

RLH TRAUMA T.A.C.T.I.C. NOTE

CHEST DRAIN INSERTION (COVID-19)

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What?

This T.A.C.T.I.C. concerns the practice of Intercostal Drain (ICD) insertion in the ED Resus Bay of the Emergency Department in patients with suspected or known COVID-19.

Aerosolisation and secondary release of air from underlying lung injury is a procedure that carries risk of transmission

Which patient?

- Any in-extremis patient for the relief of tension pneumothorax or haemothorax (seen on imaging or clinically suspected)
- Any patient for the relief of clinically significant simple pneumothorax or haemothorax (seen on imaging or clinically suspected)
- Any intubated patient with a recognised simple pneumothorax who may become compromised due to IPPV
- **Any patient with a positive diagnosis of COVID-19 or high index of suspicion**

Which provider?

- **Most senior person available. ED, HEMS, or General Surgery Consultant, who has undergone defined training (minimise the number of staff exposed)**
- **Assistant and scrub nurses, anaesthetists need to be similarly clothed with optimal PPE**
- **All other staff should be >2m away (aim to keep number of team members to a minimum)**

When?

- Ventilated HEMS patients with thoracostomies should have ICDs inserted on arrival in ED unless clinical priority dictates otherwise e.g. need for urgent CT or thoracotomy indicated
- ICD should be inserted as soon as pathology is detected based on criteria above.

When Not?

- If patient is in traumatic cardiac arrest:
 - Finger thoracostomies should be performed as a priority
 - Consider thoracotomy
- If patient is not compromised and has a small simple unilateral pneumothorax it may be treated conservatively at discretion of team leader.

Where?

ICD insertion should be performed in an ED resus bay with full monitoring, ideally a side room or with 2m cordon

With what?

PPE (FFP3 mask or equivalent, hat, gown, sterile gloves, (2x), eye protection) https://www.youtube.com/watch?v=kKz_vNGsNhc chlorhexidine, sterile drape, theatre light positioned, procedural sedation / analgesia
Scalpel for skin incision, spencer-wells forceps for blunt dissection, chest drain bucket, 500ml sterile water, tubing (with end cut off), hand held silk suture to secure drain, tegaderm dressings x 2. All kit stored in Procedure Trolley in each resus bay.

How?

DRUGS & PREP	PLEURAL DECOMPRESSION	INSERT DRAIN	ATTACH TO UNDERWATER SEAL AND SECURE DRAIN
-Ventilated patients should be adequately sedated and may require further analgesia -Awake patients should have analgesia & procedural sedation with midazolam and ketamine in appropriate / titrated doses depending on CV status. Additional airway doctor must be present. e.g. 0.5-2 mg midazolam 0.5mg/kg Ketamine IV -Local anaesthesia may be used in addition if time permits -Clean and drape sterile area -Position trolley and light	-Identify landmarks – Supra-sternal notch, 2 nd rib, 4/5 th Intercostal space, anterior axillary line -Avoid breast tissue and pec major -Incise through skin, fascia and fat down to rib and then overlying muscle and to pleura -Use forceps to strip intercostal muscle off lower rib - If intubated stop ventilation at time of pleural puncture -Perforate pleura and insert index finger to ensure adequate size hole in pleural cavity -Note whether air or blood released and whether any tension (Caution must be taken at this stage to minimise uncontrolled leak of air and aerosol)	-Select appropriate sized drain (depending on patient size) - Insert clamped drain in appropriate direction - Air - anterior, superior - Blood – inferior, posterior - Be aware of depth of insertion. Holes on drain should be within pleural cavity - Remove clamp from tube when connected and circuit complete. Drain should swing effectively with ventilation	-Pour 500ml of sterile water into clear bucket and secure lid. -Place tubing port into bucket and twist to secure and lock connection. -Cut the distal end of the plastic tubing to allow connection to chest drain – DO NOT CUT END OF ICD OFF!! -Connect tubing to ICD -Ensure drain still swings with respiration -Secure chest drain to chest wall using hand held suture with a secure method e.g., roman sandal or South African knot. -Clean and dry area -Apply tegaderm dressing to drain and skin. -Do not place gauze within dressing - If changing bottle the intercostal drain and the tube should be clamped briefly to prevent leak of air from drain

What happens after?

Remove PPE safely to prevent further contamination. This will require an assistant <https://www.youtube.com/watch?v=oUo5O1JmLH0>
Order and review imaging to confirm ICD position. Monitor efficacy of ICD i.e. swinging or not, physiology, comfort of patient.
Complete CRS entry and ensure optimal post procedure follow up and monitoring.

Where do I learn more?

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LOCAL BARTS HEALTH RESOURCE: https://www.youtube.com/watch?v=kKz_vNGsNhc

<https://www.youtube.com/watch?v=1CWxWtsZpgo&feature=youtu.be> <https://www.youtube.com/watch?v=oUo5O1JmLH0>

TRAUMA SERVICE DESIGNATED E-Resource: <http://www.trauma.org/index>.