

	Department: Respiratory Services	Date Originated: June 2009 Date Reviewed/Revised: February 2013
PROCEDURE	Topic: <u>Neonatal</u> – Neonatal Invasive Ventilation Using the Babylog VN500 (Respiratory Therapy) Number: B-00-12-12091	Related Links:

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APPLICABLE SITES:

St. Paul's Hospital

GENERAL INFORMATION:

The Babylog VN500 is the ventilator of choice in the NICU due to its sensitivity and volume guarantee. It is a neonatal/pediatric ventilator designed for children up to 20 Kg.

EQUIPMENT:

- Babylog VN500 ventilator
- Fisher & Paykel single-limb heated disposable circuit
- Sterile water
- Test lung
- Flow sensor
- Expiratory assembly

NOTE: All components of the circuit can be found in the NICU clean supply room **except** the temperature probe which must be obtained from ICU.

PROCEDURE FOR STARTING INVASIVE VENTILATION BASED ON PATIENT WEIGHT:

1. Turn on the ventilator by pressing the green button located on the bottom left hand corner of the monitor screen.
2. Allow the ventilator to complete the self-test which may take approximately 45 seconds.
3. Ensure the patient circuit is assembled and connected to the ventilator with the flow sensor in line.
4. Perform **Breathing Circuit Check** and **Flow Sensor Calibration** as per RTD 5306.

5. From the **Standby Screen** touch the **Weight** button.
6. Enter the patient weight by adjusting the rotary dial and then press to confirm.
7. The mode will default to **PC-AC** with **VG** (volume guarantee) preset to **4 ml/kg**.
The ventilator will choose appropriate settings based on the entered patient weight. Review the default settings by pressing **Ventilator Settings** and adjust as needed.

NOTE: The default FiO₂ is 0.21

PROTOCOL FOR PARAMETERS AND VENTILATOR SETTINGS:

1. VENTILATOR MODE:

- a) PC-AC with VG set to 4 ml/Kg

2. PARAMETERS & RANGES:

- a) **T_i**: 0.35 – 0.40 seconds
- b) **RR**: 40 – 60
 - I:E ratio should be 1:1 or greater to minimize air trapping
- c) **PEEP**: 4 – 5 cmH₂O
- d) **P_{max}**: 25 cmH₂O
- e) **Slope**: use default
- f) **FiO₂**: target SpO₂ as per gestational age
 - < 36 weeks: 88 – 92%
 - > 36 weeks: 90 – 94%
- g) **Flow Trigger**: use default

NOTE: The above values are considered safe and should satisfy the ventilation needs of our neonates. Adjustments outside of these ranges are not to be made unless under the direct written order of the attending physician.

3. ALARM LIMITS: (automatically preset but can be altered)

- a) **HIGH/LOW V_e**: +/- 20%
- b) **MV delay**: set to 15 seconds
- c) **TACHYPNEA**: default

NOTE: Any alarm messages that appear on the display screen must be acknowledged by pressing the **ALARM RESET** and then confirming with the rotary dial.

4. DOCUMENTATION:

- a) Document all clinician or preset ventilator settings and alarm limits on the Respiratory Flowsheet.
- b) Document the following measured patient parameters on the Respiratory Flowsheet:
 - a. PIP
 - b. V_t
 - c. RR
 - d. V_e
 - e. P_{aw}
 - f. FiO_2
 - g. Percent leak (measured leak around the endotracheal tube)
 - h. Humidifier temperature

VENTILATION AND OXYGENATION GOALS:**1. Ventilation:**

- pH: greater than 7.25
- pCO_2 : 40 – 60 mmHg

2. Oxygenation:

- Less than 36 weeks: 88 – 92%
- Greater than 36 weeks: 90 – 94%