Integrated respiratory blower & humidifier

Country of origin | New Zealand

Health problem addressed

This technology aims to help irregularly breathing patients from infants, paediatrics, adults and the elderly requiring varying degrees of respiratory support in the forms of additional oxygen, pressure support, humidification, improving breathing efficiency, and or tolerance to therapy. This includes but not limited to: hypoxia, pneumonia, bronchiectasis, mucocitus, COPD, and other forms of chronic or acute respiratory illness.

Product description

The device is a humidifier with an integrated flow generator that delivers a wide range of flow rates (2-60 L/min) delivering warmed and humidified respiratory gases, with or without supplementary oxygen, to spontaneously breathing patients through a variety of patient interfaces. The motor entrains room air and supplemental oxygen, if required. The integrated humidifier heats and humidifies these dry gases. A heated breathing tube connects to the device and carries warmed and humidified gases to the patient via nasal cannula or tracheostomy interface. Software controls flow and heating, adjustable by the user.

Developer's Claims of Product Benefits

Typically respiratory supports in high acuity patients involve a ventilator with a humidifier and gas sources for air and oxygen. The new technology removes the need for a ventilator and air source by combining a blower and humidifier to support the patients across the acuity spectrum. It can also be used in low acuity settings providing O2 therapy with the added benefit of humidification and the display of delivered O2 fraction, which is only estimated in current practice

Suitability for low-resource settings

The minimum requirement for the device to provide respiratory support via delivery of warmed and humidified air is electricity supply and clean water for the humidifier. No air supply is required.

Operating steps

The user slides the water chamber onto matching ports and connects the breathing tube via a simple sleeve locking mechanism onto the device. Supplemental oxygen may be connected if required. The water level in the water chamber is automatically controlled via a float mechanism. The patient is fitted with a nasal cannula/tracheostomy interface to receive the warmed and humidified gases. The user sets the desired flow and temperature using push buttons to navigate the menu on the colour display

Regulatory status

Complies with ISO 14971-risk management, ISO 8185 respiratory humidifiers, IEC 60601-1 electrical safety, IEC 60601-1-2 electromagnetic compatibility, ISO 10993-1 biocompatibility

Future work and challenges

New therapies require time for market awareness in distribution channels and government recognition for reimbursement in each country's medical system. Increasing regulations and burden to comply are some of the challenges in making this device available in the market. Further education on awareness and benefits of new therapy and continued publications on therapy efficacy are some of the ways to make the technology more accessible

Use and maintenance

User: Patient, Physician, Nurse or Family Member

Training: User manuals are sufficient for use of the device, however in home, and self-users, medical professional may be needed to provide some assistance

Maintenance: No routine maintenance required.

Environment of use

Setting: To be used indoors either at home ro in any level of health care facility

Energy or Facility requirements: Requires a continuous power supply of 230V. Also requires special software, which is proprietary and embedded within the device to control the device heating, flow, alarms, and display/menu settings. There is no software license fee. The facility must also have a clean water supply and if eth patient requires, a wall supply of Oxygen.

Product specifications

Weight (kg): 2
Dimensions: 295mm x 170m x 175mm
Consumables: Breathing tube, humidifcation chamber, nasal cannula, air filter
Lifetime: 5 years
Retail price (USD): 3 000
Price of consumables (USD): 100

Other features: It is possible to change factory defaults for flow rate, temperature, oxygen alarm limits and a choice of 27 languages.
Year of commercialization: 2010
Currently sold in: Australia, New Zealand, USA, Canada, EU, China. Selected countries in South East Asia, Middle East.

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