

Insertion and Management of Chest Drains Clinical Guideline

V3.0

December 2023

Summary

Decision to insert chest drain – this should be made by a consultant or Respiratory Specialist Registrar with the appropriate experience except in emergency situations or in trauma when ATLS guidelines are being followed.

Chest drain insertion – this should be done by someone experienced in chest drain insertion or under the direct supervision of someone experienced in chest drain insertion.

Chest drain aftercare – It is the responsibility of the person who inserted the chest drain to inform the nurse looking after the patient that a chest drain has been inserted and about the immediate post insertion management (e.g. fluid to be drained, arrangements for CXR). It is the responsibility of the nurse looking after the patient to continue with chest drain care, to document it on a chest drain observation chart and escalate concerns about the chest drain either to senior nursing or medical staff.

1. Aim/Purpose of this Guideline

- 1.1. These guidelines are intended to be used in all clinical areas of RCHT where chest drains are placed.
- 1.2. They cover indications for chest drain insertion, technique of insertion, care for drain and drainage system and drain removal.
- 1.3. These guidelines bring together information from other national and international guidelines including the British Thoracic Society (BTS) Pleural disease guideline and the Advanced Trauma Life Support (ATLS) manual and the National Safety Standards for Invasive Procedures (NatSSIPs) 2015.
- 1.4. This version supersedes any previous versions of this document.

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Royal Cornwall Hospital Trust rch-tr.infogov@nhs.net

2. The Guidance

2.1. Introduction

Chest drains (ICD) are used to remove fluid or air from the pleural space. Pleural disease is common and presents frequently both to respiratory medicine clinics and as acute admissions. In 2008 the National Patient Safety Agency issued a rapid response report highlighting 12 deaths related to ICD insertion between 2005 and 2008. Serious complications of drain insertion included solid organ injury caused by mal-positioned drains, trocars, and dilators. There were additional reports of guide wires lost into the pleural space intrapleural and drain site infection. Serious complications and deaths were reported as a consequence of both Seldinger and blunt dissection drain insertion.

2.2. Indications

- 2.2.1. In general chest drains are placed for 4 indications: trauma, pleural fluid, pneumothorax and intraoperatively.

- 2.2.2. In the context of trauma a blunt dissection drain is usually recommended in accordance with ATLS guidance.
- 2.2.3. Pneumothorax does not always need a drain and may be treated with aspiration. If a drain is used, then a small bore Seldinger drain is usually most appropriate. The BTS pleural disease guideline provides a flow chart for management of pneumothorax. (Appendix 3).
- 2.2.4. Pleural effusion will sometimes need to be drained. Usually in the management of undiagnosed unilateral pleural effusion diagnostic and therapeutic aspiration is a more appropriate initial management step. The BTS flow chart for investigation of unilateral pleural effusion is (appendix 4).
- 2.2.5. The intraoperative placement of chest drains is out with the scope of this guideline.

2.3. Choice of Technique

- 2.3.1. Blunt dissection chest drain placement involves dissection down to the pleural space through the chest wall and direct placement of a drain through this track, usually with a large bore tube.
- 2.3.2. Seldinger chest drain placement involves reaching the pleural space with an introducer needle; passing a wire through that needle, dilating up the track and then placing the drain through the dilated track into the pleural space.
- 2.3.3. In theory most indications for chest drain can be managed with either technique and the experience of the operator may influence choice of technique. In certain situations one technique will be more appropriate. In traumatic haemothorax or pneumothorax blunt dissection should be used. In spontaneous pneumothorax or pleural effusion a smaller bore Seldinger drain is recommended.

2.4. Insertion

2.4.1. Consent

Except in emergency situations written consent should be obtained prior to chest drain.

2.4.2. Chest Drain WHO Safety Checklist – must be completed by the operator and assistant prior to insertion.

2.4.3. Aseptic technique

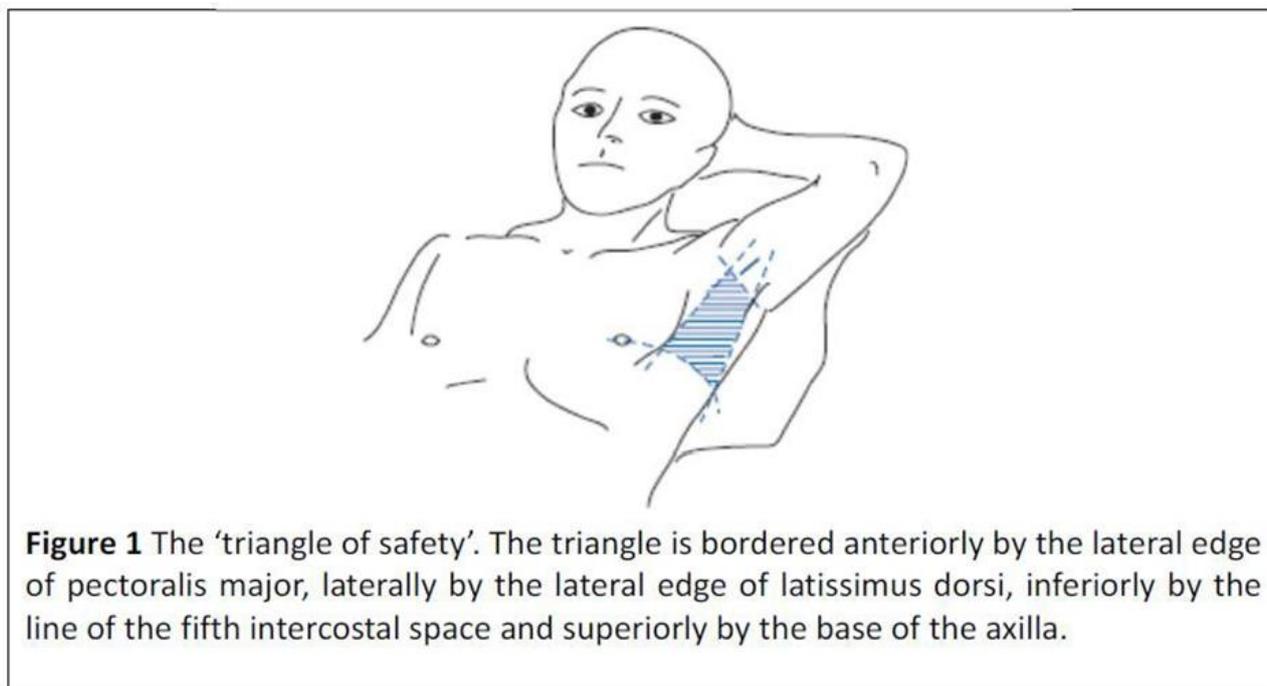
- 2.4.3.1. Drains should be inserted with full aseptic precautions (gloves, gown, antiseptic skin preparation and an adequate sterile field).
- 2.4.3.2. Where available drains should be inserted in a clean procedure room on a ward.

2.4.4. Imaging

- 2.4.4.1. Chest X-ray (CXR) will normally be the first investigation to evaluate the need for chest drain insertion.
- 2.4.4.2. CT scanning can be helpful especially in the setting of tethered pneumothorax or severe bullous disease.
- 2.4.4.3. Bedside ultrasound is strongly recommended for all pleural procedures involving fluid.
- 2.4.4.4. The marking of a site using thoracic ultrasound for subsequent remote aspiration or chest drain insertion is not recommended.
- 2.4.4.5. Seldinger chest drains must not be inserted without bedside ultrasound.

2.4.5. Position

- 2.4.5.1. The position of choice for drain insertion is within the “safe triangle.”
- 2.4.5.2. The boundaries of the safe triangle are the lateral edge of pectoralis major, the lateral edge of latissimus dorsi and the line of the 5th intercostal space.
- 2.4.5.3. Inserting drains in positions other than this (especially posteriorly) increases the chances of intercostal vessel damage and serious bleeding complications.



*RCHT owned image.

2.5. Chest Drain Insertion (Seldinger Technique)

2.5.1. Think

- **Does my patient need a drain?** Would aspiration be more appropriate?
- **Does it need to be done now?** Avoid “out of hours” drain placement except in emergency.
- **Is there a sufficiently skilled operator to insert drain?**

2.5.2. Prepare

- Provide written information sheet and allow time to read it.
- Obtain written consent.
- Review imaging to date and consider if further imaging is needed.
- **Bedside ultrasound will need to be done if drain is inserted for fluid.**
- Review baseline observations and ensure IV access.
- Ensure that an assistant is available.

2.5.3. Position

- For pneumothorax semi-reclined position will provide best access to triangle of safety.
- For pleural fluid patient position will be determined by optimum patient comfort and bedside ultrasound findings. The triangle of safety remains the first choice position for drain insertion provided that ultrasound has confirmed the presence of fluid there.

2.5.4. Procedure

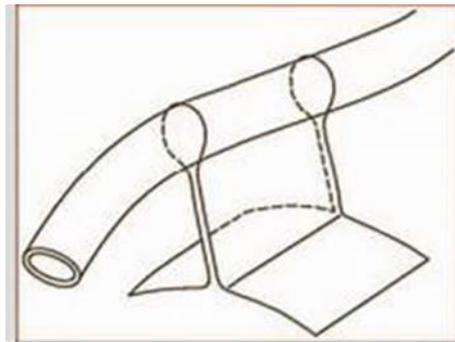
- Full aseptic technique.
- Clean skin and apply drapes.
- Infiltrate skin with local anaesthetic.
- Infiltrate tissue down to ribs and pleura with local anaesthetic. Ensure that you have given adequate local anaesthetic to the pleura (it has many nerve endings and failing to do this will likely result in significant discomfort for patient).
- Confirm aspiration of fluid/air. If you cannot do this, you must not proceed.

- While waiting for local anaesthetic to take maximum effect, prepare the introducer needle and guide wire.
- Make small nick in skin with scalpel.
- Insert introducer needle down the track that you have anaesthetised. Hold the needle lightly about 3cm from its distal end to prevent inadvertent over insertion.
- If the patient notices any discomfort, you will need to remove the introducer needle and give more anaesthetic.
- While inserting the introducer needle draw back on the syringe gently.
- When fluid or air is aspirated insert the introducer needle 5-10mm more aspirating all the time.
- Secure needle and remove syringe.
- Insert guide wire through needle into pleural space. Guide wire has 10cm intervals marked on it. Do not insert more than 30cm.
- There should be little or no resistance. Do not push hard. If significant resistance is felt, do not continue.
- Secure guide wire and remove introducer needle.
- Use scalpel to enlarge skin nick. Make sure that the skin right next to the guide wire is cut.
- Insert dilator over guide wire. Push gently and firmly along the same plane as you inserted the introducer needle. A rotating motion can help ease through skin. If the dilator won't go in the most common reason is that the nick in the skin is not big enough.
- Remove dilator.
- Insert drain over guide wire to a depth so that all side holes are within the pleural space. Generally inserting to 12-14cm works well. More drain may need to be inserted if patient has lots of chest wall soft tissue.
- Remove guide wire and central "stiffener".
- Attach 3 way tap.
- Take samples, if needed, with 50ml syringe.

2.5.5. **Stitch and stick**

- Attach drain to underwater seal.
- Confirm drainage of fluid/air.

- Secure drain with one or two stitches to the skin. Silk thread will secure drain and has the advantage of being easy to tie. The thread should be wound round the drain and needs to be pulled tight enough to produce a little dent in the drain.
- Apply a sterile dressing which allows the insertion site to be viewed.
- Apply an “omental tag” to the drainage tubing. This provides another point of security and is important in preventing the drain from falling out. To form the omental tag tape is placed over the drainage tube, it is then stuck to itself behind the tube and then to the patient (see diagram).



*RCHT owned image.

2.5.6. Aftercare

- Document using the chest drain insertion paperwork. This will include indication, operator, consent, insertion site, anaesthetic used, drain size, depth, complications, sutures and fixation device, samples, and post procedure instructions.
- If drain is for fluid clamp after 1000ml has drained. Repeat observations. If observations are stable and patient is not unwell then drain can be opened up again after an hour.
- Prescribe analgesia.
- Prescribe regular flushes for the drain.
- Send any samples taken.
- Request X-ray (timing at the discretion of clinical team).

2.5.7. Chest Drain Care

Patients should be managed on a ward where nursing staff are familiar with caring for patients with chest drains.

2.5.8. Drain Bottle

- Must be kept below the level of the insertion site.

- Must be kept upright at all times.
- Must never be filled below the “zero” level.
- Should be replaced with a new bottle when almost full.

2.5.9. Immediate Post Insertion Care

- Ensure drain is adequately secured with stitch, dressing and omental tag.
- Confirm that drain is swinging and note whether it is bubbling or draining fluid.
- Confirm that a chest X-ray had been asked for.
- Ensure that the nurse looking after the patient is aware that the drain has been inserted and what the indication is.
- Drains for pleural fluid should be clamped (or turned off at the 3 way tap) after 1000ml of fluid has drained. The patient’s observations should be repeated after clamping. Provided the patient remains well the drain can be opened again one hour later.
- Never clamp a bubbling chest drain.

2.5.10. Monitoring and Observation

- Observations should be obtained immediately after drain insertion.
- The frequency of subsequent observations must be at least every 4 hours and should be guided by the patient’s clinical condition and his early warning score.
- Chest drain specific observations should be documented on the chest drain chart. They should include.
- Date, time, Swinging, bubbling, drainage type, and drainage amount hourly, total drained, site checked, bottle changed, suction, clamped, signature.

2.6. Flushing a Chest Drain

2.6.1. **Drains are flushed for 2 reasons: to help the drain to remain patent or as an attempt to relieve blockage in a drain that has stopped working.**

2.6.2. **If flushing a drain to try to remove a blockage make sure that you have inspected the drain for other mechanical causes (twisting, full drainage bottle or patient sitting on tubing).**

- Wash hands and put on gloves.
- Fill 2 syringes with 20ml of saline.

2.6.3. **If drain has 3 way tap:**

- Close tap to patient.
- Attach syringe to side port.
- Close tap to distal chest drain tubing.
- Flush 20ml of fluid into the chest.
- Attempt to aspirate.
- Close tap to patient.
- Attach second syringe.
- Flush 20ml of saline into drainage bottle.
- Remove syringe.
- Reattach side port.
- Open drain up again.

2.6.4. **If drain does not have 3 way tap**

- Blunt dissection chest drains do not have 3 way taps. If the drain is a Seldinger one and frequent flushes are needed ask medical staff to put a 3 way tap into the system. If inserting a Seldinger drain, then remember to include 3 way tap.
- Clamp drain proximally.
- Disconnect drain tubing.
- Attach syringe to drain.
- Unclamp drain.
- Flush 20ml (50ml if blunt dissection drain) into chest.
- Attempt to aspirate.
- Clamp drain proximally.
- Remove syringe and reconnect tubing.
- Unclamp drain.

2.7. **Changing a Chest Drain Bottle**

- Explain the procedure to the patient.

- Take a clinical trolley, gloves, orange clinical bag for contaminated, clinical waste.
- Wash hands and put on gloves and apron.
- Fill the chest drain bottle with sterile water for irrigation up until the underwater seal line. The line is marked as “zero”. It will take about 500ml of water to fill to this line.
- Seldinger drain- turn the 3 way tap off to the patient, unscrew the tubing from the used bottle and connect to the new bottle.
- When underwater seal is in place turn on the 3 way tap.
- Place all items on to the clinical trolley, remove gloves and apron, and wash hands in the bay.
- Take clinical trolley to the dirty utility. Add solidifying agent to the pleural fluid and wait to solidify.
- When the fluid is solid, double bag with an Orange clinical bag for contaminated waste.
- Document in the patients records.

2.8. Chest Drain Clamping

2.8.1. Effusion

Drains placed for fluid should be clamped (or turned off at 3 way tap) after 1000ml has drained. Provided the patient remains well with stable observations the drain can be opened again one hour later.

2.8.2. Pneumothorax

- A bubbling chest drain must never be clamped.
- Sometimes, when the lung is re-inflated a chest drain for pneumothorax may be clamped and a repeat Chest X-ray (CXR) arranged to look for evidence of a slow leak. The decision to clamp the drain should be made by a consultant.
- Patients must not leave the ward (even to go to other hospital departments) with a clamped drain.
- If you are called to see a patient with a clamped drain for pneumothorax that has become unwell the first thing to do is unclamp the drain.

2.9. Chest Drain Suction

2.9.1. Effusion

Suction is not applied to drains for effusions.

2.9.2. **Pneumothorax**

- Suction is not part of the first line management of pneumothorax.
- The decision to apply suction should be made by a consultant respiratory physician Suction is normally applied at 10 to 20cm water (1-2 Kpa).
- Patients who are receiving suction and require chest X-ray should have this as a mobile X-ray while still attached to suction.

2.9.3. **Chest Drain Suction**

- Prepare a high volume, low pressure thoracic suction unit and enough suction tubing for the patient to move around the bed space- check that the filter is clean, this gets changed between each patient.
- Ensure that the patients on either side do not need to have the high pressure suction for their nursing care, if not remove the high pressure suction unit from the wall.
- Attach the high volume, low pressure thoracic suction unit to the wall, turn it to the lowest kPa/cmH₂O.
- Ask the patient to inform you if there is any pain on attaching the suction.
- Attach the suction tubing to the port on the drainage bottle and turn up to 5cm water (0.5Kpa).
- As long as there is no pain increase the suction pressure as prescribed. This will usually be 10 to 20 cm of water (1-2Kpa). Do not increase beyond 2Kpa unless specifically instructed.
- Explain to the patient, the suction tubing must never be left attached to the drainage bottle when the suction is turned off; this is dangerous and creates a closed circuit and positive pressure, potentially leading to a tension pneumothorax.
- Show the patient how to remove the suction tubing from the bottle so that they can mobilise and go to the toilet.
- Only staff trained and signed off as competent to care for chest drains should care for the chest drain.
- Document in the patients records.

2.10. **Chest Drain Removal**

- Wash hands and put on apron and gloves.
- Prepare a clinical trolley with a sharps bin, prepare for aseptic non-touch technique. Open a dressing pack.

- Remove or significantly loosen dressing.
- Check for any signs of infection.
- Cut sutures with sharps safety stitch cutter.
- Prepare an adhesive dressing to cover the hole.
- Pull on the drain gently aiming to pull about 1cm out of chest. This will confirm that it is moving easily and will come out when pulled.
- Ask the patient to take 3 deep breaths in and out. At the end of the third breath tell the patient to try to breathe out against closed vocal cords. It may be easier to show the patient by performing the manoeuvre yourself.
- While the patient is trying to breathe out against his closed vocal cords, remove the drain with a brisk firm movement.

2.10.1. **Small bore drains**

Place adhesive dressing over the hole. Small bore drain holes do not need stitching.

2.10.2. **Large bore drains**

- May need stitching depending on size of hole. This may involve the tying of sutures placed at the time of drain insertion or suturing after drain removal.
- Chest X-ray should be asked for following drain removal. This is usually done 2-4 hours post removal and is primarily to look for pneumothorax (either as a complication of drain removal or a persistent slow leak is drain was initially placed for pneumothorax).
- Document in the patient records.

2.11. **Drain Problems**

2.11.1. **Drain has stopped swinging**

- Check patient including observations, full chest drain observations and monitor for surgical emphysema.
- Look for obvious external problem with drain – is tubing twisted, is patient sitting on it, is drain bottle full, has drain fallen out. If the patient is on suction, ensure all connections are working.
- If no obvious external problem the flush drain.
- If flushing does not remedy the situation, then escalate to the Nurse in Charge of the Ward.
- The Nurse in Charge can assess the patient and drain and escalate to medical staff.

- Medical staff may want to ask for a chest X-ray and decide whether drain needs to be removed or replaced.
- Document in the patients records.

2.11.2. **Drain has partially slipped out**

- Check patient including observations, full chest drain observations and monitor for surgical emphysema.
- Escalate to the Nurse in Charge.
- The record of insertion should say to what depth it was inserted and from that you may be able to assess how much remains in chest.
- The nurse in charge can escalate to medical staff.
- Medical staff will need to decide whether the drain is functioning or not. If not, the decision is whether to remove or replace it?
- Document in the patient records.

2.11.3. **Drain has fallen out**

- Cover the drain site with an adhesive occlusive dressing.
- Take note of any signs of infection.
- Check patient including observations, monitor for surgical emphysema.
- Escalate to the Nurse in Charge who will assess patient.
- Inform medical staff of situation and escalate any concerns.
- Medical staff will ask for a chest X-ray to help determine whether a replacement drain is needed and if it is does this need to be done urgently.
- Document in the patients records.

2.11.4. **Drain tubing disconnected**

- In emergency situations (for example when the drain was bubbling right up to the moment of disconnection) it may be necessary to reconnect the tubing immediately. In all other situations the drain should be clamped (or turned off at the 3 way tap) and a new, clean tubing set attached.
- Clamp the drain.
- Immediately get new tubing and reattach to the bottle.
- Unclamp the drain.

- Check patient including observations.
- If patient remains well and drain continues to function it may be that no further action is needed.
- Medical staff may wish to ask for a chest X-ray.
- Document in the patient's records.

2.11.5. **Chest drain bottle knocked over**

- Return bottle to upright position.
- Ensure that fluid level still reaches the “zero” mark. If there is too little fluid change the bottle.
- Check patient including observations.
- Escalate to and inform the nurse in charge who will consider escalation to the medical team.
- If patient remains well and drain continues to function it may be that no further action is needed.
- Document in the patients records.

2.11.6. **Problems with dressing or sutures**

- If dressing is dirty or wet, then replace it using ANTT.
- If the area shows signs of infection, then take swabs of the site, inform the nurse in charge and the medical team.
- If sutures have come undone, then look to see if drain is partially or wholly out of the chest. If it is still in place, then contact medical staff to re-stitch it. If it has come out partially or fully refer to advice above.
- Document in the patients records.

3. Monitoring compliance and effectiveness

Information Category	Detail of process and methodology for monitoring compliance
Element to be monitored	It is a guideline only for Medical and Nursing Staff in Secondary Care. Compliance will be monitored through outcomes of patients requiring an intercostal drain for medical reasons. The British thoracic Society Pleural Audit will be applied. An Intercostal Drain care plan compliance sense check will be utilized to monitor nursing compliance. A review of the incident system datix will also be used to highlight any near miss and error reports.
Lead	Medical lead - Dr James Pickering, Respiratory Consultant
Tool	Pleural Audit from the BTS. Intercostal Drain Sense Check.
Frequency	Annually
Reporting arrangements	Respiratory governance meetings
Acting on recommendations and Lead(s)	The Respiratory Team (Consultants and Senior Nurses) will change the guidance as necessary in keeping with national and international guidelines. Review will also take place following incidents and near miss events if the guideline can impact in any way.
Change in practice and lessons to be shared	The guideline will be shared within the hospital to departments that perform the procedure. Lessons learnt will be shared via the respiratory Governance meetings. Required changes to practice will be identified and actioned within 6 months. A lead member of the team will be identified to take each change forward where appropriate. Lessons will be shared with all the relevant stakeholders.

4. Equality and Diversity

4.1. This document complies with the Royal Cornwall Hospitals NHS Trust service Equality and Diversity statement which can be found in the ['Equality, Inclusion and Human Rights Policy'](#) or the [Equality and Diversity website](#)

4.2. Equality Impact Assessment

The Initial Equality Impact Assessment Screening Form is at Appendix 2.

Appendix 1. Governance Information

Information Category	Detailed Information
Document Title:	Insertion and Management of Chest Drains Clinical Guideline V3.0
This document replaces (exact title of previous version):	Insertion and Management of Chest Drains Clinical Guideline V2.0
Date Issued/Approved:	22 November 2023
Date Valid From:	December 2023
Date Valid To:	December 2026
Directorate / Department responsible (author/owner):	Dr James Pickering, Respiratory Consultant
Contact details:	01872 252721
Brief summary of contents:	<p>These guidelines are intended to be used in all clinical areas of RCHT where chest drains are placed.</p> <p>They cover indications for chest drain insertion, technique of insertion, care for drain and drainage system and drain removal.</p>
Suggested Keywords:	Chest Drain Insertion
Target Audience:	<p>RCHT: Yes</p> <p>CFT: No</p> <p>CIOS ICB: No</p>
Executive Director responsible for Policy:	Chief Medical Officer
Approval route for consultation and ratification:	<p>Respiratory Consultant Group.</p> <p>Respiratory Senior Nurse Group.</p> <p>Respiratory Governance Team.</p> <p>RCHT Quality and Safety Representative.</p>
General Manager confirming approval processes:	Rachael Pearce
Name of Governance Lead confirming approval by specialty and care group management meetings:	Siobhan Hunter, Governance Lead

Information Category	Detailed Information
Links to key external standards:	NATSIPs
Related Documents:	Consent Policy
Training Need Identified?	For Nursing Teams: Chest drain e-learning. Chest drain supervised practice.
Publication Location (refer to Policy on Policies – Approvals and Ratification):	Internet and Intranet
Document Library Folder/Sub Folder:	Clinical / Respiratory

Version Control Table

Date	Version Number	Summary of Changes	Changes Made by
19 Aug 2016	V1.0	Initial issue	N/A
21 Nov 2019	V.2.0	Full review. Addition: Decision to insert drain can be made by Respiratory Specialist Registrar as well as consultant. Removal: Appendix 7 Consent Form (pending review) and Appendix 5 Chest Drain Insertion Safety Checklist and Insertion record (pending review).	James Pickering, Respiratory Consultant
November 2023	V3.0	Full review and updated to latest Trust template.	James Pickering, Respiratory Consultant

All or part of this document can be released under the Freedom of Information Act 2000.

All Policies, Strategies and Operating Procedures, including Business Plans, are to be kept for the lifetime of the organisation plus 6 years.

This document is only valid on the day of printing.

Controlled Document.

This document has been created following the Royal Cornwall Hospitals NHS Trust [The Policy on Policies \(Development and Management of Knowledge Procedural and Web Documents Policy\)](#). It should not be altered in any way without the express permission of the author or their Line Manager

Appendix 2. Equality Impact Assessment

Section 1: Equality Impact Assessment (EIA) Form

The EIA process allows the Trust to identify where a policy or service may have a negative impact on an individual or particular group of people.

For guidance please refer to the Equality Impact Assessment Policy (available from the document library) or contact the Equality, Diversity, and Inclusion Team
rcht.inclusion@nhs.net

Information Category	Detailed Information
Name of the strategy / policy / proposal / service function to be assessed:	Insertion and Management of Chest Drains Clinical Guideline V3.0
Directorate and service area:	Respiratory
Is this a new or existing Policy?	Existing
Name of individual completing EIA (Should be completed by an individual with a good understanding of the Service/Policy):	James Pickering, Respiratory Consultant
Contact details:	01872 250000

Information Category	Detailed Information
1. Policy Aim - Who is the Policy aimed at? (The Policy is the Strategy, Policy, Proposal or Service Change to be assessed)	This guideline is to aid safe insertion of chest drains, appropriate nursing care and subsequent removal of chest drains within the Royal Cornwall Hospital by appropriately trained individuals.
2. Policy Objectives	To have harm free care for all patients requiring a chest drain to ensure standardised treatment and care for patients. To reduce incidents and near misses.
3. Policy Intended Outcomes	Safe, effective, and evidence-based practice
4. How will you measure each outcome?	Pleural Audit from the BTS. Intercostal Drain Sense Check.
5. Who is intended to benefit from the policy?	Respiratory patients requiring insertion of a chest drain

Information Category	Detailed Information
6a. Who did you consult with? (Please select Yes or No for each category)	<ul style="list-style-type: none"> • Workforce: Yes • Patients/ visitors: No • Local groups/ system partners: No • External organisations: No • Other: No
6b. Please list the individuals/groups who have been consulted about this policy.	Please record specific names of individuals/ groups: Approved via the Respiratory consultant Group, Respiratory Senior Nurses, Respiratory governance team, Representative from the quality and safety team.
6c. What was the outcome of the consultation?	Approved
6d. Have you used any of the following to assist your assessment?	National or local statistics, audits, activity reports, process maps, complaints, staff, or patient surveys: No.

7. The Impact

Following consultation with key groups, has a negative impact been identified for any protected characteristic? Please note that a rationale is required for each one.

Where a negative impact is identified without rationale, the key groups will need to be consulted again.

Protected Characteristic	(Yes or No)	Rationale
Age	No	
Sex (male or female)	No	
Gender reassignment (Transgender, non-binary, gender fluid etc.)	No	
Race	No	
Disability (e.g. physical or cognitive impairment, mental health, long term conditions etc.)	No	
Religion or belief	No	

Protected Characteristic	(Yes or No)	Rationale
Marriage and civil partnership	No	
Pregnancy and maternity	No	
Sexual orientation (e.g. gay, straight, bisexual, lesbian etc.)	No	

A robust rationale must be in place for all protected characteristics. If a negative impact has been identified, please complete section 2. If no negative impact has been identified and if this is not a major service change, you can end the assessment here.

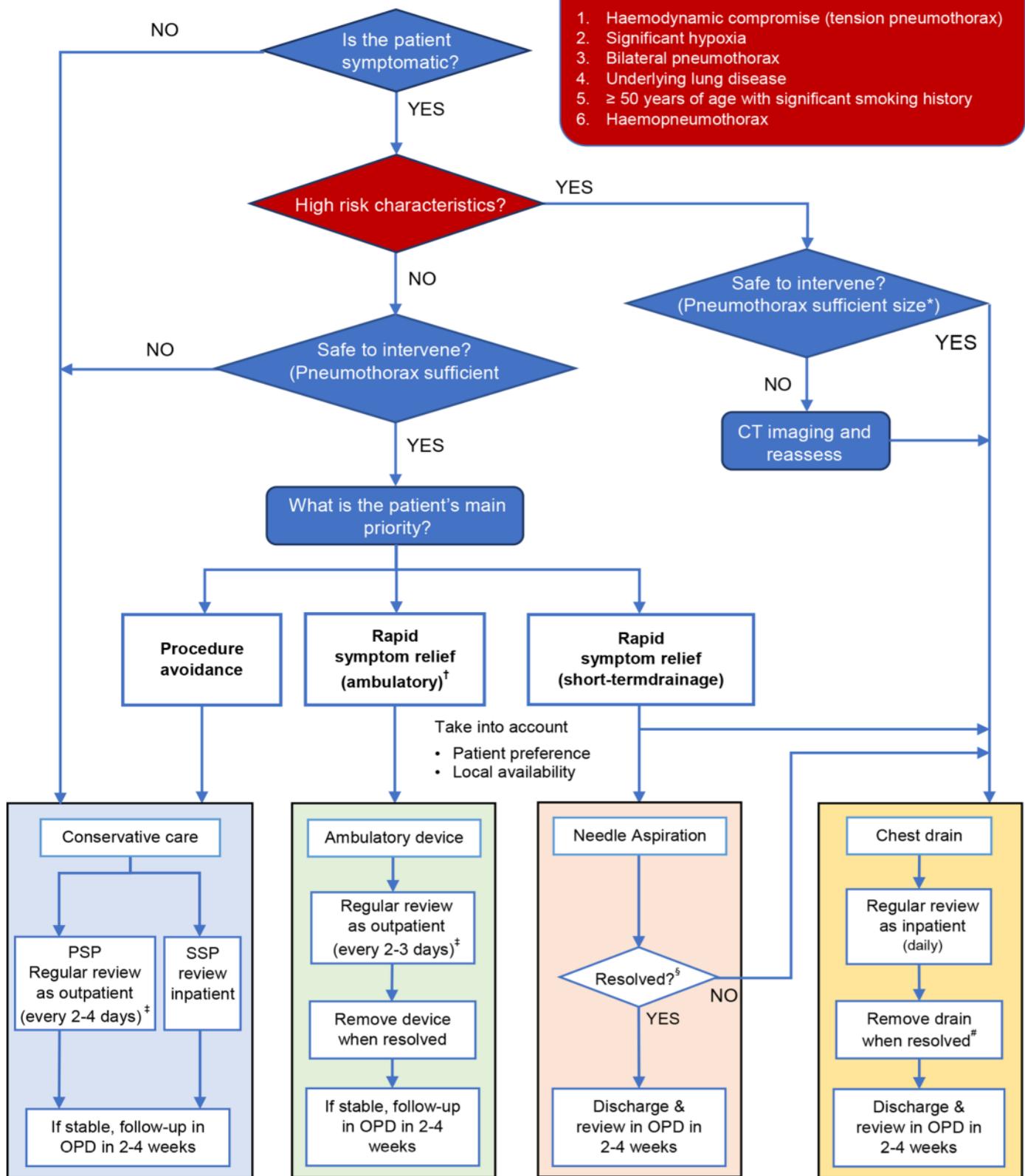
I am confident that section 2 of this EIA does not need completing as there are no highlighted risks of negative impact occurring because of this policy.

Name of person confirming result of initial impact assessment: James Pickering,
Respiratory Consultant

If a negative impact has been identified above OR this is a major service change, you will need to complete section 2 of the EIA form available here:
[Section 2. Full Equality Analysis](#)

Appendix.3 Pneumothorax Pathway

- High risk characteristics:**
1. Haemodynamic compromise (tension pneumothorax)
 2. Significant hypoxia
 3. Bilateral pneumothorax
 4. Underlying lung disease
 5. ≥ 50 years of age with significant smoking history
 6. Haemopneumothorax



* Pneumothorax of sufficient size to intervene depends on clinical context but, in general, usually ≥ 2 cm laterally or apically on CXR, or any size on CT scan which can be safely accessed with radiological support.

† If ambulatory pathway available locally.

‡ At review, if enlarging pneumothorax or symptoms consider chest drain insertion and admission.

§ Success: improvement in symptoms and sustained improvement on CXR.

¶ Talc pleurodesis can be considered on the first episode of pneumothorax in high risk patients in whom repeat pneumothorax would be hazardous (eg, severe COPD).

Appendix 4. Unilateral pleural effusion diagnostic pathway

