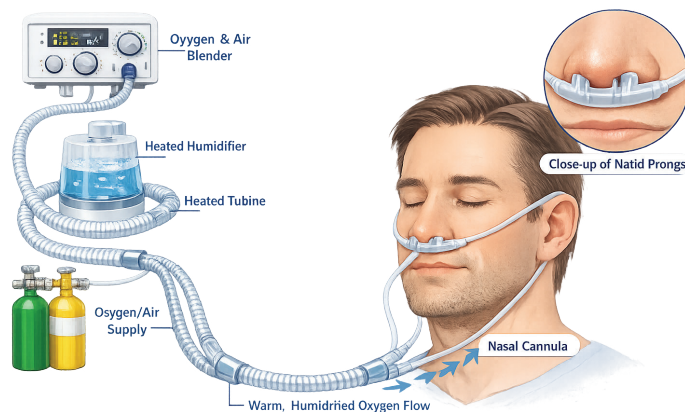




High Flow Nasal Cannula STG-004

Standard Treatment Guideline (STG)

High Flow Nasal Cannula



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Paediatric Critical Care Chapter (NEPAS)



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Standard Treatment Guidelines (STGs) for paediatric critical care are essential to ensure safe, evidence-based, ethical, and standardized management of critically ill children in Nepal. Given the wide variation in healthcare infrastructure, human resources, and availability of critical care services across the country, uniform clinical guidance is necessary to minimize unnecessary variations in practice and improve patient outcomes. These guidelines assist paediatricians, medical officers, residents, and other healthcare professionals in making timely, consistent, and appropriate clinical decisions, particularly in resource-limited settings. STGs also reinforce adherence to the Nepal Medical Council's Code of Ethics and Professional Conduct by promoting professional competence, patient safety, informed consent, appropriate documentation, and accountability. Furthermore, adherence to nationally accepted guidelines helps establish the expected standard of care, thereby reducing the risk of preventable errors, medico-legal disputes, and litigation while supporting defensible clinical practice. As practical bedside references, STGs facilitate rapid decision-making, enhance resident training, improve communication among multidisciplinary teams, and promote rational utilization of available resources. They also provide a framework for quality assurance, clinical audit, and continuous professional development. The adoption and implementation of national paediatric critical care STGs will strengthen clinical governance, promote equitable delivery of critical care services, and contribute to improved survival and health outcomes for critically ill children throughout Nepal.

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High Flow Nasal Cannula

STG-004

Introduction and Definition

Humidified Heated high-flow nasal cannula (HHFNC) is a device used to deliver heated, humidified and blended conditioned gas (oxygen and air) via nasal cannula at high flow rates of up to 60 L/min. It can deliver a precise Fraction of Inspired Oxygen (FiO₂) ranging from 21% to 100%. Unlike standard cannulas, it flushes out dead space and generates a mild, variable positive end-expiratory pressure (distending pressure), which props open the airways and improves breathing efficiency. Because of the high flow rates, oxygen consumption is significantly higher than with conventional ventilatory support. It is important to ensure reliable oxygen availability and closely monitor supply.

Indications*

- Acute viral bronchiolitis
- Pneumonia
- Acute severe asthma
- Weaning from mechanical ventilation
- Mild to moderate acute respiratory distress syndrome (ARDS)
- Persistent pulmonary hypertension
- Bronchopulmonary dysplasia (BPD)
- Congenital heart defect/ Congestive heart failure
- Post extubation support
- Obstructive Sleep apnea
- Tracheomalacia or upper airway obstruction

Contraindications**

- Severe ARDS
- Following upper airway surgery
- Intolerance to tight interface contact
- Facial anomalies or injury that preclude appropriate nasal cannula fit.
- Maxillofacial or airway trauma
- Choanal atresia
- Existing air leak (pneumothorax or pneumomediastinum)

Parts of high-flow nasal cannula device

- Flow Generator: HHFNC system can deliver flow upto 60 L/minute and oxygen at 21-100%.
- Humidifying Devices
- Inspiratory Limb
- Interface

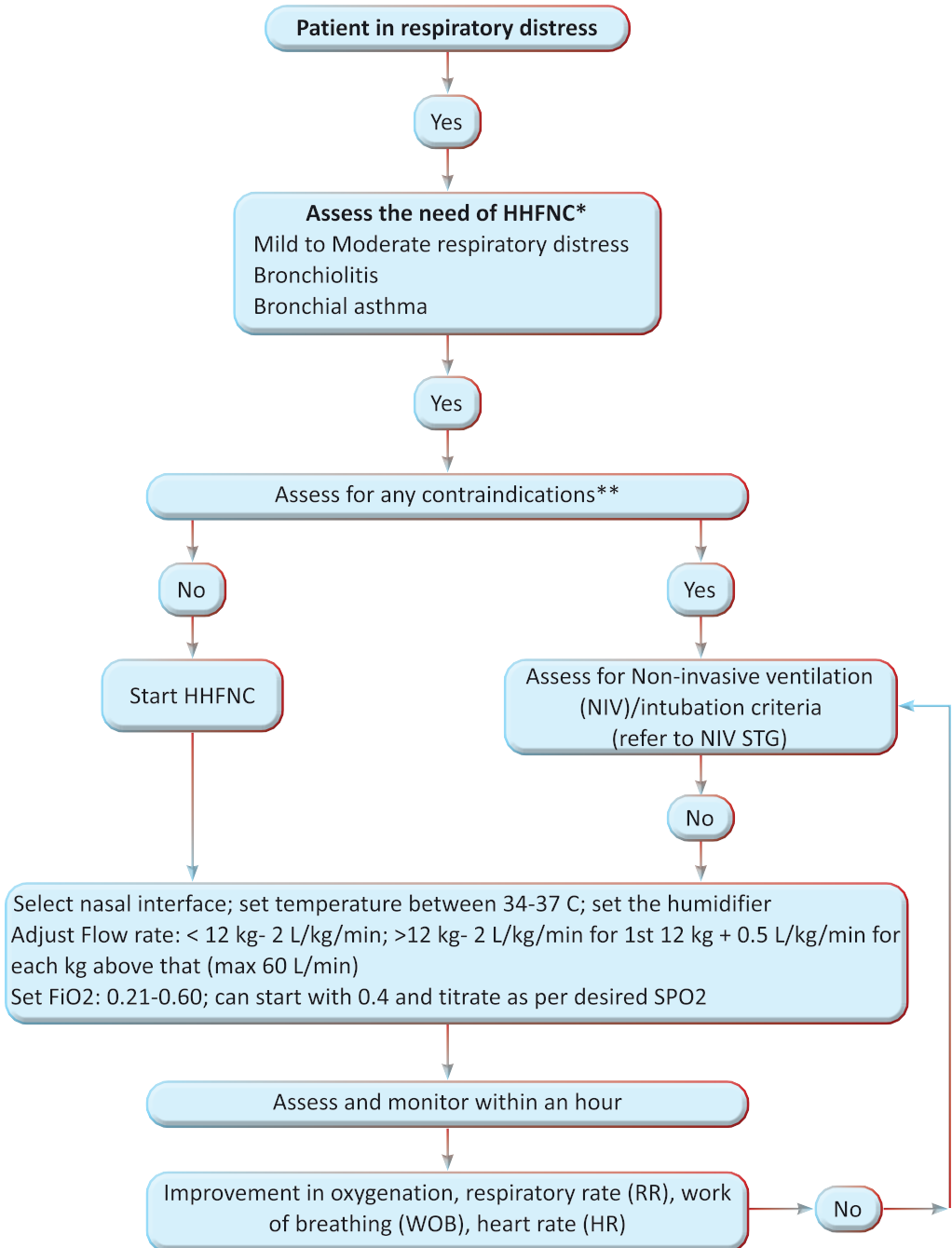
Nasal cannula interface and flow selection

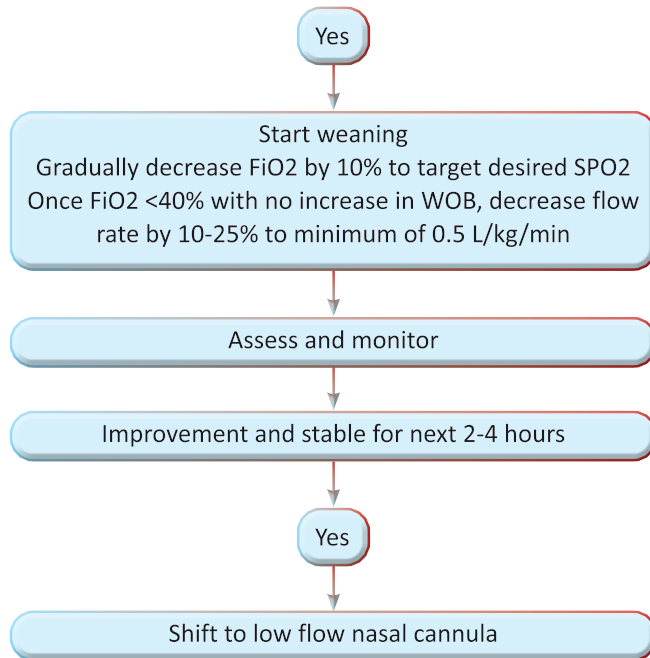
Product size	Cannula color	Maximum range
Premature	Red	8L/min
Neonatal	Yellow	8L/min
Infant	Purple	20L/min
Pediatric	Green	25L/min
Adolescent & Adult		60L/min

Monitoring

- Check and documentation of FiO₂, flow, circuit observations every 2-4 hours
- Heart rate (HR), respiratory rate (RR), respiratory distress, work of breathing (WOB), oxygen saturation (SPO₂), blood pressure (BP) every 2-4 hours
- Document flow rate, FiO₂, and humidifier temperature every 2-4 hours
- Document humidifier water level/ water bag every 2-4 hours
- Check nasal prong position every 2 hours as dislodgement may result in reduced respiratory support
- Monitor for complications: pressure sores, nasal dryness, abdominal distension, air leak etc.
- Feeding: children may be fed enterally once they are stable and not at risk of clinical deterioration with potential for requiring invasive ventilation. For younger infants with shortness of breath and cough, at risk of aspiration, feed through nasogastric feeding tube. For older children PO feed may be initiated slowly and advanced as tolerated.

Flow chart for HFNC





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