



PURPOSE:

- Nasal cannula can be used to deliver supplemental O₂. Conventional nasal cannula are commonly used deliver low flow rates & **moderate** FiO₂.
- High flow nasal cannula (HFNC) delivers higher flow rates achieving a **higher** FiO₂ with greater patient comfort.
- In hypoxemic respiratory failure [use of HFNC is associated with a lower rate of requiring intubation & lower ICU mortality](#) compared to CNC or NIPPV. HFNC can prevent re-intubation after [thoracic](#) and [cardiac](#) surgeries. Extubation to HFNC is also [associated with lower rates of re-intubation](#).

PHYSIOLOGY OF HEATED HIGH FLOW NASAL CANNULA

- Higher flow **washes out CO₂** from anatomical dead space in the nasopharynx
- Higher flow **overcomes resistance** against expiratory flow and creates a small positive nasopharyngeal pressure ([approximately 0.7 cmH₂O of PEEP for every 10 lpm of flow](#))
- Patients in respiratory distress generate high flows and will entrain ambient air with conventional nasal cannula. HFNC [can match demand](#) so **F_iO₂ remains relatively constant**
- Warm humidified gas **preserves mucociliary function & is more comfortable** for patients

For **low flow** O₂ delivery systems, only the **flow rate** is specified. The flow rate *roughly* determines FiO₂

1 LPM ≈ 3-4% FIO₂ INCREASE

For **high flow** O₂ delivery systems two parameters are selected:

- Flow rate (on the **flowmeter**)
- FiO₂ (on the **gas blender**)

