Other Issues

- **Power failure** —the ventilator has an internal battery that will last for about 4-6 hours and is charged whenever the machine is plugged in. External batteries are also available and last 4-6 hours.
- **Dry Mouth;** caused by drying from ventilator airflow - have a drink by the bed, drinking plenty can help. If dryness continues to be a problem contact the medical team and a humidifier can be provided.
- **Sore / dry eyes;** caused by air leak from mask – reposition mask. If on-going contact medical team for advice as a different mask may help.

Cleaning and Maintenance of Dry circuits

- Masks should be washed daily in warm soapy water, rinsed thoroughly in clean water and left to air dry. If looked after masks should last for 6—12 months.
- Headgear should be washed weekly following the same instructions as for the mask.
- Circuits should be inspected regularly and replaced monthly.
- The bacterial filter should be replaced monthly or sooner if dirty.

Cleaning and Maintenance of Wet (Humidified) circuits

- Speak to LTV team for specific cleaning and maintenance details.

Air Filters / Servicing

- The air filter at the back of the machine should be checked regularly and replaced monthly. Do not run the machine without the filter in place.
- The ventilator should be serviced yearly. Contact the LTV team if you notice it is due a service.

If you have any problems with your device or any questions please contact the Children's Long Term Ventilation team on;
0115 924 9924 ext.: 82207.
Out of hours please contact the Critical Care unit on;
0115 9249924 ext 62207

Feedback

We appreciate and encourage feedback. If you need advice or are concerned about any aspect of care or treatment please speak to a member of staff or contact the Patient Advice and Liaison Service (PALS):

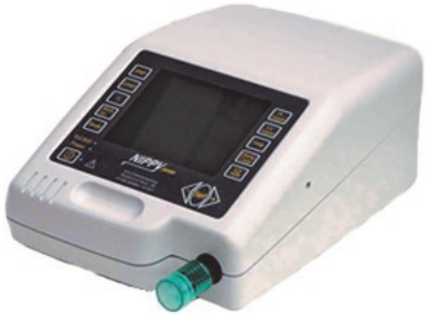
Freephone: 0800 183 0204
From a mobile or abroad: 0115 924 9924 ext 65412 or 62301
E-mail: pals@nuh.nhs.uk
Letter: NUH NHS Trust, c/o PALS, Freepost NEA 14614,

WellChild
the national charity for sick children

Nottingham University Hospitals NHS
NHS Trust

Children's Long Term Ventilation Team
Nottinghamshire, Lincolnshire, Derbyshire

NIPPY Junior + Ventilator
Non-Invasive Ventilation



This document can be provided in different languages and formats. For more information please contact:

Children's Long Term Ventilation Team
E11 Curie Court, QMC Campus
Derby Road, Nottingham
NG7 2UH
Tel: 0115 924 9924 ext.: 82207
LTVteam@nuh.nhs.uk

Nottingham Children's Hospital

We Listen We Care

What is the NIPPY Junior+ ventilator?

The Nippy ventilator is a simple device that acts like a pair of bellows to help support breathing. The ventilator delivers pressure through the circuit and mask which helps the lungs to expand. This helps to keep the oxygen and carbon dioxide levels in the blood at the right values. For children just needing the machine at night this should help them to get a better nights sleep and feel more refreshed in the morning.

Who is the NIPPY Junior+ Ventilator for?

The most common reasons that children require ventilation are:

Airway difficulty – there is a partial blockage to airflow into the lungs. The NIPPY holds the airway open by pushing open the walls of the airway.

Muscle weakness – the muscles of breathing are poorly effective. As well as holding the airways open the machine also supports the breath in to make it more effective.

Lung Disease— the lungs themselves are damaged and need some extra support from the NIPPY to make breathing more effective.

Central Control— the brain sends signals to the lungs to control breathing. If this is not working correctly the lungs may need the NIPPY to help control breathing.

Some children will use the ventilator at all times. Others use it just overnight when asleep and during the day if tired / unwell, usually via a mask. This is called non-invasive ventilation.

Settings on the ventilator

The settings on the ventilator will have been set by the Long Term Ventilation (LTV) team. These settings will have been locked in so it doesn't matter if you accidently press any of the buttons. Your ventilator should have the above lock sign in the bottom right hand corner. If your padlock is unlocked please contact the LTV team.

Settings you may come across;

CPAP (Continuous Positive Airway Pressure); The setting delivers a continuous pressure that helps maintain the airways open during breathing. EPAP (expiratory positive airway pressure) is set on the ventilator. Used mainly with children who struggle to keep their airway open at night.

Pressure Support; Both the breath in and out are supported. This is either triggered by the child's own inspiratory effort (breath in) or they can have a set breathing rate. Both the IPAP (inspiratory positive airway pressure) and EPAP are set. Used with children with a respiratory muscle weakness to help make each breath more effective but also with children who have a poor drive to breath / pauses in their breathing.

Pressure Control; As for pressure support but inspiratory time (Ti) is also set. Used for those children with a poor drive to breathe or that need more support than pressure support will give.

With both **Pressure Support** and **Pressure Control** two levels of pressure are set. This is sometimes called **Bi-Level.**

Circuits

The NIPPY device has a single limb circuit. Air flows continuously from the machine, through a bacterial filter, along the tubing (red arrow) to the child where different interfaces (masks) connect to the child. Circuits can be dry, using room air only, or wet, where the air is humidified and warmed.

Expiratory Ports

On breathing in, air flows from the circuit into the lungs. On breathing out the gases disappear from the child and the circuit into the room through holes in the mask or an expiratory port in the circuit.

It is important that the holes of the mask / expiratory port of the circuit are never blocked as this is where the child breathes out.

Masks

There are many different masks available to use with the NIPPY. Some cover just the nose, some nose and mouth and some total face masks. The LTV team will advise on the most appropriate mask for your child.

Fitting the mask; The mask should be attached tightly enough to minimise any air from leaking out around the edges of the mask, but not so tight that it causes pain or pressure sores to develop.

To check for leaks cup your hands around the outside edges of the mask. If you can feel air rushing out then you have a leak and should reposition or tighten the mask. You can also listen to hear for leaks. Use the Velcro straps to tighten or loosen the mask in order to get the correct fit. This may take some practice and some trial and error.

Alarms

If an alarm sounds first check on the child.

The most common alarms are;

Low flow alarm; may be caused by coughing / sneezing or blockage of any of the tubing - check tubing.

High flow / disconnection alarm; usually caused by excessive leaking of air from around the mask, or disconnection / misconnection of some part of the breathing circuit – readjust mask, reconnect tubing . Let the LTV team know if there are ongoing problems with leaks around the mask as this will make the ventilator less effective and less comfortable.