



Comfortable, Effective Oxygen Therapy



World-leading respiratory technology

Nasal High Flow is delivered using Fisher & Paykel Healthcare's

F&P Optiflow™ System with Optiflow™ Nasal Cannula

The F&P Optiflow System

This proprietary system has been designed to work with a wide variety of flow sources including ventilators and traditional air/oxygen blenders, giving caregivers the flexibility to use familiar equipment. Dual feedback control of the F&P 850 System ensures a consistent temperature and humidity level is delivered across the entire therapy flow range up to 60 L/min at 21 to 100% oxygen while the comfortable, easy-to-fit cannula requires minimal input from caregivers.

F&P Optiflow is unmatched in terms of humidity performance and patient tolerance to therapy.



DELIVERING NASAL HIGH FLOW

F&P Optiflow™

FLOW SOURCE

Air/O₂ Blender

HUMIDIFIER

MR850

HUMIDIFICATION CHAMBER

+ BREATHING CIRCUIT

RT202*

INTERFACE

F&P Optiflow™



* The RT202 kit includes an MR290 humidification chamber

Advanced oxygen delivery, providing more comfortable and efficient care to patients



A Leading-Edge Therapy Solution

Nasal High Flow (NHF) is a new respiratory care therapy delivering high flows of blended oxygen through a unique F&P Optiflow™ Nasal Cannula. This allows comfortable, effective delivery of up to 100% oxygen, creating an ideal solution for your hypoxemic patients in mild to moderate respiratory distress.

Nasal cannulae generally provide greater patient comfort than face masks. Patients can continue to eat, drink, talk and sleep easily without therapy interruption while still receiving benefits similar to face mask oxygen therapy or low-level CPAP. This can be particularly important for patients who require a greater degree of support than what is possible by using traditional nasal cannulae.

LIMITATIONS OF TRADITIONAL OXYGEN THERAPIES

Traditional oxygen therapies can be limited in scope and can compromise patient comfort. Conventional low flow nasal cannulae and oxygen masks are constrained by flow, humidity and accuracy of inspired oxygen. As a patient's respiratory status changes,

the clinician will respond by changing oxygen therapies to balance oxygenation with patient comfort and compliance. This often results in the application of multiple oxygen therapy systems (low flow nasal cannulae, venturi masks, non-rebreather masks etc).

The changing of systems can lead to increased attendance time and greater cost. Optiflow solves these problems by providing comfortable, effective oxygen delivery over a wide range of flows and oxygen concentrations.

Critical to Optiflow is the delivery of Optimal Humidity. Without it, the comfortable delivery of high flows directly into the nares would be impossible.⁶ Emulating the natural balance of temperature and humidity that occurs in healthy adult lungs (37 °C, 44 mg/L) promotes greater patient comfort and improves tolerance to treatment while optimizing mucociliary clearance.^{5 6 7}



HIGH FLOWS OF OXYGEN DELIVERED COMFORTABLY THROUGH OPTIFLOW NASAL CANNULAE

Delivery of up to 100% oxygen more accurately

Flushing of anatomical dead space

Positive airway pressure during the respiratory cycle

Optimized mucociliary clearance



Optimal Humidity is vital to Nasal High Flow



Humidity is critical to human respiratory health and well-being. Our airways naturally condition inspired air to a level of temperature and humidity that enables physiological equilibrium. When this natural balance is disrupted the performance of the lungs is inhibited. Maintaining this physiological harmony is vital to a patient's outcome.

Fisher & Paykel Healthcare's world-leading humidification technology mimics the balance of temperature and humidity that occurs naturally in healthy adult lungs. Efficacy is significantly improved by bridging the gap between artificial breathing systems and a normally functioning airway.

BENEFITS OF NASAL HIGH FLOW

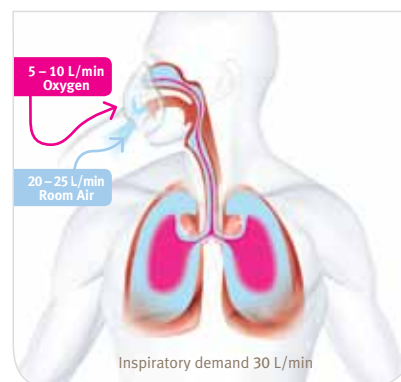
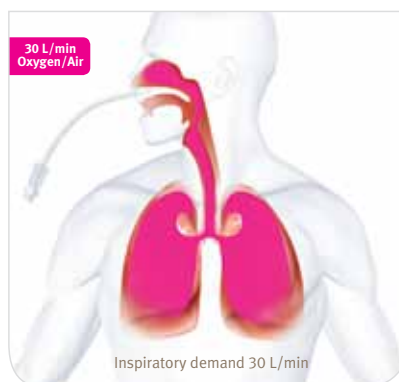
| PATIENT | CLINICIAN |
|---|--|
| Comfortable oxygen delivery, reducing the likelihood of treatment failure ³ | Less attendance time assisting uncomfortable patients |
| Can continue to eat, drink, talk and sleep | No need to change between multiple oxygen delivery devices and interfaces |
| A broad range of flows and oxygen concentrations can be delivered, providing both versatility and continuity of care as patients wean or their condition becomes more acute | Increased confidence in the actual fraction of inspired oxygen (FiO ₂) being delivered to the patient ¹ |
| May displace the need for noninvasive or invasive ventilation through better patient tolerance ³ | Easier oral care, maintaining the moisture in the oral mucosa ⁸ |
| Improved respiratory efficiency ³ | May be used to wean patients off noninvasive or invasive ventilation |
| Better secretion clearance, reducing the risk of respiratory infection | |

Why is NHF so effective?

The combination of Optimal Humidity with nasal cannulae allows a greater level of respiratory support than traditional oxygen therapy, delivering high flows comfortably and effectively. Contributing to this is the provision of four key benefits:

1. Deliver up to 100% Oxygen More Accurately

A fundamental issue associated with traditional oxygen therapy is uncertainty around the levels of oxygen patients are receiving. With NHF, the aim is to meet or exceed the patient's normal inspiratory demand, creating minimal air dilution, even when breathing orally.¹ Optiflow can more accurately deliver prescribed oxygen concentrations at high flows, providing both versatility and continuity of care. This greater degree of flexibility eliminates the need to switch between oxygen therapy delivery systems as patients wean or their condition becomes more acute.¹



2. Flush Anatomical Dead Space

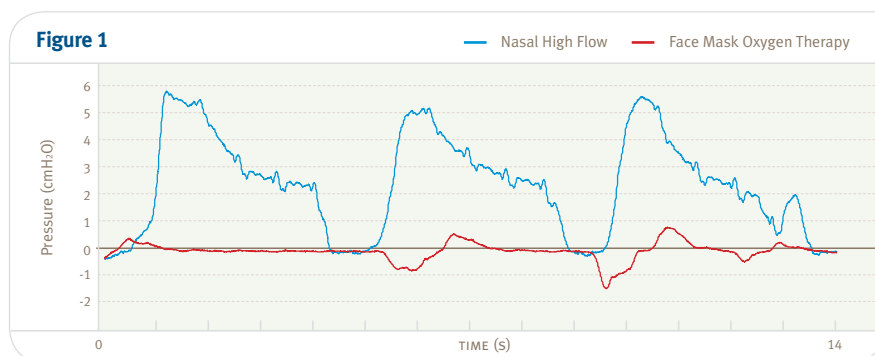
With the delivery of high flows directly into the nares, a flushing effect occurs in the pharynx.² The anatomical dead space of the upper airway is flushed by the high incoming gas flows. This creates a reservoir of fresh gas available for each and every breath, while minimizing re-breathing of carbon dioxide (CO₂).²



3. Positive Airway Pressure during the Respiratory Cycle

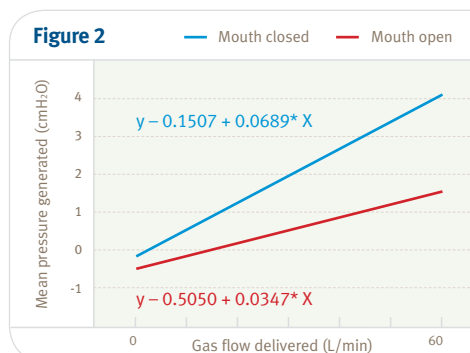
Clinical evidence suggests that with the delivery of NHF, low levels of positive airway pressure are generated.^{3,4} Mean airway pressure during the respiratory cycle has been shown to be elevated with the delivery of NHF (as indicated by Figure 1).⁴

The degree of pressure is likely to be dependent on a number of variables including flow rate (Figure 2), geometry of the upper airway, breathing method (through the nose or mouth) and size of the cannula relative to the nare.³



4. Optimized Mucociliary Clearance

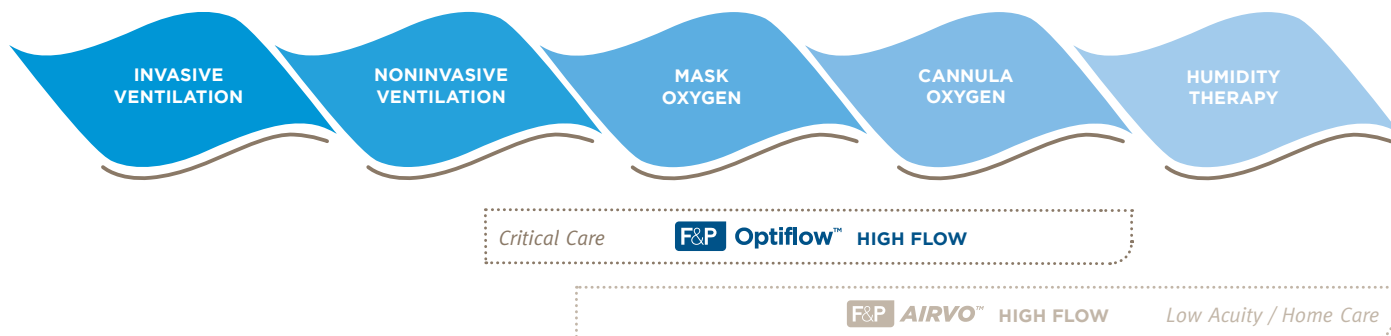
Optimal Humidity emulates the balance of temperature and humidity that occurs in healthy lungs, maintaining mucociliary clearance.^{5,6} This can be particularly important for patients with secretion problems such as those with obstructive pulmonary disease.^{5,7} By delivering Optimal Humidity, drying of the airway is reduced, which maintains the function of the mucociliary transport system – clearing secretions more effectively and reducing the risk of respiratory infection.



↑ Figure 1: Pressure waveform comparing nasopharyngeal airway pressure at 35 L/min with a face mask and with NHF.

↔ Figure 2: Parke et al. measured nasopharyngeal pressure with NHF, mouth open compared to mouth closed at increasing gas-flow rates. A direct correlation was found between flow and pressure where, as flow increases, the amount of pressure generated rises.

Superior science and care



F&P Adult Respiratory Care Continuum™

Fisher & Paykel Healthcare is committed to advancing our capabilities as a world leader in humidified therapy systems with a comprehensive family of solutions that restore natural balance. We call this our F&P Adult Respiratory Care Continuum.

There are many therapies for treating spontaneously-breathing patients. Optiflow and AIRVO are new alternatives designed to improve care and outcomes for these patients. Optiflow works with independent flow sources and is intended for Critical and Acute Care environments. AIRVO is an integrated humidifier and flow source designed for lower acuity environments including the home.

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