Respiratory support of neonates during an air transport

A. How to move the ventilator from “ground” to “air” trolley

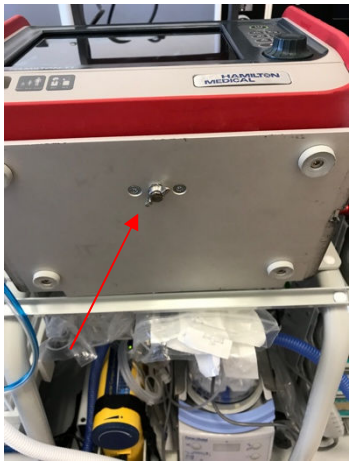
1. Unscrew white O2 supply hose from the ventilator. O2 cylinder has to be closed.

   Unplug A/C cable from ventilator.

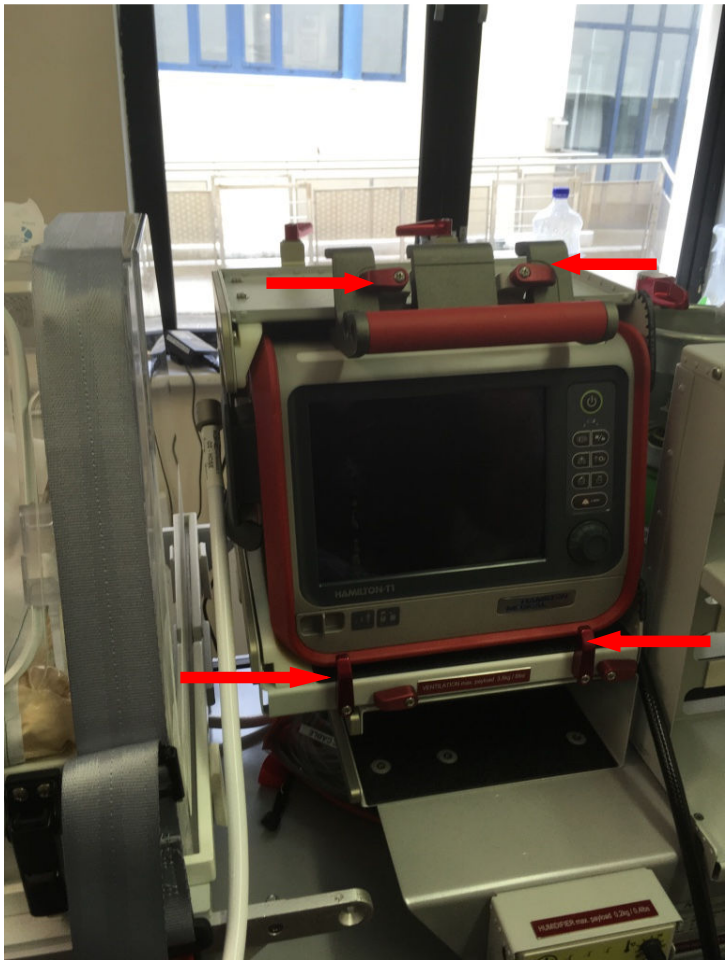
2. Unlatch safety pin – by pressing the top button and pulling the pin up from the safety hole.

3. Open the red safety “trigger” & slide out the ventilator from the holding plate.

4. Unscrew baseplate from ventilator – it has to be removed before the ventilator goes on the air transport rig!



5. Attach the white O2 hose that you found on the Air transport rig (BLUE POUCH) to the ventilator and plug the other end to O2 source (air rig cylinder OR wall in hospital OR Lifeport in AW139/CASA). Slide the ventilator to its place on the air transport rig and close the safety latches.

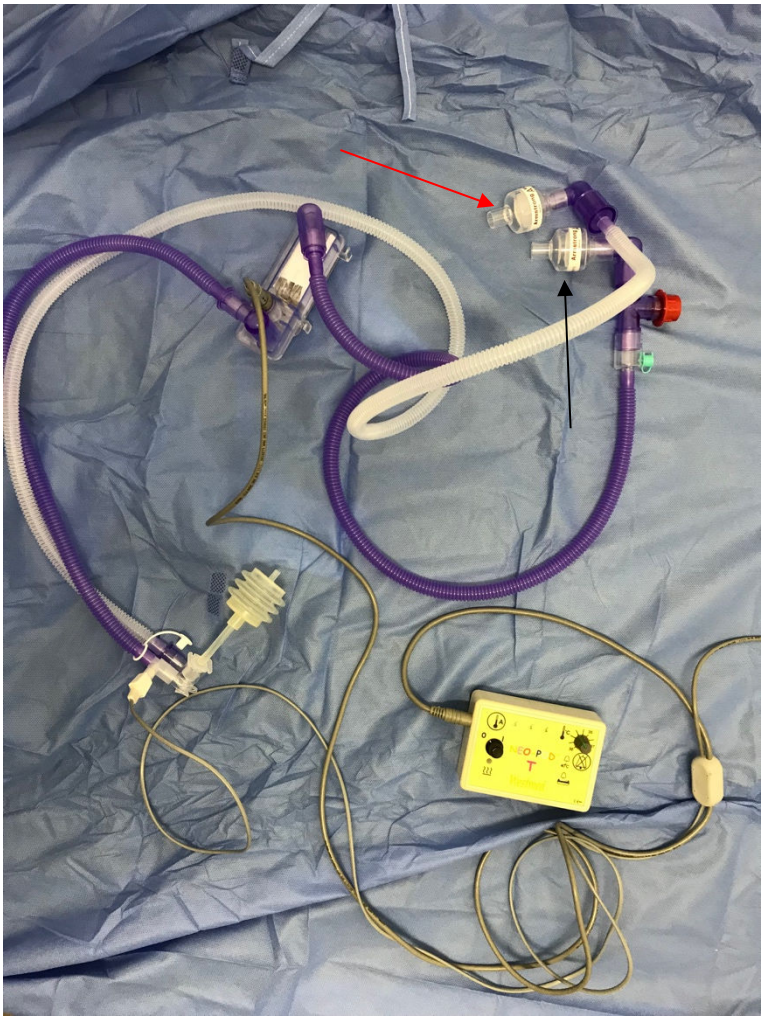


B. Air transport ventilator circuit + NEOPOD humidifier

Ideally use purple AquaVENT Neo ventilator circuit from Armstrong Medical – Ref.No.: AMVC1812/038 AIRKIT. If you found yourself at the bed side without this circuit – any simple neonatal vent circuit with inspiratory and expiratory limb will work but you will not be able to connect NEOPOD heater/humidifier. This is suboptimal but acceptable in an emergency.

1. The ventilator circuit comes factory assembled - check for loose connections etc. Filters are included. Hamilton expiratory valve (pink) and FlowSensor (blue) are NOT part of the package and you WILL NEED TO BRING THEM SEPARATELY. For nCPAP you WILL NEED "PRESSURE LINE" FROM THE FISHER AND PAYKEL CIRCUIT we use on ground transport.

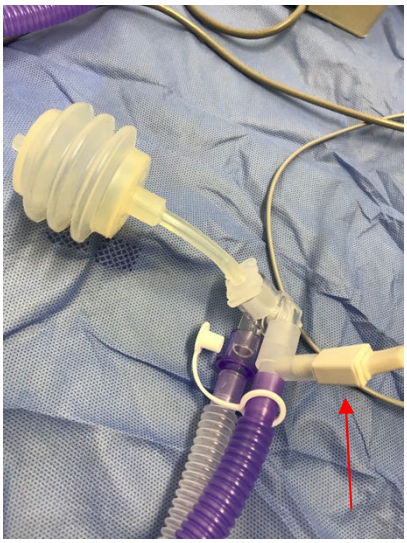
Red arrow EXPIRATORY Black arrow INSPIRATORY

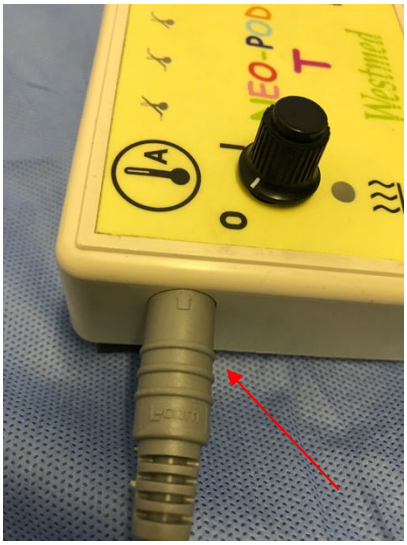


2. NEOPOD humidifier – “lives” permanently on Air transport rig. Red pouch (also on the Air transport rig permanently) contains the AC and DC cables for its electricity supply.

3. Fill the humidity chamber with sterile water using the “water supply line” and syringe – part of the ventilator circuit package. Plug in the grey AC or DC cable into the chamber.

4. Plug in the temperature probe (part of the AC or DC cable) into the inspiratory limb of the ventilator circuit – at the patient end. Then plug in the last remaining end of the AC/DC cable into the NEOPOD. Plug the AC or DC electrical socket end to either wall in the hospital or Lifeport on AW139/CASA

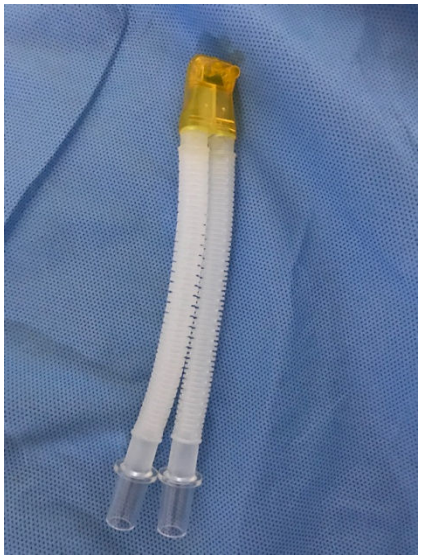




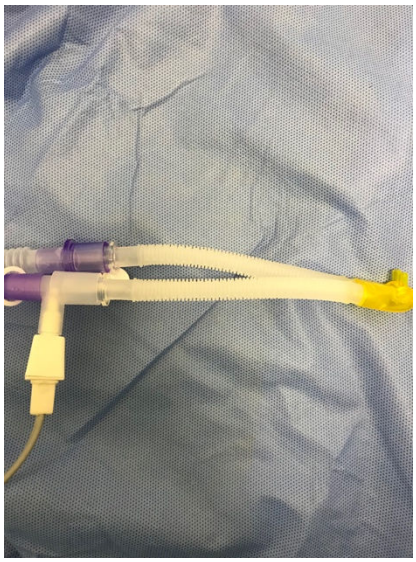
C. Nasal CPAP

1. In addition to the ventilator circuit you will also need: nCPAP driver + mask/prongs + hat AND "pressure line" from Fisher and Paykel (RT266) circuit that we use on ground transport.

DO NOT FORGET THEM!



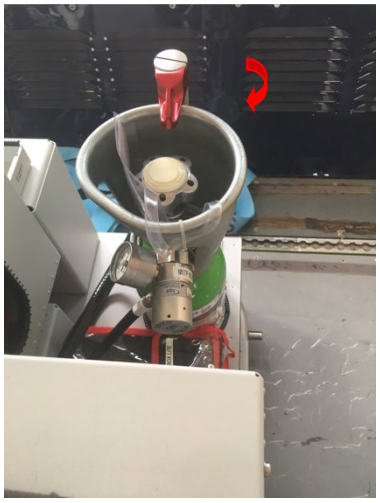
2. Remove the ETT connection and attach nCPAP driver to the circuit

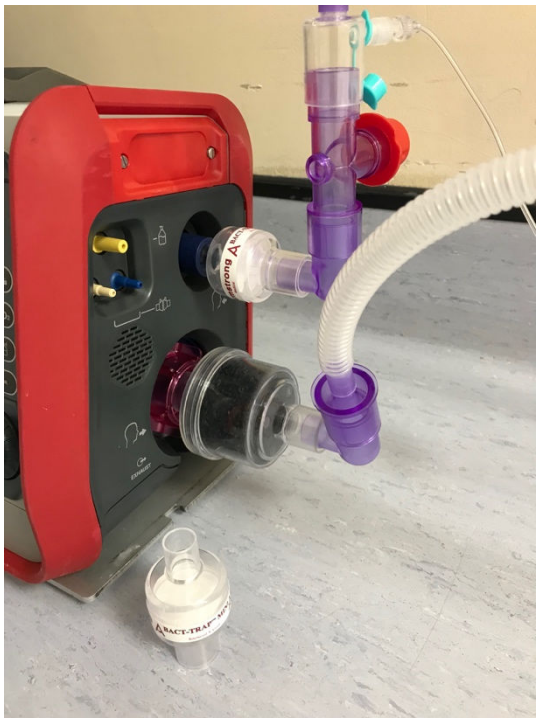


3. Attach the “pressure line” to the inspiratory limb – green port and to the usual spot on the ventilator.

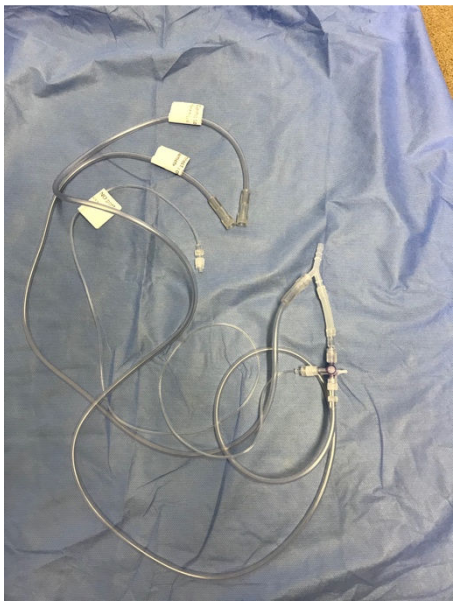
D. Inhaled Nitric Oxide during Air Transport

1. Take iNO green cylinder from the ambulance or from the “ground rig”. Place it into its slot on air transport rig, and secure with big red lever lock. Take out the NOXBOX Lite from the red pouch together with its blue ratchet strap (both “live” on air transport rig) NOXBOX Lite is always ON and the display should show 0 ccm. Secure NOXBOXLITE to the cylinder as per picture. Use scavenging filter on the expiratory side of the ventilator. Use the two environmental monitors as per picture.



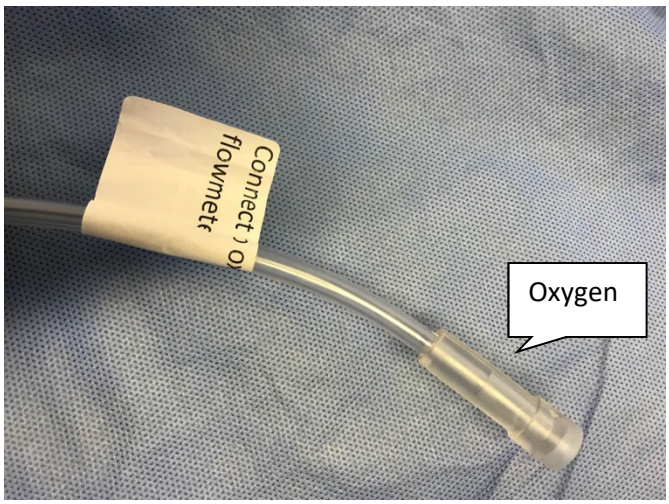


2. Connect the cylinder with NOXBOX Lite via black iNO hose – located in red pouch on air transport rig. You have to have NO and NO2 environmental monitors. Unpack the “Nitric Oxide Kit” from ventilator circuit package. The connections are tagged, follow the instructions on tags. Untagged Y piece connects to self inflating bag or Neo-Tee.



3. Same in detail: thinnest tube – iNO line – brings iNO to the inspiratory limb – green port. “Oxygen flow meter” tubing connects to source of O2 on the air transport rig. “NOXLITE flowmeter” tubing connects to NOXBOX Lite. Remaining Y piece end connects to self inflating bag/NeoTee

   CAUTION: 3 way tap serves to direct the flow between ventilator circuit and/or self inflating bag when needed. It has to be in the right position!



4. Dialling the iNO dose on NOXBOX Lite:

   Find out what is the current ventilator flow rate – this is found in "Monitoring" on the Hamilton ventilator. Use table below to find the NOXBOX Lite flow required to get the desired dose of iNO in ppm.

Example:

If the desired dose of iNO is 20 ppm: Insp Flow is 6(5.9) l/min – dial 120 ccm/min on NOXBOX Lite

Insp Flow on Hamilton Vent (L/min)	**NOXBOX Lite for 10 ppm (ccm)**	**NOXBOX Lite for 20 ppm (ccm)**
4	40	80
4.5	45	90
5	50	100
5.5	55	110
6	60	120
6.5	65	130
7	70	140
7.5	75	150
8	80	160