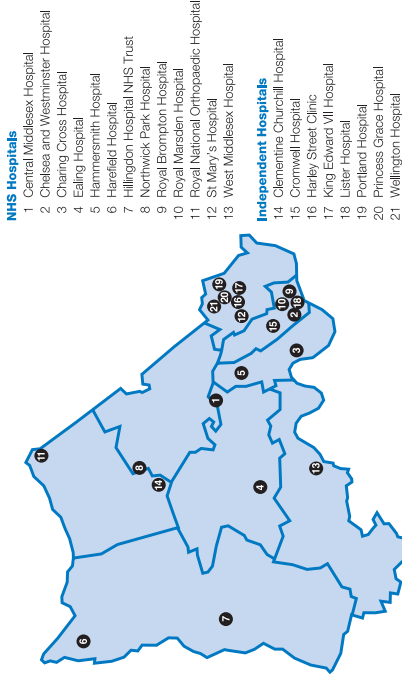


Transfer course Aide Memoire



- NHS Hospitals**
- 1 Central Middlesex Hospital
  - 2 Chelsea and Westminster Hospital
  - 3 Charing Cross Hospital
  - 4 Ealing Hospital
  - 5 Hammersmith Hospital
  - 6 Harefield Hospital
  - 7 Hillingdon Hospital NHS Trust
  - 8 Northwick Park Hospital
  - 9 Royal Brompton Hospital
  - 10 Royal Marsden Hospital
  - 11 Royal National Orthopaedic Hospital
  - 12 St Mary's Hospital
  - 13 West Middlesex Hospital
- Independent Hospitals**
- 14 Clemantine Churchill Hospital
  - 15 Cromwell Hospital
  - 16 Harley Street Clinic
  - 17 King Edward VII Hospital
  - 18 Lister Hospital
  - 19 Portland Hospital
  - 20 Princess Grace Hospital
  - 21 Wellington Hospital

Assessment of the patient

- Airway & Cervical spine
- Breathing
- Circulation
- Disability (Neuro)
- Exposure and Fractures
- Fluids electrolytes and renal

- Gut
- Haematology
- Infection

Organisational

- Just in case (Mobile etc)
- Kit check
- Lab Results
- Monitoring
- Notes & X rays
- Oxygen
- Paperwork and Phone
- Quality control
- Risk assessment
- Ready to go .....



Airway

- GCS < 8 or fluctuating – intubate or pO2 < 8 Kpa - intubate
- Suction, spare equipment for potential loss of airway, Bag/valve/mask
- (Airway) Cervical spine
- History compatible with injury? Examination? Clearance depends upon definitive CT protocol, Scans reviewed by Consultant radiologist
- If in doubt manage as if injured -> Neutral position, Collar +/- Sandbags

Breathing

- Adequate blood gases
- Ventilated – stabilise 15 minutes prior to transfer on transport ventilator
- Breathing

Rib fractures or Pneumothorax= CHEST DRAIN

- Drains always unclamped (except post pneumonectomy)**

Circulation

- Give fluids and assess CVP & perfusion prior to transfer
- Ensure MAP > 75mmHg (>90 mmHg in Neuro), Ensure Systolic BP > 120mmHg
- Pulse needs to be < 120 / minute
- 2 x IV cannula for travel
- Fluids – (volumetric pumps are not designed to travel) if in doubt start low dose pressors and/or inotropes, Noradrenaline usually best if sedated, and augments benefit of "being full"
- Make sure all infused drugs clear dead space: a 3 way tap has a dead space of (≈0.5ml) + lumen (0.3-0.5ml) ≈ 1ml, so at 2 ml/h may take 1h. Run at 20ml/h for 2 mins then 10ml/h until response seen

Disability (Neurological status)

- History suggesting neurological impairment?
- Clinical Examination (symmetry). Best GCS? Current GCS?
- Response to pain centrally (V) and peripherally
- Pupils (II, III)
- Eye movements (II, III, IV, V, VI, VII, VIII)
- Reflexes and plantar reflexes
- Corneal reflex?
- CT findings
- SEDATE ALWAYS if orally intubated. Relaxants USUALLY
- Always consider seizures a possibility (Nonconvulsive status). Anticonvulsants
- Raised ICP -> KEEP MAP > 90, Deeper sedation

Exposure (and Fractures)

- Check Temperature
- Patients usually get cold
- Vasoconstriction can precipitate pulmonary oedema
- Wrap well with blankets (even if just going along corridors)
- Pressure points must be well padded
- Lines
- Where? How old? Secure?

Exposure and Fractures?

- Ensure secondary survey has been completed (ATLS)
- Fractures must be stabilised (bones grate against each other with the vibration of travel), and also imply blood loss/risk or bleeding

Fluids, Electrolytes and Renal

- Sodium? Do NOT attempt complete or rapid correction unless actively fitting
- Potassium (aim 4.0 to 5.0). Correct to safe range BEFORE moving
- Mg > 1.0 (give 20 mmol if necessary, esp MI or PET)
- Correct acidosis. Bicarbonate BY INFUSION if required
- Urinary catheter
- GLUCOSE

Gut

- Nasogastric tube on free drainage - (Oral if base of skull fracture suspected or coagulopathic)
- CHECK POSITION ON CXR
- History suggesting possible intra-abdominal bleeding (AAA?, Trauma)?
- NOT SUITABLE FOR TRANSFER unless purpose is definitive surgical treatment

Haematology

- Ensure Hb > 7.0 or Aim > 10 if any risk of bleeding or recent MI
- Coagulation satisfactory? Platelets > 50
- What products have been given? Have you got *and checked* the cross-matched blood? Known antibodies?

Infection

- Does your hospital have any current problems with multiresistant or transmissible organisms (e.g. MRSA, VRE, Acinetobacter)
- Does this patient have any MR bug? Are they a contact? Any other transmissible infection (esp TB, HIV, HBV, HCV)
- Does the patient have active infection? Known bugs? What antibiotics? Doses up to date? Have appropriate Cultures been taken?

Infusions

- Rationalise infusions
- Sedation + Analgesia (Propofol + Opioid)
- Relaxant (consider Pancuronium bolus)
- Noradrenaline
- Inotrope
- Possibly Insulin
- Possibly Bicarbonate
- Syringe drivers ONLY
- Put vasoactive drugs on smallest lumens = white or blue 18G
- Keep larger CVP lumens (grey 14G) for rapid infusion
- Remember mechanical backlash, and dead space – usually about 1ml before any drug reaches the patient

## Just in case

- o Mobile phone + Phone numbers, Cash + Clothing, Food & drink, Cyclizine?
- o Emergency drugs (ALWAYS LABELLED)

## Kit Check

- o Batteries, Leads and Inverter
- o Defibrillator
- o Monitor
- o Suction unit
- o Transfer bag, with Tracheostomy / Cricothyroidotomy kit
- o Ventilator

## Lab Results

- o If you have checked it... know the result
- o NEVER go without knowing at least Glucose, Potassium, Hb, Blood gases and seeing CXR if intubated

## Monitoring

- o Minimum for Level 2 = ECG, SpO<sub>2</sub>, NIBP
- o Minimum for Level 3=As above + Arterial Line + In most cases CVP (4+ lumens) + ETCO<sub>2</sub>
- o Monitoring and equipment is secure

## Notes and X Rays

- o Medical notes, Nursing notes, Scans and X rays, Transfer Letter for interhospital transfers, Transfer form

## Oxygen

- o Minute volume = Tidal volume x Rate (Usually 5-15 L/min)
- o Requirement = 60 x Minute volume L/h - Can usually assume 600 L/h. This is equivalent to 1 E cylinder (680L) per hour
- o Ambulances usually carry 2 F cylinders - full this is enough for 4 hours
- o Air mix reduces usage by 50%
- o Allow DOUBLE expected requirement with a buffer of at LEAST 1 hour (Lift stuck? Traffic jam?)

## Paperwork

- o Ensure details are filled out on transfer form - It is YOUR defence against litigation and disciplinary action. It is a legal requirement AND bad forms usually correlate with poorly conducted transfers!
- o Complete checklist

## Phone

- o YOU MUST notify: ICU Consultant, Destination to verify that they will be ready
- o Ambulance - request either
  - o Critical transfer (within 15 minutes)
  - o Immediate transfer (within 1 hour)

- o Do not delegate these tasks, since Communication is Central

## Quality Control

- o Critical incidents - You must fill out incident forms, otherwise it will happen again, and again and again and .... Again.
- o If equipment fails you must identify it, and make a note of the serial number and hospital equipment number and record this on critical incident form and transfer form

## Risk Assessment

Are the staff escorts appropriate for the level of patient transfer?

## Ready to Go

- o Remember request either
- o Critical transfer (within 15 minutes)
- o Immediate transfer (within 1 hour)

## Think

- ❖ **Pink**
- ❖ **Full**
- ❖ **Stable**
- ❖ **Warm**
- ❖ **Simple**

## For your handover give an AMPLE history

### Allergies

### Medications

### Past medical history and functional status

### Last food

### Events leading to transfer / injury / admission

## Never forget:

“Full Patients travel better”

“Blood in the wrong place hurts”

“If it can go wrong, plan for it”



For more details and advice please see the  
NWL Critical Care Network Transfer Form or visit  
[www.londonccn.nhs.uk](http://www.londonccn.nhs.uk)

## Neurosurgical transfer

For comatose patients (GCS<9) requiring emergent intervention this must occur **within 4 hours of the time of injury**  
Patients likely to be in this group are those with

- o Acute subdural haematoma
- o Extradural haematoma
- o Acute hydrocephalus
- o Intubation if
  - o GCS < 9
  - o Loss of protective reflexes
  - o PaO<sub>2</sub> <13 on O<sub>2</sub>
  - o PaCO<sub>2</sub> <4 or >6kPa
  - o Falling GCS (2 points or more)
  - o Bleeding into mouth e.g. Base of skull
  - o Bilateral mandible fracture
  - o Fits
- o In patients with raised ICP keep
  - o MAP>90 mmHg
  - o CO<sub>2</sub> 4.5-5.0 kPa
  - o PaO<sub>2</sub>>13 kPa
- o In patients with SAH
  - o Keep SBP<160 mmHg and HR<100

## NEVER FORGET THE OTHER INJURIES

## Vascular transfer

Aortic patients die from uncontrolled bleeding, myocardial infarction, or late, multi-organ failure. Main initial goal is to avoid free rupture, which means you need to reduce “wall tension” – this means reduce SBP AND reduce HR (also helps avoid MI)  
Keep

- o SBP<100
- o HR<100
- o Avoid volume resuscitation as far as possible, provided conscious level is acceptable
- o Ensure adequate analgesia
- o Useful antihypertensives include Clonidine, Esmolol, Metoprolol, Labetolol, GTN, and SNP. But be cautious and titrate drugs SLOWLY to effect – in the face of hypovolaemia responses are likely to be exaggerated. You really must avoid the need to give adrenaline.
- o Avoid intubation in abdominal aneurysm
- o Thoracic transection is usually associated with multiple injuries, and often intubation is needed.
- o Do NOT drain any pleural effusion without first consulting surgeons it may precipitate sudden rupture - if you do- make sure you have lots of X matched blood to hand.
- o Traumatic pneumothorax may require drainage however

Expedite transfer and don't forget the blood please!