Ashford and St. Peter's Hospitals
NHS Foundation Trust

Pneumothorax Guidelines

Amendments			
Date	**Pages**	**Comment (s)**	**Approved by**
2005		**New guideline**	**NICU Clinical management group**
Updated and reviewed 2007, 2011, 2014			
2019			**Neonatal guidelines group**

Recent updates: **Sister Sophie Maxwell**
Dr Yinka Ejiwunmi

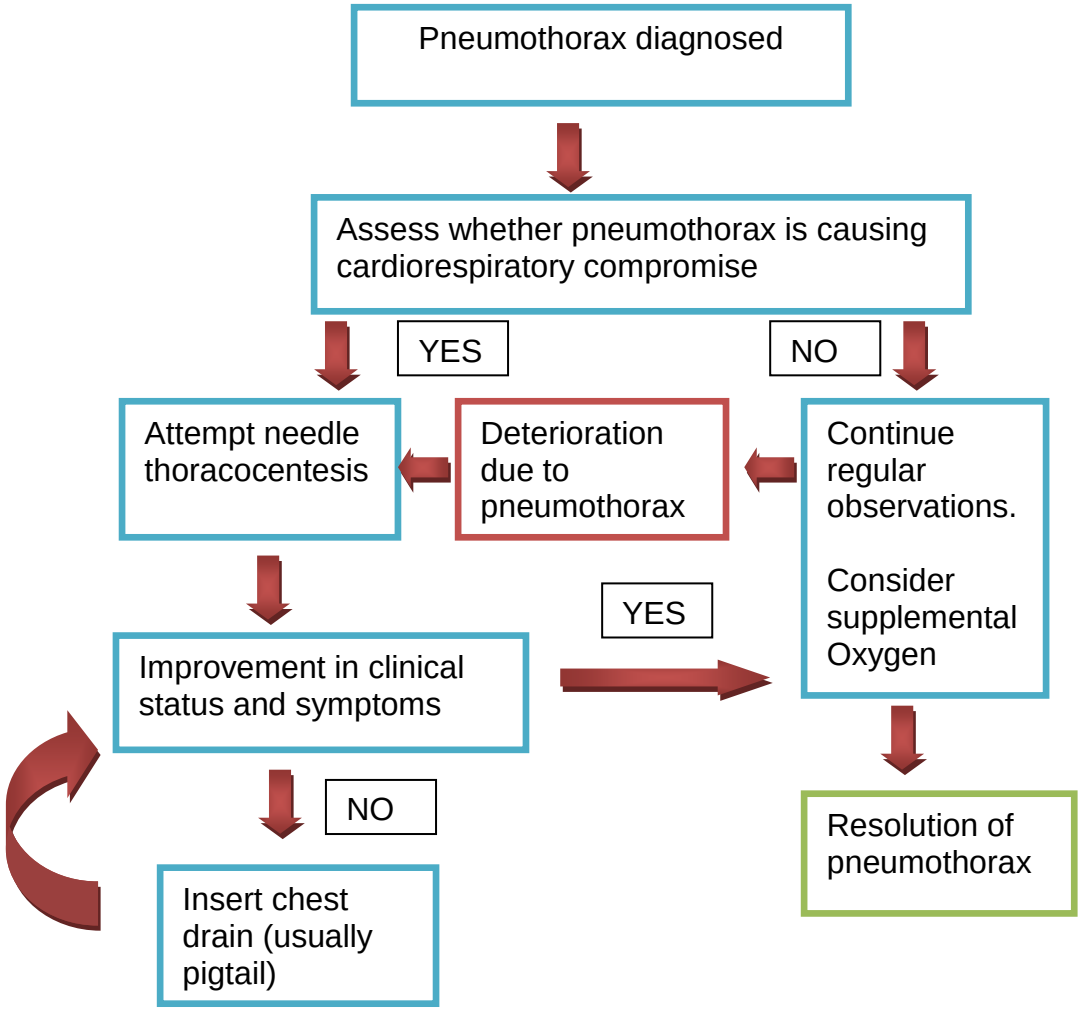
Status: Approval date: 30 May 2019

Ratified by: Neonatal guidelines group

Review date: May 2024

Executive Summary

A Pneumothorax results from a build-up of air in the pleural cavity with a potential to compromise gas exchange and/ or the circulation. Evacuation is indicated when this compromise occurs, allowing for air to be withdrawn from the pleural cavity and enabling the lung to re-inflate. This consequently improves the babies' condition/ventilation. It is important to recognise that not all pneumothoraces need drainage.
A needle thoracocentesis may be all that is required (Murphy 2018, Bruschettini 2019) and should be the first procedure attempted. Chest drain insertion may be required if unresponsive to needle thoracocentesis alone, or depending on if there is an acute significant deterioration as may occur with a tension pneumothorax.



Contents

Appendices

See also: Any relevant trust policies/guidelines or procedures

1. **Neonatal skin preparation guideline**
2. **Neonatal pain guideline**
3. **Xrays on the neonatal unit**

1. Introduction

1.1 A Pneumothorax results from a build-up of air in the pleural cavity with a potential to compromise gas exchange and/ or the circulation. Evacuation is indicated when this compromise occurs, allowing for air to be withdrawn from the pleural cavity and enabling the lung to re-inflate. This consequently improves the babies' condition/ventilation. It is important to recognise that not all pneumothoraxes need drainage.
There should be a sufficiently large collection of air or fluid in the pleural space for safe insertion of the drain. A needle thoracentesis may be all that is required; or could be done in conjunction with chest drain insertion depending on if there is an acute significant deterioration as may occur with a tension pneumothorax.

2 Scope

2.1 This guideline is relevant to all staff caring for babies across neonatal intensive care, transitional care and maternity.

3 Purpose

3.1 This guidelines aims to facilitate a common approach to the management of babies admitted under neonatal care. At times deviation from the guideline may be necessary, this should be documented and is the responsibility of the attending consultant.

3.2 This guideline is subject to regular review to ensure ongoing evidence based practice.

4. Duties and responsibilities

4.1 Inform parents where possible before the procedure or as soon as possible after
4.2 Aim to maintain the infant's temperature
4.3 Monitor infants' heart rate and oxygen saturation levels

5. Policy

5.1 MAKING THE DIAGNOSIS

Suspect a pneumothorax if:

- There is an increase in respiratory distress and/or diminished chest movements
- Sudden and persistent desaturations
- Circulation may become compromised (Hypotension)
- Blood gas shows hypoxia, respiratory and/or metabolic acidosis.

Clinical signs:

- May be minimal
- Sudden deterioration e.g. increased oxygen and decreasing oxygen saturations.
- Unequal or reduced air entry on affected side
- Asymmetrical chest movements (prominence of affected side)
- Cardiovascular instability (tachycardia, hypotension, later bradycardia)
- Transillumination with a cold light is useful but can be unreliable in
    - Extremely low birth weight infants (may be "false-positive")
    - Infants with increased thickness of the chest wall e.g. term infants and oedema
    - Infants with pulmonary interstitial emphysema (who may show a 'false positive' result)
    - Bilateral pneumothorax

CXR will confirm the diagnosis; however in the clinically unstable baby should be deferred and immediate drainage performed.

Lung ultrasound may be a useful diagnostic tool.

5.2 Needle Aspiration of Chest

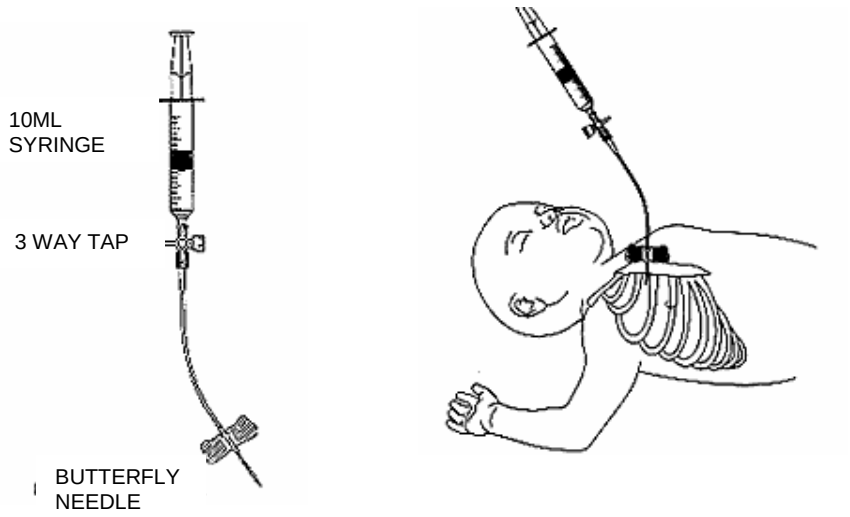
Needle aspiration is an emergency procedure, to be done when there is significant acute cardiorespiratory compromise due to a pneumothorax. Care must be taken to avoid laceration of the lung or puncturing blood vessels.

Equipment:

- 21 gauge (green) or 23 gauge (blue) butterfly needle
- 3 way tap
- 10 ml luer lock syringe
- Skin preparation as per guideline http://trustnet/docsdata/paed/Guidelines_Neonatal/Skin%20Cleansing%20Guidelines%20NICU%20Mar%202019.doc
- 1 pair sterile gloves

Procedure:

- Infant supine, prepare area with alcohol wipes
- Attach the butterfly needle to one end of the 3 way tap and the syringe to the opposite end (figure 1)
- Insert needle into the pleural space (directly over the top of the rib in the 2nd or 3rd intercostal space in the mid-clavicular line) until air is aspirated into the syringe, then expel air through the 3-way stopcock
- Once all the air is expelled and the baby's vital signs have stabilised, remove the needle and apply fresh gauze to the puncture site



5.3 Insertion of Cook® Fuhrman Pigtail Pleural Drain using Seldinger Approach.

Indications: Pneumothorax, Pleural Effusion or chylothorax.

This is our unit's preferred method;
8.5 Fr/15 cm -use for >1501gms
6.0 Fr/15cm -use for <1500gms

Both catheters have 6 side ports

Advantages of Pigtail drains:

- Less traumatic insertion and fewer complications.
- Suitable for very preterm babies

Disadvantages

- May kink or obstruct due to its softer consistency.

Preferred drain site: **4th or 5th** intercostal space, above a rib (to avoid injury to intercostal vessels which run under the rib) and in the **mid to anterior axillary line**, well clear of the nipple.

Components of pleural drain pack (see Fig1 below)

1) 18 G introducer needle (c)
2) J-wire guide (a)
3) Dilator (d)
4) Radiopaque pigtail catheter with 1cm markings (First marker at 7cm)
5) 3-way stopcock (f)
6) Multipurpose tubing adapter (g)

You will also need

- 5 or 10ml luer lock syringe
- Mosquito artery or similar forceps
- A sterile procedure pack e.g. long line pack
- Skin preparation as per guideline http://trustnet/docsdata/paed/Guidelines_Neonatal/Skin%20Cleansing%20Guidelines%20NICU%20Mar%202019.doc

- Steristrips
- Duoderm to secure drain to skin
- Tegaderm or similar occlusive dressing

Inform parents/guardians at soonest opportunity.

Ensure **adequate analgesia and sedation**
This procedure should either be performed by, or under the direct supervision of an experienced operator. It is ideal to have a skilled assistant.

Procedure

1) Sterile Glove and gown as per unit guideline for aseptic technique.

2) Position the patient supine with procedure side raised at about 30-40 degrees.

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3) Identify and mark the insertion site **4th to 5th** intercostal space, above a rib (to avoid injury to intercostal vessels which run beneath the rib) in the **anterior axillary line**, **stay well clear of the nipple**.

4) Sterilise the skin site as per unit guideline

5) The use of a transparent sterile drape enables continued visibility of landmark

6) Consider the use of local anaesthetic: Infiltrate the identified site with Lignocaine 0.5%-1% local infiltration (not more than 0.3mls/kg of 1% lignocaine)

7) Assemble access needle (c) & syringe and attach mosquito forceps 1cm distal to needle tip to reduce risk of advancing needle too far into chest cavity (Fig3). Ensure forceps do not crush introducer needle. Should the forceps prevent insertion of the guidewire through the introducer, an alternative process such as marking the needle with steristrips or a cord clamp to prevent accidental deep insertion is acceptable.

8) **Slowly** insert needle with attached forceps at 90 degree angle to the rib. Angle anteriorly for pneumothorax, gently aspirating until air is obtained .If draining a pleural effusion, aim posteriorly and gently aspirate until fluid is obtained. Stop and hold steady as soon as either air or fluid is aspirated.

9) Remove the syringe and advance soft J end of J-Wire guide (a), using its white plastic introducer (b) through the needle hub until the silver mark on the wire just enters the needle hub (Fig 2) at a length of about 12cm (Note that the J wire is very long, be

aware of contamination and use your assistant).If resistance is felt when inserting the J-wire guide, stop and remove **both** the wire guide and needle.

10) Remove the access needle gently and hold on to the J-wire guide where it exits the chest wall as soon as the needle tip is out. This is to avoid accidentally removing the J-wire guide.

11) Advance the dilator (d) over the wire using a twisting action to pass through the chest wall. This only needs to go in 1-1.5cm. Then withdraw the dilator, again securing the J-wire to avoid inadvertently removing it.

12) Feed the pigtail catheter (e) with the coiled porthole end first over the J-wire guide and advance into the chest cavity with a gentle twisting motion, up to the first black mark (7cm) for the extreme preterm babies & at the 2^{nd}-4^{th} mark for bigger babies based on measurement of targeted position. Remove the J-wire guide gently.

13) Support pigtail catheter on a small bed of sterile gauze and use steri-strips and duoderm to anchor pigtail to the skin.

14) Place Tegaderm dressing over insertion site, pinching it across the length of the catheter. Tegaderm on its own does not adequately secure the catheter as it often becomes loose from leaking pleural fluid .

15) Connect catheter to drainage unit using tubing adapter (g) and 3 way stopcock f).

16) Request CXR to confirm position of catheter and document findings.

17) If a further drain is required, try to **avoid** using the same entry site in case a track has been created which may then take the catheter via an unanticipated route.

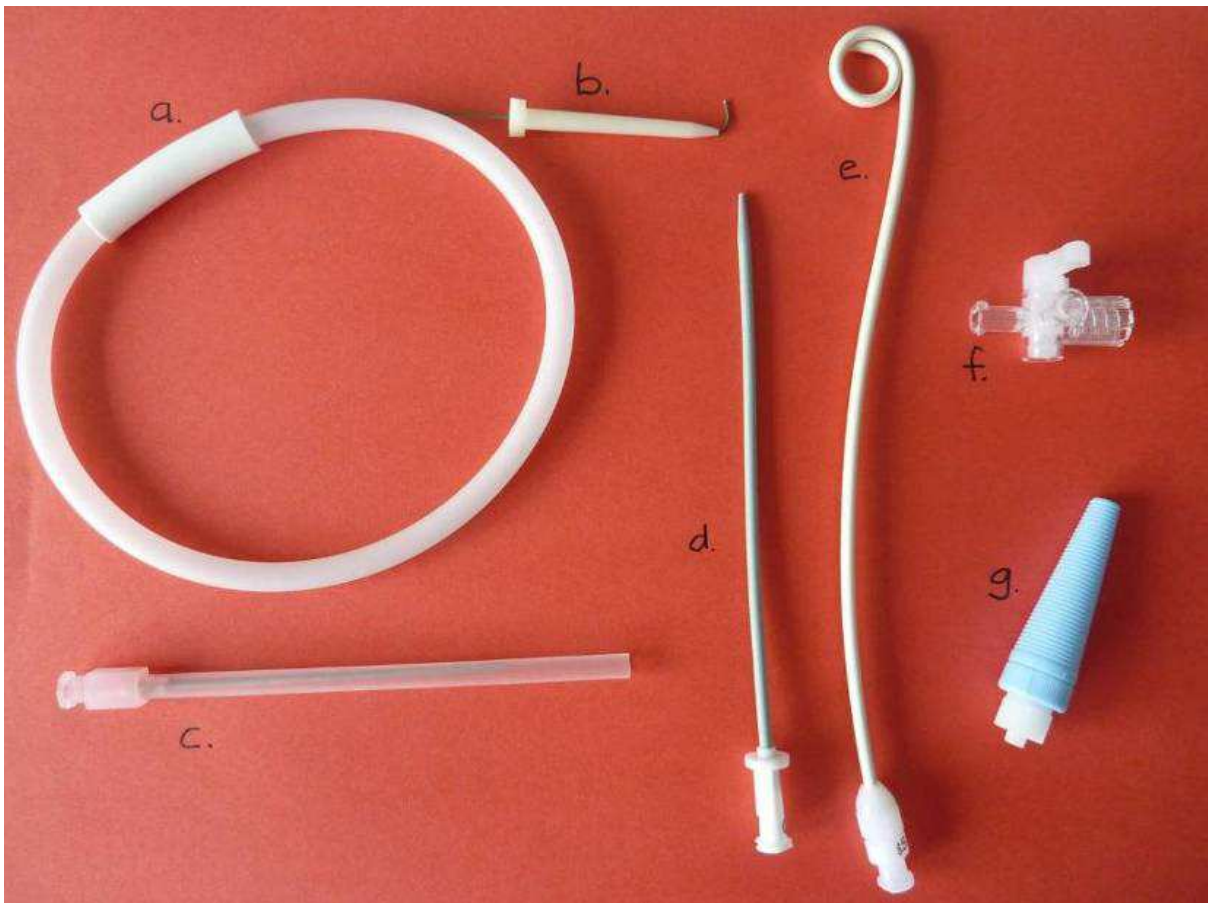
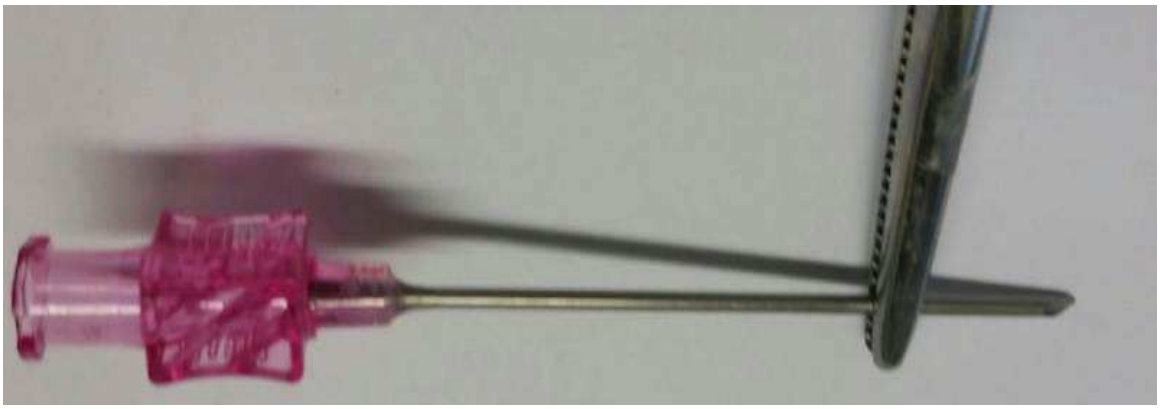


Fig 2.

Fig 3

Fig 4



5.4 Catheter - Trocar Chest Drain Insertion

EQUIPMENT:

1. Sterile chest drain pack
2. Sterile gloves, gown and drapes

Non sterile tray containing:

1. Trochar + cannula size 8 x 2 size 10 x 2
2. "T" extension with luer lock
3. 3 way stop-cock (connector)
4. 1 Vygon connector
5. 10 ml syringes x 2
6. 1 ml syringe x 2
7. Needles 25g (orange) x2
8. "Butterfly" needle 23g (Blue) x2
9. Disposable scalpel x 1
10. Disposable scissors x 1
11. 3/0 black silk sutures x 2
12. Heimlich chest drain valve x 2 (For transport use)
13. Sentinel Seal chest drainage unit

ALSO:

Steristrips x 2
Tegaderm x 2
Skin cleaning solution as per guideline
Bottle of sterile water
Extra swabs x 3
Extra dressing towel x 2

NB Have a thoracic vacuum regulator readily available if required

PROCEDURE:

- Inform parents where possible
- Sterile gown and gloves
- Aim to maintain the infant's temperature. Place the infant with the affected side uppermost and the arm extended above the head. Ensure limbs are adequately restrained.
- Monitor infant's heart rate and oxygen saturation level
- The chest drain is usually inserted in the 4th or 5th intercostal space in the anterior axillary line. This corresponds to a point 1-2cm lateral to and 0.5-1cm below the nipple. **The incision must be well clear of the nipple.** Mark location with pen.
- Prepare the field
- Select intercostal catheter size

Infants	> 1500g	10 or 12 Fr
	< 1500g	8 or 10 Fr
	<1000g	8 Fr

- Place sterile drape in position
- Infiltrate the insertion site with 1% Lignocaine (up to 0.3mls/kg). If baby is ventilated and on a morphine infusion a bolus dose of 100 micrograms per kg can be used and repeated if needed.
- Using small scalpel blade make a 1cm wide incision through the skin and subcutaneous tissue
- The preferred technique is as follows. Using straight mosquito forceps to bluntly dissect away the subcutaneous tissue and intercostal muscles, the parietal pleura is reached. Aim to dissect a passage just above a rib border in order to avoid the neurovascular bundles running below each rib. Open the parietal pleura by blunt dissection.
- **Remove the trocar** from the chest drain and grasp the distal end with the curved artery forceps. Direct the tip anteriorly as well as superomedially so that the tip lies beneath the anterior chest wall. Advance the chest drain into the pleural space 2 - 4 cm, depending on the baby's size.
- Connect the chest drain to an underwater seal drainage system (Sentinel Seal) or a Heimlich valve and note whether the fluid is swinging and/or bubblingor if the diaphragm within the valve is fluttering. Condensation within the catheter may be seen when within the pleural space.
- Place a single stitch through the wound so that the skin is drawn snugly around the drain. Purse string stitches are **not** used as they leave an unsightly scar. Wrap the ends of the suture around the ICC several times and tie securely.
- Secure the drain to the chest wall with Duoderm and Tegaderm. Secure positioning is important to minimize trauma to intrathoracic structures and ensure patient comfort

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5.5 Suction and ongoing care

Suction is not always required and could lead to possible further trauma however if the decision is made to commence suction it is essential that this is done so with an appropriate pressure.

Recommended suction pressure for neonates is -5cmH20 to -10cmH20 using a wall thoracic vacuum

Ongoing Care:

- Check the tube position and resolution of the pneumothorax by transillumination and x-ray.
- Assess the need for ongoing analgesia based on physiological and behavioural responses associated with pain.
- Record hourly clinical observations as well as the following:

  - checking the tubing for kinks
  - bubbling and/or swinging in tubing and drainage set
  - the set pressure is correct,
  - ensure chest drain and all connections are secure and not under tension
  - ensure suction remains on/off as necessary

5.6 Removal of the chest drain

The decision to clamp off and/or remove a chest drain should be discussed with the consultant.

- Indications for removal include:
  - Lung re-expansion on x-ray
  - No signs of an air leak for 24 hours.
  - Bubbling in the collecting tube has subsided.
  - Respiratory rate is comfortable.
  - Normal breath sounds are present.
  - Drainage slows down or stops.

Procedure for removal:

Modified from guidelines written by H. Hatter and E. Leonard (GOSH 2014).

The aim is to remove the drain(s) with minimal risk of air entrainment. If there are two drains to be removed, remove the lower drain first followed by the higher drain.

- Position the child so you have clear and easy access to the drain.
- It is often requested that the drain is taken off suction for a few hours before removal. However suction can be left on for removal if necessary.
- Using the units hand washing and infection control guidelines, get all necessary equipment ready and bring the trolley close to the patient.
- Expose and clean the drain site.
- Prepare the appropriate dressings.
- If the infant is crying intra-thoracic pressure is elevated and it is therefore a good time to remove the drain (Bell, 2001).
- Use one hand to withdraw the drain rapidly. It is sometimes easier to pull the drain vertically so that the drainage holes are pulled out almost together.
- When the drain is out the forefinger and thumb of the other hand to press the skin edges of the drain site together. Alternatively if the skin cannot easily be pinched a finger should press down from above the site directly over the hole.
- Assess the drain site and leave it exposed if possible.
- Apply the prepared dressing if necessary.
- Document the procedure.
- Continue regular observations for at least four hours

5.7 Complications

- If it is felt that the heart or liver may have been perforated by the drain, immediately turn off the 3 way stopcock and do **NOT** remove the drain. Inform the consultant and order an urgent CXR. Ultrasound may be helpful in skilled hands. Attempt to stabilise the patient and consult with appropriate specialist surgical team

Table 1 Causes of serious complications of chest drain insertion as per NPSA[1]

1) Failure to follow manufacturer's advice
2) Anatomical abnormality
3) Poor technique
4) Too deep dilatation
5) Lack of knowledge
6) Patient's condition
7) Failure to follow local guideline
8) Poor imaging

[1] National Patient Safety Agency, UK

Table 2 Complications of 133 pig tail chest drain in children [20]

Haemothorax (2%)
Pneumothorax (2%)
Hepatic perforation (1%)
Others (20%)
failure to drain
dislodgment
kinking
loss of liquid ventilation fluid
empyema
disconnection

5.8 **Nursing Management:**

Expectations and requirements when preparing and caring for a baby with a pneumothorax and chest drain

ACTION	RATIONALE
Inform parents of need for procedure – May have to be done in retrospect in not present	Re-assure and explanation of need for intervention
Wash hands open sterile packs onto aseptic field	Infection control/prevention of cross infection
Ensure baby is receiving adequate analgesia	For comfort and pain relief
Monitor general condition of baby including- record vital signs HR, Resps, Temp*, SAO2 B/P	For recognition of any Improvement/deterioration in condition
Position baby as requested by Dr.	To aid correct insertion
Assist Dr. to secure the drain in position and attach T-Piece, 3 way tap, Vygon connector Attach Heimlich valve **OR** Set up Sentinel Seal chest drainage unit (see below) If more than one drain is required, label each one with number in order of insertion	To prevent displacement and further trauma
Observe position of drains, "Fluttering" of the valve and any secretions present	To determine improvement or deterioration in condition
It is advisable to "clamp" off drains when turning or lifting the baby, ensuring they are "unclamped" once the baby is settled	For safety and comfort
Inform parents when procedure is completed	Parental re-assurance/reduce anxiety
"Spencer wells" forceps should remain at the cot-side in case of disconnection or malfunction	For safety

***** ensure incubator temperatures are increased prior to chest drain insertion and appropriate measures taken to maintain stable temperature throughout and post procedure (consider a transwarmer in preterm and small babies)

NEONATAL CHEST DRAIN SENTINEL SEAL – Chest drainage unit (CDU) set-up	
ACTION	**RATIONALE**
Fill the <u>underwater seal</u> :- • Pull open blue door on the back of the unit and fill directly through opening to **line 1** (90ml) • Fill to **line 2** if applying suction	Creates under water seal
Close fill spout securely – Do not re-open	To prevent loss of pressure
To adjust water level in the water seal chamber utilize water seal access port located behind water seal chamber using a luer lock or luer slip syringe.	There may be a need to withdraw or add water
Fill the <u>Patient assessment chamber (PAM)</u>:- • Remove paper seal from port at top of unit. • Fill patient assessment chamber to red line by pouring sterile water through round opening at top of unit (35ml), do not reseal.	Indicates progress of patient
Connect the latex free tubing:- • Remove protective cover • Cut clear tubing from back of unit to fit connector attached to 3 way tap	Drains of air and body fluids e.g. blood and serous fluid
If using suction attach line to suction regulator and set suction unit to min. 60mm hg	May need suction rather than just underwater seal
• While observing PAM, slowly turn suction regulator until fluid rises to prescribed vacuum level is reached. (when clamping patient tubing, the suction force direction of the patient will be indicated and can be set) • Unclamp catheter. • When you unclamp the patient catheter	Correct suction level is set and maintained

you may need to depress the negative pressure vent again as patient vacuum could be higher than suction force	

ASSESSMENT AND MANAGEMENT CHART		
Patient assessment Manometer Swinging	**Water Seal Chamber Bubbling**	**Assessment and Management of Air Leak**
Yes	Yes	Indicates patient air leak exists and lungs are not expanded. The greater the degree of bubbling and swinging, the greater the extent of air leak (pneumothorax) and the greater the degree of lung collapse
No	No	Indicates resolution of air leak and lung re-expansion (slight swinging may be seen). Be sure patient collection tubes are not kinked or obstructed; verify lung expansion.
No	Yes	Indicates a possible connection or system air leak. Momentarily pinch off the thoracic catheter. If bubbling continues, a connection leak exists. Secure all connections.
Yes	No	Can be associated with decreased lung compliance

Competency: **Setting up of Sentinel Seal Chest Drain Unit in the Neonate**

Standard Statement: **The Registered Health Care Professional will be competent for assisting the doctor in the insertion of a Chest Drain and can perform the activities satisfactorily without supervision or assistance with acceptable speed and quality of work**

No.	**Element of Competency** The Registered Health Care Professional must:	(Please record 'achieved' or 'not achieved' as 'A' or 'N' and date and initial)									**Summative Assessment** (Please record 'achieved' or 'not achieved' as 'A' or 'N'; and date, initial and print name.)	
		Initial Assessment			**Formative Assessment(s)**							
		Date	Self	Mentor	Date	Self	Mentor	Date	Self	Mentor		
A	Discuss Neonatal Guideline for Chest drain											
B	Identify and discuss rationale for the need of Sentinel Seal Chest drainage Unit											
C	Is able to set up the Sentinel Seal correctly i.e. Water seal, Patient Manometer, connection tubing to patient.											
D	Understands how to connect to suction unit											
E	Knows where to position the drain and the safety checks that should be carried out											
F	Understands what the manometer is, why it is important and what it is telling them.											

No.	**Element of Competency** The Registered Health Care Professional must:	(Please record 'achieved' or 'not achieved' as 'A' or 'N' and date and initial)									**Summative Assessment** (Please record 'achieved' or 'not achieved' as 'A' or 'N'; and date, initial and print name.)	
		Initial Assessment			**Formative Assessment(s)**							
		Date	Self	Mentor	Date	Self	Mentor	Date	Self	Mentor		
G	Is able to demonstrate how to monitor the patient manometer and adjust the suction regulator on the Sentinel Seal accordingly in order to apply the right corrective action											
H	Knows what is happening to the water seal and patient manometer for the following indications: Baby Air Leak, System Air leak, Baby better, Blocked tubing or catheter, stiff lungs .											
I	Is able to describe how to tell if there are dangerously high levels of negative pressure in the Sentinel Seal and what action should be taken to rectify the situation											

No.	**Element of Competency** The Registered Health Care Professional must:	(Please record 'achieved' or 'not achieved' as 'A' or 'N' and date and initial)									**Summative Assessment** (Please record 'achieved' or 'not achieved' as 'A' or 'N'; and date, initial and print name.)	
		Initial Assessment			**Formative Assessment(s)**							
		Date	Self	Mentor	Date	Self	Mentor	Date	Self	Mentor		
J	Understands why the suction port should not be occluded if the patient is on gravity drainage											
K	Is able to change the Sentinel Seal from suction to gravity drainage											

6 Approval and Ratification

This guideline will be approved and ratified by the Neonatal Guidelines Group.

7 Dissemination and Implementation

7.1 This guideline will be uploaded to the trust intranet 'Neonatal Guidelines' page and thus available for common use.
7.2 This guideline will be shared as part of ongoing education within the Neonatal Unit for both medical and nursing staff.
7.3 All members of staff are invited to attend and give comments on the guideline as part of the ratification process.

8 Review and Revision Arrangements

8.1 This policy will be reviewed on a 5 yearly basis.
8.2 If new information comes to light prior to the review date, an earlier review will be prompted.

9 Document Control and Archiving

9.1 Amendments to the document shall be clearly marked on the document control sheet and the updated version uploaded to the intranet. Minor amendments will be ratified through the Neonatal Guidelines Group. A minor amendment would consist of no major change in process, and includes but is not limited to, amendments to documents within the appendices.

10 Supporting References / Evidence Base
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APPENDIX 1: EQUALITY IMPACT ASSESSMENT

Equality Impact Assessment Summary

Name and title:
Policy:

Background • Who was involved in the Equality Impact Assessment
Neonatal guidelines group
Methodology • A brief account of how the likely effects of the policy was assessed (to include race and ethnic origin, disability, gender, culture, religion or belief, sexual orientation, age) • The data sources and any other information used • The consultation that was carried out (who, why and how?)
The group considered the effect of the policy on the various groups within our neonatal population; and staff employed, including race and ethnic origin, disability, gender, culture, religion or belief, sexual orientation and age.
Key Findings • Describe the results of the assessment • Identify if there is adverse or a potentially adverse impacts for any equalities groups
The policy in inclusive
Conclusion • Provide a summary of the overall conclusions
No adverse features of the policy identified
Recommendations • State recommended changes to the proposed policy as a result of the impact assessment • Where it has not been possible to amend the policy, provide the detail of any actions that have been identified • Describe the plans for reviewing the assessment
The policy is suitable for implementation.

APPENDIX 2: CHECKLIST FOR THE REVIEW AND APPROVAL OF DOCUMENTS

To be completed (electronically) and attached to any document which guides practice when submitted to the appropriate committee for approval or ratification.
Title of the document:
Policy (document) Author:
Executive Director:

		Yes/No/ Unsure/ NA	Comments
1.	**Title**		
	Is the title clear and unambiguous?	**Y**	
	Is it clear whether the document is a guideline, policy, protocol or standard?	**Y**	
2.	**Scope/Purpose**		
	Is the target population clear and unambiguous?	**Y**	
	Is the purpose of the document clear?	**Y**	
	Are the intended outcomes described?	**Y**	
	Are the statements clear and unambiguous?	**Y**	
3.	**Development Process**		
	Is there evidence of engagement with stakeholders and users?	**Y**	
	Who was engaged in a review of the document (list committees/ individuals)?		**Neonatal guidelines group Opinions from all potential groups of users**
	Has the policy template been followed (i.e. is the format correct)?	**Y**	
4.	**Evidence Base**		
	Is the type of evidence to support the document identified explicitly?	**Y**	
	Are local/organisational supporting documents referenced?	**Y**	
5.	**Approval**		
	Does the document identify which committee/group will approve/ratify it?	**Y**	
	If appropriate, have the joint human resources/staff side committee (or equivalent) approved the document?		
6.	**Dissemination and Implementation**		
	Is there an outline/plan to identify how this will be done?	**Y**	
	Does the plan include the necessary training/support to ensure compliance?	**Y**	
7.	**Process for Monitoring Compliance**		

		Yes/No/ Unsure/ NA	Comments
	Are there measurable standards or KPIs to support monitoring compliance of the document?		
8.	**Review Date**		
	Is the review date identified and is this acceptable?	**Y**	
9.	**Overall Responsibility for the Document**		
	Is it clear who will be responsible for coordinating the dissemination, implementation and review of the documentation?	**Y**	**Neonatal guidelines group**
10.	**Equality Impact Assessment (EIA)**		
	Has a suitable EIA been completed?	Y	

Committee Approval (Neonatal Guidelines Committee)			
If the committee is happy to approve this document, please complete the section below, date it and return it to the Policy (document) Owner			
Name of Chair	 Dr Samantha Edwards	**Date**	30 May 2019
Ratification by Management Executive (if appropriate)			
If the Management Executive is happy to ratify this document, please complete the date of ratification below and advise the Policy (document) Owner			
Date: n/a			