Paediatric Intensive Care Unit

East Midlands Congenital Heart Centre Guideline for the Handover of Post-Operative Cardiac Surgery Patients to PICU

Staff relevant to:	Medical & Nursing staff involved with the handover of post-operative cardiac surgery patients to PICU
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Related Documents:
Post Cardiac Surgery UHL Childrens Intensive Care Guideline C150/2016

Contents

1. Introduction and Who Guideline applies to

The handover of patients following cardiac surgery to PICU staff can be complex. Handover involves:

- The transfers of monitoring and support from portable systems to PICU care system.
- Communication of information gained from the pre-operative period together with the anaesthetic and surgical procedures.
- A time-pressure since the ODP and anaesthetists often have to return to theatre to prepare for further cases.

Poor communication during hand-over has been shown to be a risk factor in patient outcome (in combination with other factors).
Use of a formalised handover process has been shown to:

- Reduce technical errors (monitoring, ventilators, infusions & lines etc.)
- Reduce information omissions
- Take no longer than a non-formalised handover

Therefore, by adapting a formalised process for our PICU we can reduce the incidence of errors and omissions and improve patient care and outcomes.

The aim of this guideline is,

- To formalise the process by which information about the care of patients being admitted to PICU following cardiac surgery is handed over to PICU nursing and medical staff
- To ensure:
  - accurate and relevant communication and recording of information about the patient from both the pre-operative and intra-operative period
  - safe transfer of ventilation, monitoring equipment, drug infusions and other ancillary equipment such as lines, drains, catheters and pacing devices
  - a plan for further management is agreed between the clinical teams

This will be achieved by following the guidance below, together with formal training of staff that are likely to be involved in the handover process.

2. ORDER OF HANDOVER

a) Transfer of the patient's ventilation from the bagging circuit (or transport ventilator) to the PICU ventilator by anaesthetist and admitting PICU doctor
b) Chest drains placed on suction by admitting PICU nurse
c) Equipment, monitoring and other ancillary equipment/devices transferred to PICU monitors and care systems by Monitoring technician (Perfusionist/ODA or Physiological Measurement Technician)
d) ODA/Perfusionist/PMT free to leave PICU
e) Information handover by anaesthetist to PICU nursing and medical team
f) Information handover by theatre nurse to PICU nursing and medical team
g) Questioning/clarification of information by PICU nursing and medical team
h) Information handover by cardiac surgeon to PICU nursing and medical team
i) Questioning/clarification of information by PICU nursing and medical team
j) Team discussion highlighting potential problems and agreement on management plan

Handover is complete at this point

2.1 ALLOCATION OF ROLES

a) The anaesthetist will transfer the patient to the ventilator on arrival to PICU, and although the admitting PICU doctor will check the ventilator settings, the anaesthetist is ultimately responsible for the patient until their handover is completed
b) Therefore, before proceeding with the information handover the anaesthetist is responsible for ensuring the patient is being adequately ventilated, is appropriately monitored, sedated and stable
c) The anaesthetist is responsible for observing the monitor during their information handover
d) Once this has occurred, the responsibility for the patient and observation of the monitoring passes to the admitting PICU doctor. The PICU doctor must maintain vigilance until the PICU bedside nurse is satisfied the transfer of monitoring, lines, drains, pacing equipment from portable equipment to PICU care systems is complete, the alarms are set, and she is in a position to monitor the patient.

2.2 PRIOR TO TRANSFER

- At least 30 minutes before leaving theatre the anaesthetist or ODP will call PICU to:

  - inform them of the expected time of arrival in PICU
  - confirm the expected location for the patient on PICU
  - confirm the bed is available
  - (It should be recorded on the theatre record that this call has been made)

- Ensure all drugs and infusions are prescribed (according to PICU Infusion guideline) and check they are clearly and correctly labelled.

- It is the responsibility of the PICU staff member receiving this phone call to ensure the PICU nursing ***and*** medical staff (PICU registrar and Consultant) receiving the patient are aware of this expected time of arrival, and document this call has been received in the comment box on the PICU observation chart.

- Occasionally the PICU bed will not be free or the unit may be too busy to accept an admission at that point in time
  - in this situation, the patient ***must not be moved from theatre*** until the nurse in charge of PICU is satisfied there is a bed space vacant and the PICU nursing staff are in a position to admit the patient from theatre

- The admitting PICU nursing staff are responsible for ensuring the bed space is set up ready to receive the patient

- Appropriate ventilator (Servo 300 / servo i) in the bed space. Full check has been performed. Bag of sterile water and tube holder available
- Bedside trolley at bedside, top drawer with appropriate sized ambu bag and mask
- Blender at bedside for patients who have undergone shunts
- Paediatric ECG, saturations, transducer cable, non-invasive BP cable and appropriate BP cuff, temperature cables x 2, ETCO2, NIRS Monitor ramp available to take back to theatre

- Cooling device if needed
- Low suction and tubing available for chest drains
- High suction, suction catheters and yankauer, gloves appropriate to size of child
- Crash sheet and drugs drawn up, labelled and placed into sealed clear bag
- PICU medical and nursing paperwork, chart and ICM forms
- At least one full CD size oxygen cylinder

- The admitting PICU doctor is responsible for ensuring:
- Bloods have been requested and forms have been printed
- a CXR needs to be requested after arrival of patient, ideally within 15 min

2.3 ARRIVAL IN PICU

- **On arrival to PICU the anaesthetist has overall responsibility for the care of the patient until he/she has completed their handover of information and the admitting nursing and medical team have had the opportunity to ask any necessary questions and are satisfied they have all the required information**
- **the admitting PICU doctor should make every effort to ensure they are available to take handover of the patient as soon as they arrive on PICU**

2.4 TECHNOLOGY TRANSFER

- the **Anaesthetist** will set the PICU ventilator and transfer the patient from the bagging circuit (or transport ventilator) onto the PICU ventilator
- the ventilator settings will be noted by the admitting PICU doctor
- the monitoring equipment will be transferred and configured by the **Monitoring Technician and PICU Nurse**
    - This involves the transfer of monitoring cables and modules from the portable monitor to the PICU monitor and setting of alarm limits
    - Confirming all pressure lines are being monitored and are zeroed appropriately

- the admitting **PICU nurse** will ensure any chest drains are open and placed on suction

- Syringe drivers are set up and plugged in by **PICU nurse**
- ECMO is configured by **Perfusionist and ECMO Specialist**
- if the anaesthetist is satisfied they are no longer required on PICU, the ODP and Monitoring Technician are free at this point to return to theatre to prepare for any further cases

SAFETY CHECK

- until their handover is complete, the anaesthetist is ultimately responsible for the patient

therefore, before proceeding with the information handover the anaesthetist should ensure the patient is being **adequately ventilated,** is **appropriately monitored, sedated** and **stable**

2.5 INFORMATION HANDOVER - ANAESTHETIST AND THEATRE NURSE

- the anaesthetist will proceed with the handover of information to the admitting PICU nursing and medical team
- **the anaesthetist speaks alone and uninterrupted**
- relevant information will be provided according to the **'Information Transfer Aid Memoir'**
- the admitting doctor will use the **'Cardiac Surgery Post-Operative PICU Admission Form'** to record the information given by the anaesthetist
- the anaesthetist will confirm their transfer of information is complete
- the theatre nurse will proceed with the handover of information to the admitting PICU nursing and medical team
- **the theatre nurse speaks alone and uninterrupted**
- the admitting nursing and medical team will then ask any questions to clarify or fill in any omissions in the information supplied by the anaesthetist and the theatre nurse
- the anaesthetist will be responsible for observation of the monitor during this process, ensuring that vital signs remain stable
- the anaesthetist should use the **'Information Transfer Aid Memoir'** and the admitting PICU medical and nursing team should use the **'Cardiac Surgery Post- Operative PICU Admission Form'** to ensure all the necessary information has been obtained
- the anaesthetist and theatre nurse have completed their information handover and the theatre nurse is free to leave the PICU.
- **Overall responsibility for the patient passes to the admitting PICU doctor**

2.6 INFORMATION HANDOVER - CARDIAC SURGEON

- the cardiac surgeon will proceed with the handover of information to the admitting PICU nursing and medical team
- **the cardiac surgeon speaks alone and uninterrupted**
- relevant information will be provided according to the **'Information Transfer Aid Memoir'**
- the cardiac surgeon will provide further operative details not known/available to the anaesthetist,

in particular this should include:

- relevant additional details concerning intra-cardiac lines
- CPB, XC & DHCA times if not already handed over
- any other concerns - e.g. bleeding, fragility of tissues/anastamotic suture lines, air leaks etc.

- the admitting doctor will use the **'Cardiac Surgery Post-Operative PICU Admission Form'** to record the information given by the cardiac surgeon
- the cardiac surgeon will confirm their transfer of information is complete
- the admitting nursing and medical team will then ask any questions to clarify or fill in any omissions in the information supplied by the cardiac surgeon
- the admitting PICU doctor will be responsible for observation of the monitor during this process, ensuring that vital signs remain stable
- the admitting PICU medical and nursing team should use the **'Cardiac Surgery Post-Operative PICU Admission Form'** to ensure all the necessary information has been obtained

2.7 DISCUSSION AND PLAN

- the anaesthetist, cardiac surgeon and the admitting medical and nursing team should then discuss the case as a group
- the admitting PICU doctor should manage the discussion
- actual or potential problems should be identified and their management considered
- an anticoagulation plan should be agreed
- desired haemodynamic targets should be agreed (CVP, LAP, BP etc.)
- a plan for anticipated recovery should be agreed, the options may be:
    1. Warm, wake and wean
    2. Review in 2-4 hours
    3. Leave sedated & ventilated overnight, aiming for stability
    4. ECMO high risk (ECMO team)
- high risk patients should be discussed with the ECLS medical and surgical leads and the ECLS co-ordinator

Once this process is finished, Handover is complete

2.8 POST-HANDOVER

- the admitting nursing team and the anaesthetist will jointly check any drug and blood product infusions against the prescription chart
- Once this is complete the anaesthetist is free to leave the PICU
- following the handover process, the admitting nursing staff are free to implement ongoing PICU care; in the initial period this will include:
    - a clinical assessment of the patient
    - ensuring there is a ‘chest open’ sticker on the sternal dressing where appropriate
    - recording chest drain losses and milking if appropriate
    - ensuring the pacing wires are identified, that a pacemaker is available if not currently being used, positioning of the pacemaker if currently in use and ensuring a spare battery is attached
    - transfer of any other ancillary device or equipment
    - sampling of blood for laboratory investigations and blood gas analysis
    - recording of all observations

- the admitting PICU doctor should ensure the **‘Cardiac Surgery Post-Operative PICU Admission Form’** is fully completed and file this in the patient notes
- they should then begin the implementation of the agreed management plan
- in the initial period this will include:

– maintaining vigilance that the patient is adequately ventilated, is appropriately monitored, sedated and stable
– a clinical assessment of the patient
– ensuring that the underlying rhythm is clearly understood and performing an ECG if necessary (with atrial lead study if appropriate)
– requesting a CXR
– informing the on-call cardiology registrar of the patient’s arrival on PICU and requesting an echocardiogram
– reviewing the initial blood gas and making any ventilator adjustments necessary

- ensuring necessary laboratory blood investigations have been requested
- ensuring the prescription chart is completed with appropriate prophylactic antibiotics, nystatin, omeprazole and skin decontamination
- ensuring the infusion prescriptions are complete and accurate

- The PICU Consultant/Registrar, Surgeon and/or Nurse update the family

2.9 THE UNSTABLE PATIENT

- in the event that on arrival on PICU the post-operative cardiac surgical patient is unstable, then a common sense approach to the handover process must be used
- **it is not appropriate to allow a patient to deteriorate whilst the above 'order of handover' takes place**
- the patient should be assessed and managed in the same way as any critically ill, unstable patient, with the ABC approach
- instability may occur for any number of reasons, and the management of individual causes is outside the scope of this guideline
- once the cause of the instability is known and managed and stability returns,

- handover should proceed as outlined above
- if at any stage the patient should become unstable once more, the handover must stop whilst the patient is once more assessed and managed appropriately

3. Education and Training

None

4. Monitoring Compliance

None identified at present

5. Supporting References

1. de Leval MR, Carthey J, Wright DJ. Human factors and cardiac surgery: A multicenter study. *J Thorac Cardiovasc Surg* 2000;119:661-672
2. Catchpole KR, de Leval MR, McEwan A *et al*. Patient handover from surgery to intensive care: using Formula 1 pit-stop and aviation models to improve safety and quality. *Ped Anesth* 2007;17:470-8

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- this document was written in consultation with all relevant parties at EMCHC, with particular input from the PICU, Paediatric Anaesthetic and Cardiac Surgical Departments

6. Key Words

Cardiac surgery, PICU, Handover, Post-Operative, Communication

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The Trust recognises the diversity of the local community it serves. Our aim therefore is to provide a safe environment free from discrimination and treat all individuals fairly with dignity and appropriately according to their needs.
As part of its development, this policy and its impact on equality have been reviewed and no detriment was identified.

CONTACT AND REVIEW DETAILS	
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Details of Changes made during review: Prior to transfer actions and checks updated Added ‘leave sedated overnight’ to discussion and plan section	