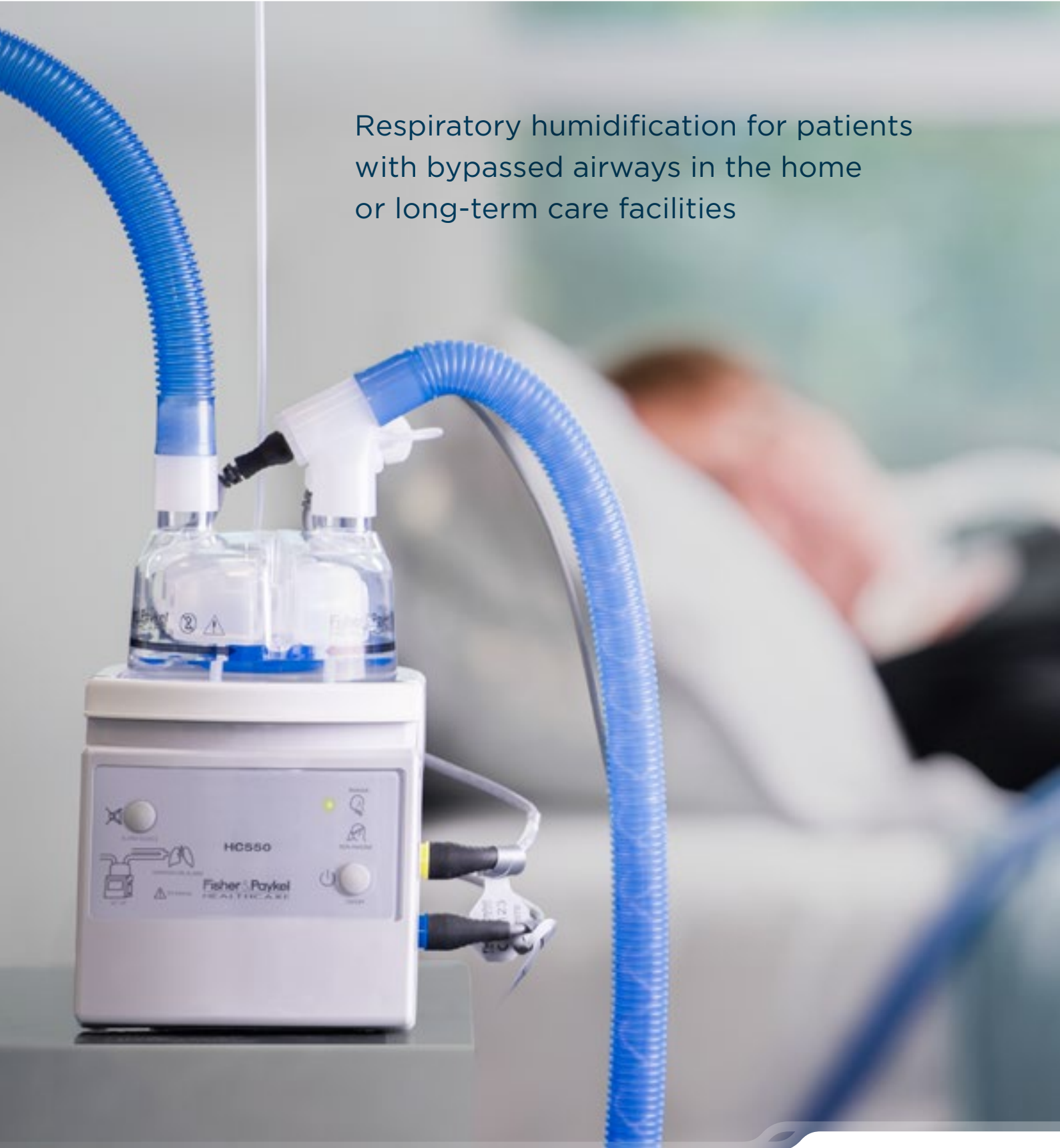
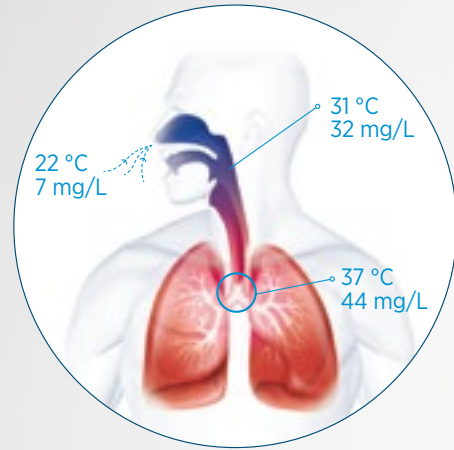


Respiratory humidification for patients with bypassed airways in the home or long-term care facilities



The benefits of heated humidification for patients with bypassed airways



NORMAL ADULT AIRWAY

The respiratory system is a highly balanced mechanism reliant on humidity.¹ As air travels down the airway during normal inspiration, heat and moisture are drawn from the airway mucosa until the gas reaches 37 °C, 44 mg/L H₂O close to the carina.^{2,3}

BYPASSED AIRWAYS

When the upper airway is bypassed, e.g. with an endotracheal or tracheostomy tube, the upper airway's humidifying surfaces and filtering mechanisms are also bypassed, which compromises the protective cough, gag and sneeze reflexes.⁴

Complications associated with the failure to heat and humidify inspired gases for patients with bypassed airways include thickening of secretions, drying of the airway, airway obstruction, bronchospasm and artificial airway tube occlusion.⁵

EFFICIENT GAS EXCHANGE AND VENTILATION

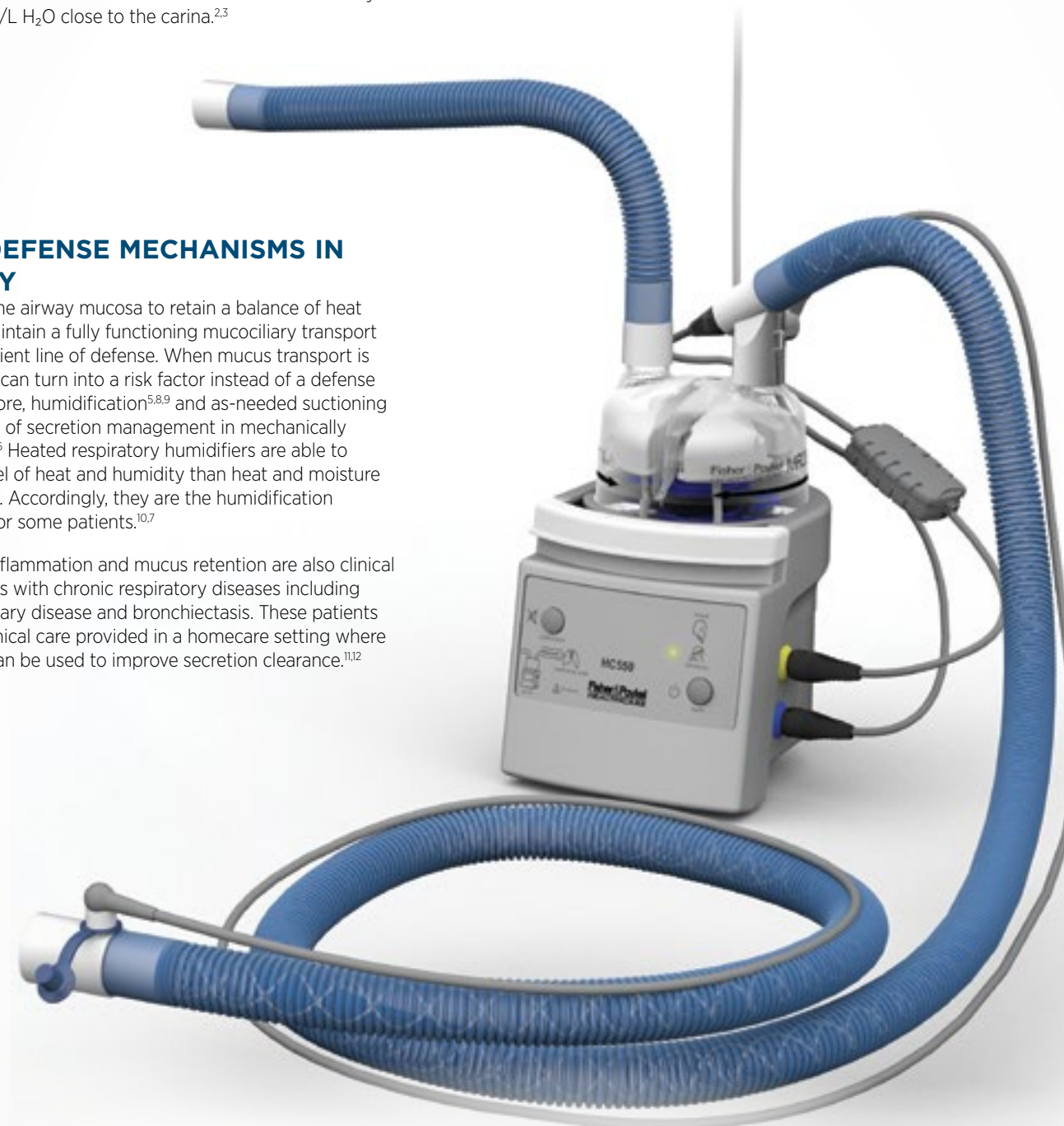
Secretion clearance is fundamental to limiting airway occlusion and promoting efficient ventilation and gas exchange. Humidification is integral to secretion management in mechanically ventilated patients⁶ and it assists with secretion mobilization and removal.^{6,7}

Insufficient respiratory humidification can result in diminished cilia activity, decreased cilia beat frequency, ciliary destruction and cellular damage. This can lead to increased mucus viscosity and impaired mucociliary clearance, which can cause secretion retention, followed by airway occlusion and atelectasis.⁵

NATURAL DEFENSE MECHANISMS IN THE AIRWAY

It is important for the airway mucosa to retain a balance of heat and moisture to maintain a fully functioning mucociliary transport system and an efficient line of defense. When mucus transport is inadequate, mucus can turn into a risk factor instead of a defense mechanism. Therefore, humidification^{5,8,9} and as-needed suctioning are the foundations of secretion management in mechanically ventilated patients.⁶ Heated respiratory humidifiers are able to deliver a higher level of heat and humidity than heat and moisture exchangers (HMEs). Accordingly, they are the humidification method of choice for some patients.^{10,7}

Persistent airway inflammation and mucus retention are also clinical problems in patients with chronic respiratory diseases including obstructive pulmonary disease and bronchiectasis. These patients commonly have clinical care provided in a homecare setting where humidity therapy can be used to improve secretion clearance.^{11,12}



Subdued display lighting and indicators

Display lighting and indicators only visible during setup or alarm states



Setup indicator diagram and alarms

Setup issues or alarm states are indicated by audio alarms and lighted areas on a simplified diagram



Preset temperature output

There is no button to change therapy mode. The mode is changed using the default menu, the caregiver or the patient cannot change the mode by mistake.



Color-coded sockets

The colors of the sockets match those of the relevant connectors



Accessories

A Heater-wire Adapter provides power to heated circuits and the Temperature and Flow Probe provides feedback from the humidification chamber and circuit



Heater-wire condensation management

Able to be used with select Fisher & Paykel Healthcare RT-series circuits



Auto-feed humidification chamber

Automatic refilling from a water bag and a dual-float mechanism to maintain a consistent water level

