Intercostal Pleural Drain insertion(s) for Children/Young People Standard Operating Procedure UHL Paediatric Intensive Care Unit (PICU) (LocSSIPs)

Change Description	**Reason for Change**
☐ Change in format	☒ Trust requirement

APPROVERS	**POSITION**	**NAME**
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Appendices in this document:

Appendix 1: UHL Safer Surgery Invasive Procedure Safety Checklist: Intercostal Pleural Drain in the Children's Hospital
Appendix 2 : Patient Information Leaflet for *Procedure* Available at: Home (leicestershospitals.nhs.uk)

Introduction and Background:

National Safety Standards for Invasive Procedures (NatSSIPs) have been developed by a multidisciplinary group of clinical practitioners, professional leaders, human factors experts and lay representatives brought together by NHS England. They set out the key steps necessary to deliver safe care for patients undergoing invasive procedures and will allow organisations delivering NHS-funded care to standardise the processes that underpin patient safety.

Organisations should develop Local Safety Standards for Invasive Procedures (LocSSIPs) that include the key steps outlined in the NatSSIPs and to harmonise practice across the organisation such that there is a consistent approach to the care of patients undergoing invasive procedures in any location. Put simply, NatSSIPs should be used as a basis for the development of LocSSIPs by organisations providing NHS-funded care.

The development of LocSSIPs in itself cannot guarantee the safety of patients. Procedural teams must undergo regular, multidisciplinary training that promotes teamwork and includes clinical human factors

considerations. Organisations must commit themselves to provide the time and resources to educate those who provide care for patients.

This LocSSIPs is designed for Intercostal Pleural Drain Insertion. The SOP will help to familiarise staff with the LocSSIPs prior to its use.

Never Events:

No never events have been recorded for this procedure in the Paediatric Intensive care Units. These checklists are designed to ensure that patient safety during a procedure is paramount and that risk of never events is reduced.

List management and scheduling:

Scheduled procedures will be discussed and planned at PICU 'business round' meetings which, incorporates the Morbidity and Mortality data collection and the Safety Briefing. Emergent procedures will be performed as necessary under the direction of the consultant in charge of the Paediatric Intensive Care Unit.

Patient preparation:

The child or young person should be involved in their care planning when possible and the clinician who needs to perform the procedure should explain the procedure to the child after explaining why it is necessary. The play specialist or clinical psychologist may be useful in helping during the discussion and consenting process and during preparation for the procedure.

If a competent young person refuses to consent to a procedure, parents/guardians cannot override a decision for treatment that you consider to be in their best interests, but you can rely on parental consent when a child lacks the capacity to consent. Where possible, the child/young person should consent to their own treatment however, if the child cannot competently consent, then a parent/guardian can provide the consent on their behalf. This can be discussed at the bedside or in a treatment/quiet room for more privacy-it should be wherever is felt to be most comfortable. The identity of the patient must be verified by the child/parent/carer.

Name and Date of Birth (DOB) will be checked against the Identification (ID) band as per UHL policy. In infants under 1 year of age, ID bands must be attached to the lower limbs only. In children of all other ages, the ID band should be attached to the non-dominant hand/limb. Consent should be documented in the notes/digitally and ticked as gained on the UHL Safer Surgery Invasive Procedure Safety Checklist: Intercostal Pleural Drain in the Children's Hospital. Consent should include the possible difficulties that may be encountered.

An explanation of how the procedure will be carried out should be given, detailing the strategies you utilise to ensure strict adherence to infection prevention guidance. Strict adherence to UHL guidelines for hand hygiene must be maintained and an aseptic technique should be used for chest drain insertion.

Where possible, any coagulopathy or platelet defect should be corrected prior to chest drain insertion. Platelet levels of at least 50x10 9/L are acceptable as per the current UHL Blood Transfusion guideline. For all procedures, the decision whether to proceed with the procedure when coagulation abnormalities, anti-coagulant medication or physiological disturbances are present remains the responsibility of the PICU

consultant in charge of the patient.

The preferred patient position for drain insertion is on the bed, slightly rotated, with the arm on the side of the lesion behind the patient's head to expose the axillary area.
When draining fluid an ultrasound should be used to guide thoracocentesis or drain placement- use a skin marking pencil if necessary.
Insertion of a chest tube should never be performed with any substantial force since this risks sudden chest penetration and damage to essential intrathoracic structures.
This can be avoided either by the use of a Seldinger technique or by blunt dissection through the chest wall and into the pleural space before catheter insertion.
Sedation may be required and should be administered by a competent practitioner while the patient is being fully monitored and prepared for the procedure as appropriate.

Workforce – staffing requirements:

One person must be assigned to complete the checklist in addition to the operator and assistant performing the procedure. Staffing requirements will be allocated in line with unit activity.

Ward checklist, and ward to procedure room handover:

The LocSSIPs will cover the pre-procedure checklist (UHL Safer Surgery Invasive Procedure Safety Checklist: Intercostal Pleural Drain in the Children's Hospital) and required handover to the bedside nurse in PICU/Children's Hospital. In the event that a child/young person comes from a ward area to PICU for chest drain insertion, then the LocSSIPs will be completed and the following documented in the patients notes:

- Procedure,
- Medications given,
- Observations/Stability,
- X-ray confirmation that the chest drain is in the correct position (if applicable),
- Problems/complications.

Verbal handover will be given to the receiving nurse when the patient is fit to return to the ward area.

Procedural Verification of Site Marking:

This is not required for the procedures covered in this SOP however, an ultrasound should be used to guide thoracocentesis or drain placement- use a skin marking pencil if necessary. Location of the inserted line will be documented on the LocSSIPs and accompanying RAID assessment.

Team Safety Briefing:

The Team Safety Briefing is incorporated into the checklist. As a minimum, the operator and person completing the checklist (usually the bedside nurse) must be present. It is clear that at times of high activity the person completing the checklist may also need to perform the role of assistant.

Sign In:

'Sign In' refers to the safety checks completed before the procedure.

- Sign In will take place at the patient's bedside
- The Sign In must be carried out by two people. The people present should ideally be the operator and assistant.
- The patient will be encouraged to participate where possible.
- Any omissions, discrepancies of uncertainties must be resolved before proceeding.

The check should consist of:

- Confirmation of the patient identity and consent for the procedure,
- Identification of all team members and their roles,
- Pre-procedure observations documented and the patients medication/coagulation been checked,
- Radiology reviewed, site for procedure and indication confirmed.
- Has pleural ultrasound been performed (for fluid) and effusion depth been documented.

Time Out:

'Time Out' is the final safety check that must be completed for all patients undergoing invasive procedures just before the start of the procedure. The WHO checklist is the Gold Standard and may be adapted for local use with the deletion or addition of elements to suit the procedural requirements. Some Royal Colleges or other national bodies have checklists for their specialties.

The 'Time Out' should include:

- That the patient will be encouraged to participate where possible,
- Who will lead it (any member can),
- That all team members must be present and engaged as it is happening,
- That is will occur immediately before the procedure start,
- That separate time out checklist will be completed if there is a separate or sequential procedure happening on the same patient,
- That any omissions, discrepancies or uncertainties must be resolved before staring the procedure.

Specifically, the verbal time out between team members confirms that:

- The procedure is a sterile procedure using sterile gowns and gloves,
- There has been at least two applications of chloraprep to the site and if local anaesthetic has been used,
- The operator should stop if unable to aspirate fluid or air from the confirmed site,
- The appearance of fluid and any samples taken,
- The amount drained and how the drain and how the drain has been secured,
- Were there any complications and
- Has the guidewire been removed?

As per UHL Safer Surgery Invasive Procedure Safety Checklist: Intercostal Pleural Drain in the Children's Hospital (Appendix 1).

If antimicrobial therapy/prophylaxis is required, please refer to the UHL Antimicrobial Prescribing Policy

B39/2006.

Performing the procedure:

The procedure can only be performed by those with appropriate training – this will be in line with current PICU training. Direct supervision must occur for those learning the procedures by an appropriately trained individual. All operators must ensure familiarity with the equipment required prior to performing any invasive procedure.

Monitoring:

The patient should be monitored throughout the time in the procedural area :

- O2 Sats
- ECG
- Blood Pressure
- Pulse rate
- Respiratory rate
- GCS
- Temp
- (Capillary Blood Glucose) CBGs
- ETCO2 for ventilated patients

If the patient requires ongoing sedation, this must be covered by the Analgesia and Sedation Guideline for Paediatric Intensive Care Unit C10/2009.

Prosthesis verification:

All equipment used must be checked that it is within date. As appropriate there is recording of the device on the UHL Safer Surgery Invasive Procedure Safety Checklist: Intercostal Pleural Drain in the Children's Hospital.
The responsibility for ensuring all sharps are disposed of correctly is with the procedure operator. The Intercostal Pleural Drain insertion(s) for Children/Young People Standard Operating Procedure UHL Paediatric Intensive Care Unit (PICU)(LocSSIPs) ensures that all guidewires have been removed and the length and integrity have been checked.

Prevention of retained Foreign Objects:

The responsibility for ensuring all sharps are disposed of correctly is with the procedure operator. The Intercostal Pleural Drain insertion(s) for Children/Young People Standard Operating Procedure UHL Paediatric Intensive Care Unit (PICU)(LocSSIPs) ensures that all guidewires have been removed and the length and integrity have been checked. The risk for unintentional retention of foreign objects should be minimal if the checklist is followed.

Radiography:

These procedures do not require radiography during the procedure. If post procedure X-rays are required this is clearly highlighted on each individual LocSSIPs.

Sign Out:

'Sign Out' must occur post procedure. This covers, as appropriate, the following:

- Confirmation of procedure
- Confirmation that counts (guidewires, instruments, sharps and swabs) are complete if applicable
- Confirmation that specimens have been labelled correctly and placed in appropriate transport medium
- Discussion of post-procedural care and any outstanding investigations required to confirm safe completion of the procedure.
- Equipment problems to include in team debriefing

All the above points will be documented on the UHL Safer Surgery Invasive Procedure Safety Checklist: Intercostal Pleural Drain in the Children's Hospital.

Handover:

Handover to the nursing and medical team post procedure should include:

- A brief description of the case, details of the anaesthetic/conscious sedation and review of the CXR
- Explanation of samples taken so that the results can be followed up in a timely manner,
- Instructions given to the nursing staff regarding low flow suction whether it is required and how much) and instructions on fluid drainage,
- Inform them of observations post procedure and what they are at the time of handover,
- Confirm frequency of observations post procedure,
- Ensure team have an appropriate chest drain loss chart,
- Ensure appropriate and effective analgesia has been prescribed,
- Inform staff of any post procedure complications

Team Debrief:

A Team Debrief should occur as a discussion at the end of all procedure sessions, this should happen when the patient has been made comfortable, the procedural waste has been disposed of and documentation has been completed.

For those who have been learning the procedure and have been supervised by an appropriately trained person, the appropriate documentation/leaning pack must be completed.

Post-procedural aftercare:

A chest radiograph should be performed after insertion of a chest drain. All chest tubes should be connected to a unidirectional flow drainage system (such as an underwater seal bottle) which must be kept below the level of the patient's chest at all times.
The completed LocSSIPs should be filed in the patients notes.
Appropriately trained nursing staff must supervise the use of chest drain suction.
Avoid taking too much fluid too quickly. In cases of massive effusion or empyemas consider clamping the drain for 1 hour once 10 ml/kg are initially removed to prevent cardiovascular instability. POST-OPERATIVE SURGICAL PATIENTS ARE NOT INCLUDED IN THIS CATEGORY.
A bubbling chest drain should never be clamped. All fluid loss should be documented on the ITU chart or appropriate fluid balance chart for the ward area. If the patient requires ongoing sedation, please refer to the Analgesia and Sedation Guideline for Paediatric Intensive Care.

Discharge:

Not applicable for children/young people who need to remain in PICU.
For those who have come to PICU from a ward area for chest drain insertion: the child/young person can be discharged to the ward area once they have been deemed medically fit.
Documentation needs to be completed prior to discharge and the patient should be verbally handed over to the receiving nurse.

Governance and Audit:

Deviation from the LocSSIPs unless clinically justified in an emergency constitutes a safety incident. All safety incidents must be recorded on a DATIX.

Any Datix submitted will be fully investigated by a designated person and overseen by the Childrens Patient Safety Coordinator. All findings will be fed back to the team involved and any learning will be cascaded throughout the Childrens Hospital.

Audit for LocSSIPs is performed as a mandatory monthly audit.

To submit monthly Safe Surgery Audit and WHOBARS assessment as per Safe Surgery Quality Assurance & Accreditation programme.

Training:

All staff performing or assisting with access procedure must receive appropriate training.
Training opportunities and documented progress must be discussed every 6 - 12 months with a clinical supervisor.
Training will address:

- Hand Hygiene, Aseptic non touch technique (ANTT),
- Fluid balance,

- Chest drain loss including fluid type,
- Daily Ward Round Discussion and documentation.

Documentation:

The UHL Safer Surgery Safety Checklist is the record of insertion and should be filed in the patients notes. The 'Chest drain' section of the fluid balance chart must be completed to ensure adequate records. Loss over the 24 hour period must be calculated. Type of fluid +/- bubbling must also be well documented. Any samples taken must also be documented in the patient's notes.

References to other standards, alerts and procedures:

National Safety Standards for Invasive Procedures, NHS England 2015:
https://www.england.nhs.uk/patientsafety/wp- content/uploads/sites/32/2015/09/natssips-safety-standards.pdf

UHL Safer Surgery Policy: B40/2010
UHL Sedation Policy: Safety and Sedation of Patients Undergoing Diagnostic and Therapeutic Procedures B10/2005
UHL Consent to Treatment or Examination Policy A16/2002
UHL Delegated Consent Policy B10/2013
UHL Patient Identification Band Policy B43/2007
UHL Policy and Procedures for the Prescribing, Collection, Storage and administration of Blood and Blood Components B16/2003
UHL Antimicrobial Prescribing Policy B39/2006
UHL Analgesia and Sedation Guideline for Paediatric Intensive Care Unit C10/2009
UHL Hand Hygiene UHL Policy B32/2003
UHL Chest Drain Management UHL Childrens Hospital Guideline C62/2019
UHL Guideline for Chest Drain Insertion, Care and Removal in paediatric patients within PICU, CICU & East Midlands Congenital Heart Centre C41/2016
Shared decision making for doctors: Decision making and consent (gmc-uk.org)
COVID and PPE: UHL PPE for Transmission Based Precautions - A Visual Guide
COVID and PPE: UHL PPE for Aerosol Generating Procedures (AGPs) - A Visual Guide

END

Appendix 1: UHL Safer Surgery Invasive Procedure Safety Checklist: Intercostal Pleural Drain in the Children's Hospital

Safer Surgery Checklist
Invasive Procedure Safety Checklist
Intercostal Pleural Drain
in the Children's Hospital

University Hospitals of Leicester NHS Trust

LocSSIPs

East Midlands Congenital Heart Centre

STOP THE LINE

Leicester Children's Hospital

Patient ID Label *or write name and number*
Hospital No.:
Name:
D.O.B.:
Sex:

Procedure date:
Time:
Site: GH ☐ LRI ☐

Operator Grade:
Operator:
Supervisor:
Assistant:

Clinical Area:

BEFORE THE PROCEDURE / SIGN IN

Confirm patient's Name, DOB and Hospital Number? Yes ☐ No ☐
Known allergy? Yes ☐ No ☐
Have all the team introduced themselves and role Yes ☐ No ☐
Indication Air ☐ Fluid ☐ Both ☐
Radiology reviewed CT ☐ CXR ☐
Confirm side of procedure Left ☐ Right ☐
Observations: BP: ____ SpO2: ____ FiO2: ____ HR: ____
Patient's coagulation and medication checked Yes ☐ No ☐
Platelets: ____ PT: ____
Consent: Written/Digital ☐ Verbal ☐ Part IV ☐
Thoracic US for Fluid Done: Yes ☐ No ☐ N/A ☐
Thoracic US findings: Echoic ____ Anechoic ____
Effusion depth (cm):
Other findings:
Realtime US ☐ Immediate US marking ☐

TIME OUT

Aseptic Technique: Sterile Gown ☐ Gloves ☐
At least two applications of chloroprep Yes ☐ No ☐

STOP if unable to aspirate air or fluid with local anaesthetic

Side: Left ☐ Right ☐ Site: ____
Lignocaine 1% ☐ Dose: ____
Fluid appearance:
Samples: Biochemistry ☐ Cytology ☐ MC&S ☐
Amount drained initially (mls): ____
Drain size Secured: Suture ☐ Dressing ☐
Purse string Yes ☐ No ☐ N/A ☐
Complications: Pain (0-10):
Other:
Guidewire removed: Yes ☐ No ☐ N/A ☐
If Yes, specify:

SIGN OUT

Order post-procedure CXR & handover for review Yes ☐ No ☐
Record chest drain loss on appropriate chart Yes ☐ No ☐
Prescribed analgesia Yes ☐
Ensure specimens correctly labelled Yes ☐ No ☐
Observations: BP: ____ SpO2: ____ FiO2: ____ HR: ____
Confirm fluid drainage instructions to nursing staff Yes ☐ No ☐
Low flow suction required? Yes ☐ No ☐
If Yes, how much?: ____
Confirm freq. of observations, every 15 mins for 1hr, hourly thereafter
Any procedural problems requiring follow-up Yes ☐ No ☐
Post-procedural problems:

Operator inserting drain: Grade:
Signature: Date:
Supervised: Yes ☐ No ☐ Assistant: Yes ☐ No ☐
Name: Grade:
Signature:

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Based on the WHO Surgical Safety Checklist, URL http://www.who.int/patientsafety/safesurgery/en/. © World Health Organization 2008 All rights reserved.

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Appendix 2: Patient Information Leaflet for *Procedure* Available at: Home (leicestershospitals.nhs.uk)

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