# Atrium Mini Express (Ambulatory) Drains

See also **Atrium Mini Express (Ambulatory) Drains Policy (PCCS)**
See also **Parent Information**

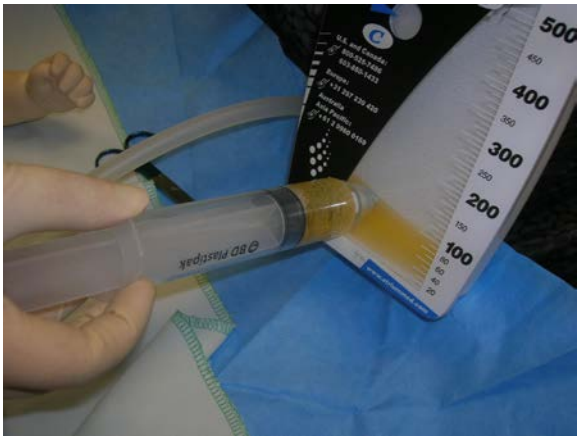


## When would they be used?

All children who require a pleural drain for longer than 2 days post procedure will swap to the Mini Atrium Express (ambulatory) drains [i.e. ALL Fontan patients and some other groups as identified by the surgical team]. It will be routine practice to change to the Mini Atrium Express (ambulatory) drain on day 2 post op on 23B (or in PICU) unless there are concerns with excessive drainage causing cardiovascular instability or the patient is still ventilated (in PICU). These drains are lighter and make mobilisation easier, which improves patient ventilation and morale and reduces the risks of post operative chest infections. In the Fontan group, increased ventilation helps to promote pulmonary blood flow and may reduce the duration of pleural losses.

## What is different about these drains?

- They have a one way valve so they do not use a water seal
- Set up involves connecting the tubing and drain – one step
- The drains should be lower than the chest ideally but it is not essential at all times like it is for underwater seal drains
- They are small and hang from the bed or can be attached to the child using velcro straps to make it easy for patients to mobilise.


- When they are full they can be emptied using a leur lock syringe

- The drain should not be tipped upside down – it will still work and there is no risk to the child but the top chamber will fill with fluid and this may leak from the top of the drain.
- Occasionally a tick may appear in window C on the front of the drain – it does not matter whether the tick is there or not, the drain will still drain fluid effectively; it simply means that the chamber has negative pressure as the pleural membranes are sealed. This is only clinically relevant if the drain is being used to resolve a pneumothorax.

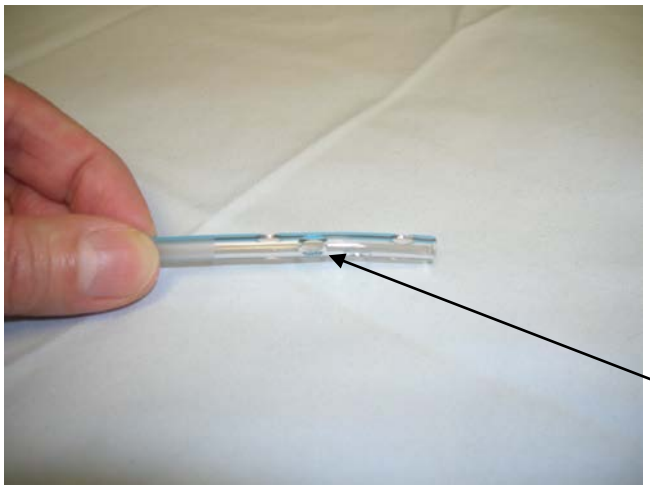
## Safety Checks

The patients using these drains will require fluid balance observations as dictated by their medical stability but should be no less than four hourly (as per Starship chest drain RBP). As mobilisation is encouraged with these drains it is necessary to also perform regular **safety and connection checks**:

- At the start of each shift changeover,
- After any change of position e.g. from bed to chair,
- Before and after mobilising
- If the drain is pulled or caught up
- If the patient reports discomfort or their vital signs change

***What needs to be checked?***

- That the length of the chest drain from skin to the first connection is correct.
- That the tubing connections are all attached, connected and secure.
- That the dressing and anchoring are secure.
- That there are no chest drain eyelets visible outside of the skin.

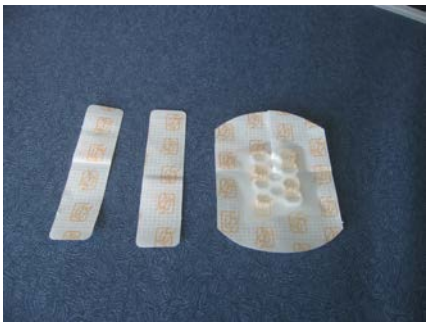


## Setting Up and Attaching the Mini Atrium Express

**The priority for ambulatory drains is that the connections are secure and visible at all times.**

1. Ensure play specialist or other persons are able to provide distraction – procedure may be uncomfortable and will involve manipulating the connection closet to the child.
2. Collect following items:
   - Dressing Trolley
   - Dressing pack
   - Saline
   - Gloves – non sterile.
   - The Mini Atrium Express Drain
   - Scissors
   - Blade
   - 2 chest drain clamps
   - 1cm thick pink tape
   - Mefix tape
   - Opsite visible drain dressing™
3. Patient should be monitored throughout and a surgeon should be on site and notified before you start procedure.
4. Sit the child in a semi-upright position or on their side (as long as you can get to drain sites) and, if it is not already, secure the drain to the skin using two occlusive dressings sandwiched together (as per RBP) you may need to clean the skin with saline if there is old ooze present or use a small absorbent pad cut with a hole in the centre if there is any fluid oozing from the skin.

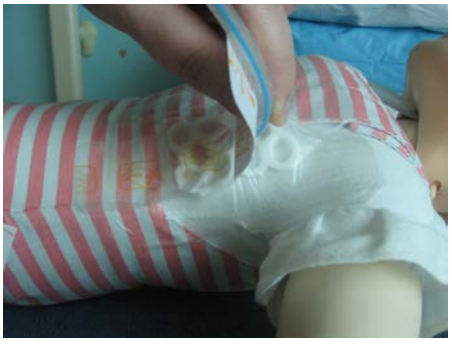
This is the dressing used to secure ambulatory drains


Once opened, the dressing must be separated into the three components


The main part (with the honeycomb centre is applied to the skin with the split **below** the chest drain

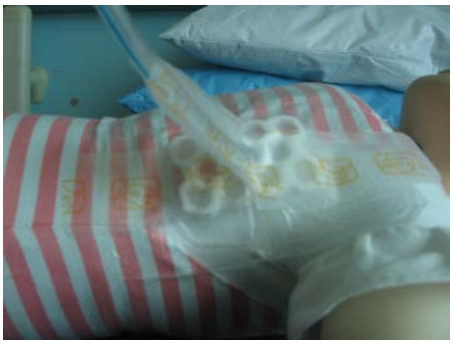

Remove the backing paper and apply the top half to clean, dry skin.


Carefully remove the backing paper to the lower half of the dressing and apply to the skin **making sure the split joins together making a closed dressing around the drain insertion site**


The two strips of occlusive dressing are used to seal the first dressing **and** to secure the tubing.
Lift the chest drain up and apply the bottom half of occlusive strip over the split on the first dressing.

Remove the backing paper from the top half and lay the tubing onto the sticky surface.

Remove the backing paper from the second strip and apply the top half over the top of the first dressing, coming down to meet the top of the chest drain tube.



Remove the other half of the backing paper and apply the dressing to the sticky surface of the bottom dressing, sandwiching the chest drain tube between them.

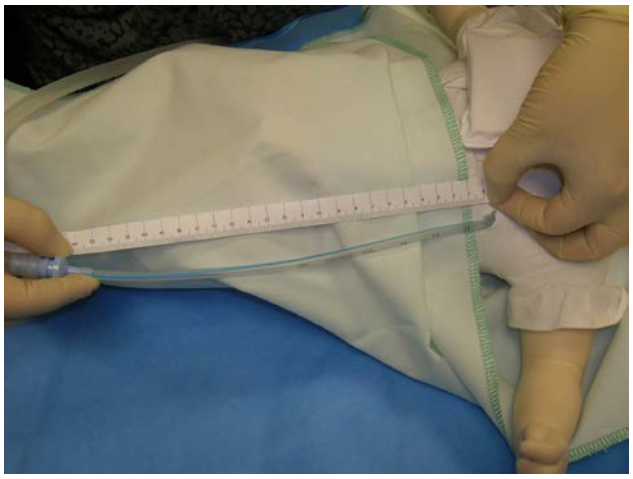
Check that the dressing has a good seal with the skin and that the tubing is securely anchored to the chest by the dressing.

Ensure that the site and connections are visible through the dressing. Add additional occlusive dressings if necessary.

Secure the tubing to the lower abdomen with a thick strip of mefix tape (or other thick tape)

## The priority for ambulatory drains is security and visibility of all connections.

5. Measure and **record** the length of the drain between the skin and the end of the actual chest drain (before it connects to the chest drain tubing) – write this figure on the chest drain observation chart - this figure will be used as part of the safety checks.

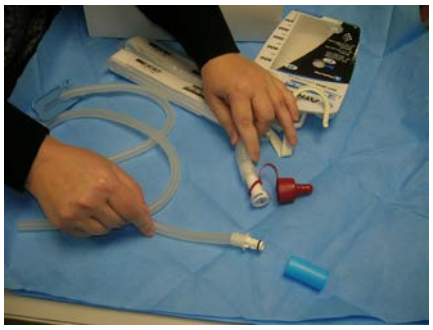


6. Apply two chest drain clamps to the drain above the first connection.
7. Wash hands and put on gloves.
8. Open the chest drain packaging onto a clean dressing trolley – the contents should be:
   - Chest drain canister
   - Chest drain tubing
   - Package with 4 connectors – you probably wont need them if the child has a Portex drain but you may need them for other drains such as pigtails

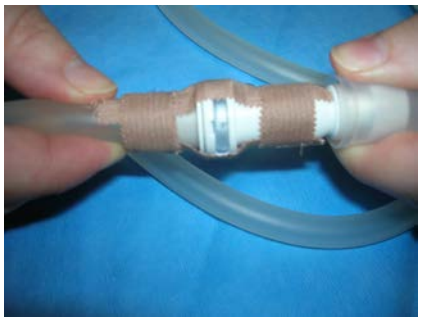
Contents of package


Connectors supplied (usually won't need unless you cannot disconnect the drain from the existing tubing)

9. Connect the new chest drain canister to the tubing and reinforce with tape in such a way that the locking mechanism is unaffected and it is possible to inspect the connection to ensure it is still attached (see picture). <u>You do not need to add water to the drain</u>.


Remove blue and red caps


Click connectors together


Reinforce with tape (H strapping)

10. Ensure the chest drain tubing is the correct length as they are designed for adult patients (ideal length is about 125cm) some packs come that length some packs have longer tubing length.
11. Carefully cut the cable tie binding the drain to the tubing with scissors and then disconnect chest drain from chest drain tubing.
12. Connect the tubing for the Mini Atrium Express Drain to the chest drain – check the connection is secure and reinforce with cable ties ***and*** tape – again ensure the connection can be visualised easily.

**The priority for ambulatory drains is security and visibility of all connections.**

## Management of inadvertent disconnection

If the chest drain is pulled on, or the sutures loosen/snap and there are eyelets outside of the skin:

- <u>Remove the drain immediately</u> a drain that is half in half out poses a risk for pneumothorax.
- Monitor patient (respiratory rate, increased work of breathing, colour, oxygenation) – seek urgent medical review if:
  - Respiratory rate increases
  - Patient reports difficulty breathing
  - Oxygenation/colour deteriorates.
- Seek medical review anyway (non urgent) to discuss plan.

*If the connections become disconnected:*

- Re-attach them and secure them well (as above)
- It is unlikely that this would cause a pneumothorax but monitor patient (respiratory rate, increased work of breathing, colour, oxygenation) – seek urgent medical review if:
  - Respiratory rate increases
  - Patient reports difficulty breathing
  - Oxygenation/colour deteriorates.
- Repeat safety checks

## Education for Parent/carers

The idea is that these drains will allow the patients to mobilise more freely and ultimately may be allowed off the ward or even off site with the drain in situ.

***Checklist for going off the ward with an ambulatory drain:***

- Consultant states and documents that the child is safe to mobilise off the ward or even off site.
- Accompanying parent/carer have received education and demonstrated competence with:
  - Safety checks
  - What to do if the connections become disconnected
  - What to do if the drain comes out partially
  - What to do if the drain comes out completely
  - What clinical signs to monitor for and when to seek medical review
- Patient has emergency kit with them – including ward numbers
  - Numbers to call
  - Emergency card
  - Gloves
  - Scissors
  - Tape to secure dressings
  - Gauze squares
  - Comfeel/air tight dressing
  - Chest drain clamps
- Accompanying parent/carer has had CPR training
- Accompanying parent/carer has access to a phone or cell phone at all times.

If we run out of drains we can call the rep who will drop some off until we can order more, her details are:

Supplier representative
Heather Laanbroek
Atrium Medical
NZ Territory Manager
Ph: 021 0250 0630