



NAME: _____

HSN: _____

D.O.B.: _____

RUH SCH SPH Other _____

**RESPIRATORY THERAPY DEPARTMENT
NEONATAL INTENSIVE CARE UNIT OXYGEN
REDUCTION TEST MONITORING**

Page 1 of 3

*Please refer to the following pages for instructions.

Period	Time	FiO ₂ (%)	Flow (L/min)	PEEP	# of Apnea	# of Brady	O ₂ Saturation	# of CR Events
Baseline (15 min)								
Challenge (each step)								
Post (30 min)		21	0	0				

Notes: _____

Bronchopulmonary dysplasia (BPD): Mild Moderate Severe No BPD

Printed Name

Signature

Date/Time

NEONATAL INTENSIVE CARE UNIT OXYGEN REDUCTION TEST MONITORING

Patient Label

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OXYGEN REDUCTION TEST

The oxygen reduction test (ORT) is a challenge to see if the infant can be removed from their current supplemental oxygen and/or non-invasive respiratory support, and assess for bronchopulmonary dysplasia (BPD). The test will be performed on infants born prior to 32 weeks gestational age, during their 36th week postmenstrual age (PMA). The ORT should be performed during the daytime, ideally 30 minutes after a feed or medication administration. Continuous feeds may continue during the test. The test consists of three assessment periods (adapted from Walsh, J Perinatol 2003, the MOBYDICK Trial group⁵, and Vento, Pediatrics 2019): Baseline, Oxygen Challenge and Post-Challenge. During the entire ORT, the infant will remain supine, monitored using a cardiorespiratory monitor in the presence of a dedicated neonatal care practitioner.

Exclusion criteria:

- Supplemental oxygen greater than 0.25 LPM when not heated and humidified
- Greater than 30% oxygen (Nasal CPAP or HFNC)
- CPAP greater than 8 cmH₂O

Baseline assessment (15 min): Confirm the order and check with medical/bedside nursing staff the infant is stable and able to perform an ORT (no cardiorespiratory events). During this 15 minute period, record average oxygen saturation as well as the occurrence of any cardiorespiratory events (see below) using Page 1 of 3 of this document. Must maintain SpO₂ greater than/equal to 90% during the assessment to move on to the next phase.

Oxygen challenge: For infants on supplemental oxygen or respiratory support that are stable during baseline assessment (no cardiorespiratory events). Administered support will be gradually reduced in a step-wise manner using the following approach while observed using a cardiorespiratory monitor, recording any occurrence of cardiorespiratory events:

- Supplemental oxygen: Reduce supplemental oxygen by approximately 0.1 L/min (nasal prongs) every 5 minutes, until flow is nil. If using a micro flowmeter, decrease flow by 0.02 L/min every 5 minutes, until the flow is nil. Once flow is terminated, remove cannula from nares, but do not remove tubing from face as to not disturb the infant.
- Nasal CPAP less than/equal to 8 cmH₂O: Reduce oxygen by approximately 5% every 5 minutes until on 21% oxygen concentration. Then reduce pressure by 1 cmH₂O every 5 minutes until a positive pressure of 5 cmH₂O. Once achieved, discontinue CPAP.
- High flow nasal cannula (HFNC): Reduce oxygen by approximately 5% every 5 minutes until on 21% oxygen concentration. Then reduce flow by 1 L/min every 5 minutes until 1 L/min. Once achieved, discontinue HFNC.

Must maintain SpO₂ greater than/equal to 90% during the assessment with no cardiorespiratory events to move on to the next phase.

Post-challenge assessment (30 min): Infants who have successfully been weaned off supplemental oxygen and/or respiratory support will be observed for 30 minutes, using a cardiorespiratory monitor, recording any occurrence of cardiorespiratory events.

- If any cardiorespiratory event occurs, re-assess the infant clinically to determine if supplemental oxygen or respiratory support needs to be re-instituted.

Cardiorespiratory (CR) events are defined as either:

- Sustained desaturation less than 90% for greater than 5 consecutive minutes
- Desaturation less than 80% for greater than 15 seconds
- Apnea (breathing cessation for greater than 20 seconds)
- Bradycardia (heart rate less than 80 bpm for greater than 10 seconds)
- Severe bradycardia (heart rate less than 60 bpm)

The need to resume supplemental oxygen or respiratory support should be avoided during the ORT unless clinically indicated, and its indication should be documented; repeated cardiorespiratory events should be an indication to stop the ORT.

At the completion of the ORT, the infant is to be returned to the previous modality and settings, and discuss the results and plan with the most responsible physician or designate.



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Results: The health-care professional completing the oxygen reduction test will leave a note on Page 1 of 3, print name, sign, and date/time the form.

- **No BPD:** An infant who is able to maintain SpO₂ greater than/equal to 90% throughout all three phases of the oxygen reduction test.
- **BPD:** An infant who has cardiorespiratory events during the test, requiring resumption of oxygen therapy or respiratory support. Based on the lowest tolerated settings, the patient will be categorized as mild, moderate, or severe BPD based on the Canadian Neonatal Network’s current definition:
 - **Mild BPD:** Low flow at less than 0.1 LPM OR
Blended gas at less than 1.5 LPM
 - **Moderate BPD:** Low flow at greater than/equal to 0.1 LPM OR
Blended gas at greater than/equal to 1.5 LPM with less than 30% oxygen OR
NIV with less than 30% oxygen
 - **Severe BPD:** Blended gas at greater than/equal to 1.5 LPM with greater than/equal to 30% oxygen OR
NIV with greater than/equal to 30% oxygen