

Using your Astral Ventilator for CPAP (children)

Children's Respiratory Physiology

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Information for Patients

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Introduction

We have given your child a continuous positive airway pressure (CPAP) machine. This machine delivers air through tubing into a mask or tracheostomy to keep their airway open. We will have shown you how to use and care for their machine. This leaflet will help remember it. Unless told otherwise, your child will use this machine when they are asleep.

What should my child expect when using CPAP?

It is normal if your child finds it a bit hard to breathe out. This happens because air is coming in while they try to breathe out. Their body can do this easily when they are asleep. But it might take some time to get used to how it feels.

If your child wakes in the night and feels uncomfortable with the pressure of the machine, switch it off and disconnect the machine for a few minutes. Wait until your child is settled until connecting it again.

You should not worry if they are not able to use the CPAP machine all night when they first start. Even just 4 hours using the CPAP a night is likely to improve the quality of their sleep.

**Health information and support is available at www.nhs.uk
or call 111 for non-emergency medical advice**

Visit www.uhleicester.nhs.uk for maps and information about visiting Leicester's Hospitals
To give feedback about this information sheet, contact uhl-tr.informationforpatientsmailbox@nhs.net

How Do I Use the Ventilator?

The ventilator has a small internal battery for emergency use. You must keep the ventilator plugged into the mains when being used.

- **The power switch (1)** on the back of the ventilator will switch the ventilator on but not start CPAP.
- **The 'hand' (2)** button will unlock the touch screen.
- **The 'start vent' (3)** button will start CPAP. To stop CPAP, press and hold the 'stop vent' button, then release the button when prompted.
- **The 'lung' button (4)** will show you monitoring data whilst your child is on CPAP. You can use this to check leak and ensure the right pressure is being delivered.
- **The 'tick' button (5)** will show you the CPAP settings. You will not be able to change these.
- **The 'bell' button (6)** is where you will find all alarms set.
- **The 'i' button (7)** is a log of all alarms.
- **The red button (8)** is the alarm mute button.



The Astral CPAP circuit

The things you need to use the ventilator include:

- The Astral ventilator and mains cable
- Circuit tubing
- A close fitting mask worn over the mouth and/or nose, with ports to let the exhaled air to escape. If you have a tracheostomy, the air will escape through the leak valve.
- Humidifier (optional)

How do I set up the circuit?

Non-humidified circuit

1. Plug the Astral into the power supply.
2. Connect the tubing to the front of the ventilator.
3. Connect the mask to the opposite end of the tubing.
4. Perform learn circuit.

Humidified circuit

1. Plug the Astral and humidifier into the power supply.
2. Place the chamber into the humidifier .
3. Connect the yellow filter to the front of the ventilator. Then place the short tubing onto the filter. Attach the other end of the tubing to the chamber.
4. Attach the long tubing to the humidifier chamber and the mask.
5. Connect humidifier temperature probes and water supply as shown during training.
6. Perform learn circuit.

How do I learn the circuit?

You can minimise alarm issues by learning the circuit resistance.

- Make sure the Astral is powered on.
- The parts should already be put together. You will need to take remove it from the front of the ventilator for the first stage. You should not have the mask connected to the tubing.
- Select the 'tick button' > circuit > learn circuit start and follow prompts.
- Mask can be added to circuit once completed.

How do I clean the Astral?

You must clean the Astral machine and circuit regularly. This reduces the risk of infection and damage to the equipment.

Daily:

Disconnect your child's mask from the tubing each morning. Wipe the inside of the mask with a wet wipe/baby wipe. Leave mask to dry off before using again. Do not use bleach or alcohol based products. These can damage the masks.

Weekly:

Some circuits (tubing and humidifier chamber) need to be changed weekly, monthly or 6 monthly. The community team will tell you which how often you need to change it. They will also give you the supplies you need.

Wipe the Astral down with a damp cloth/baby wipe to keep it dust/dirt free.

Monthly:

There is a filter in the back of the Astral to collect dust.

You should check this every month. If visibly soiled it should be changed. If the filter has not been changed for 6 months it must also be changed.

To change the filter:

1. Unlock the air filter cover by turning in an anti-clockwise direction.
2. Pull the air filter cover from the device.
3. Pull the air filter from the cover and discard.
4. Insert a new filter into the cover.
5. Insert the air filter and cover back into the device.
6. Turn in a clockwise direction to secure in place.



How do I check my child's mask fit?

Your child's mask must be fitted well to make sure they get the pressure they need.

Your child's mask should be tight enough to be secure and have minimal leak. Be careful not to over tighten and cause discomfort and soreness.

To check if the mask fits:

- Move your hands around the mask. There should be no excessive air leaking from where the mask touches your child's face.
- Each mask has a little leak to let CO₂ to escape. This is different on every mask. You should have been shown where it is.
- Check the leak level on the monitoring ('l' button). If this number is above 40, then try adjusting the mask to reduce leak.
- If you notice a high leak try moving the placement of the mask on the child's face or adjusting the straps may improve mask fit.
- If you are struggling often with mask fit or leak, please contact Children's Respiratory Physiology.

Alarms

Alarms are set on the Astral device for safety. We tailor the alarms to every patients' needs so some of these alarms may be turned off. An active alarm will be displayed along the top of the screen.

- **Red** alarms are **high** priority alarms.
- **Yellow** alarms are **medium** priority.
- **Light blue** alarms are **low** priority.

You can mute the alarm for two minutes using the alarm mute button. It will continue to sound every two minutes until the problem is fixed.

Please contact the physiology team if you are having problems with alarms.

Common alarms

- **High leak:** This may appear if the mask is not correctly fitted. This happens when the mask has been removed or if the circuit is not correctly assembled.
- **Apnoea alarm:** This may appear if your child holds their breath. This should self-clear. If this is repeatedly sounding please check mask fit or contact physiology.
- **Disconnection alarm:** This will sound if your child has removed their mask or decannulated.
- **Internal battery:** This will sound if the internal battery is being used. Check that the mains cable is correctly inserted and is turned on at the plug.

Common problems

Runny nose, dry nose, mouth or throat: All of these issues are quite common. These symptoms do settle in a few days. If the symptoms continue please contact the Respiratory Physiology Team on the number at the back of this leaflet.

Blocked nose: If your child is using a nasal mask, they may not feel the benefit of using CPAP. They may need to breath through their mouth until nose has cleared. This is why we often try to offer masks covering nose and mouth.

Broken Mask: If your child's mask has broken, please contact the community team for a replacement.

Machine does not seem to be working correctly: If you think your equipment is malfunctioning please contact the respiratory team.

Mask rubbing on skin: Sometimes the mask can rub on your child's skin making it sore. To help this you can try some moisturiser on your child's skin to see if this will help.

Oxygen use

If your child needs oxygen as part of their therapy or in an emergency, you are able to connect your oxygen concentrator/ cylinder to the Astral device. This will let for both oxygen and CPAP to be given at the same time.

You will have been given an oxygen connector that goes into the back of the Astral. You then attach your oxygen tubing to this.



Saturations monitoring

We may have requested that the community team give you a saturations monitor. This will depend on your child's age and needs.

You should use the saturations monitor at all times whilst your child is using the ventilator. It is for safety and to alert you if there is something wrong. If your child is moving or the probe is not attached correctly it may not be accurate.

The nursing team will let you know how to use the saturations monitor. They will help you know when there is something to be concerned about.

The community team are responsible for this monitor and any probes needed.

Do I need to bring the ventilator with me to hospital appointments?

Bring your child's Astral with you to any appointments relating to their ventilation. For example, if your child has a follow up appointment in the respiratory or sleep clinic to see the Doctors, Nurse or Physiologists.

For these appointments you do not need to bring the complete circuit and humidifier. You should bring the Astral machine, mains power cable and mask unless asked otherwise.

If your child has to visit hospital for an overnight stay for any reason, you will need to bring their ventilator, mask, circuit and humidifier with you. This is very important as we do not have spare machines to loan to the wards.

You must let the Doctors and Anaesthetists that your child is on CPAP. This is important if your child is going to have a general anaesthetic as they may need CPAP after their procedure.

What if I am going on holiday?

Your child can take their ventilator on holiday with them.

If they are flying, the ventilator needs to be carried as hand luggage. This stops it from getting lost or damaged. It must not be transported in the hold. Please contact the respiratory nursing team and they will give you a flight letter to let you do this.

If you are flying overnight, it is likely that your child will need to use the ventilator whilst flying. Please contact us to arrange this.

Some children will need a flight assessment before flying. If your child needs oxygen or you have been told that your child needs a flight assessment, please speak to the respiratory nursing team before booking your flight.



Contact details

Childrens Respiratory Physiology, Childrens Development Centre, Ground Floor,
Windsor Building, Leicester Royal Infirmary, Monday to Friday, 8am to 5pm on **0116 258 5691**.

Please arrange an appointment before attending.

If you have any questions, write them down here to remind you what to ask:

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Aby uzyskać informacje w innym języku, proszę zadzwonić pod podany niżej numer telefonu

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