



The O2COMFORT flowmeter: a Belgian innovative solution to reduce oxygen waste and improve patient care in hospitals



Oxygen therapy in hospitals has remained unchanged for more than 100 years. Despite of the well-known discomfort for the patients, caused by the continuous oxygen flow of the traditional flowmeters, it has never been thoroughly investigated before how to improve the oxygen delivery system at hospital setting in order to minimize these side effects. Nor has it been a priority to look into the amounts of oxygen that is wasted on a daily basis because of the continuous oxygen flow these flowmeters are generating. Until a few years ago, when Oxypoint NV was founded as a spin-off of the Antwerp University. As a true innovator and supplier of smart solutions for the healthcare sector its mission from the very beginning was to develop smart solutions that enable patients to recover faster and make it possible for the medical staff to work more efficiently. The revolutionary O2COMFORT flowmeter is one of those smart devices, that is breaking the barriers of oxygen therapy in hospitals thanks to the comfort mode.

Article written by Philip Hendrickx

Over the last 20 years, various systems have been developed for home use to deliver oxygen on demand. This has been developed because of the practical need: it is not feasible to store the large amount of oxygen bottles considering the increasing mobility of homecare patients. This discovery made us wonder why the oxygen therapy in hospital environment has never been changed or thoroughly investigated over the past 100 years. If you think of the large quantity of patients receiving oxygen therapy daily – at the Pneumology department, at Cardiology, at Geriatrics, Post-surgery wards, to name a few – and the discomfort these patients must suffer, it was time for us to look for a better and smarter solution to deliver this oxygen therapy. After all, a faster recovery starts with respiration.

Comfortable oxygen therapy

Traditional, continuous oxygen therapy causes dehydration of the nose and the upper-airway mucosa that can lead to

irritation, crust formation, nose bleeds and headache. The O2COMFORT flowmeter can administer oxygen in a traditional way, but also contains **a comfort mode in which each dose of oxygen is administered only during the inhalation**. In this way we eliminate the nasty side effects of a continuous supply of oxygen for the patient and we avoid oxygen waste.

The pneumatic system of the flowmeter doesn't contain electronics or batteries and is **triggered by the spontaneous breathing of the patient**. The comfort settings 1 to 5 give an equivalent therapy of 1 to 5 litres per minute continuous flow (expressed in FiO₂).

The comfort mode allows humid air back into the patient's nose and **keeps the moisture balance in the nose intact**, thereby avoiding the unpleasant side-effects for the patient. The need to use a humidifier (aquapack) disappears and so does the risk of an infection due to bacterial growth inside the humidifier.

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Another advantage for the patient, and for the hospital staff, is that it is **easy to interrupt the treatment without losing the predefined therapy settings**. The nurse can interrupt the therapy by simply taking out the nasal cannula. The comfort mode will automatically cut the oxygen flow but keeps the initial setting. When the nurse re-inserts the nasal cannula the appropriate oxygen flow simply restarts. We call it "the automatic closing" as between two therapy sessions no valuable oxygen is wasted.

Better for patient and hospital

With the O2COMFORT flowmeter we aim to improve the medical comfort as well as the efficacy. The comfort mode ensures **less oxygen waste compared to the continuous therapy while maintaining the same level of oxygen saturation**. Long-term studies in different wards of the hospital validated a **reduced oxygen consumption between 33% and 75% on a ward level**. This waste reduction is two-fold: there is no oxygen delivery in between two sessions, thanks to the automatic closing system. And likewise, during the therapy there is no waste, as oxygen is only delivered during inhalation. Based on this consumption reduction we have calculated the economical savings for some hospitals, and we are proud to say that our innovative system can have a serious impact in the cost reduction of oxygen therapy. **Payback time of less than two years**, only based on O2 reduction, even without taking into account the reduced costs due to less use of humidifiers, less infection risk and nursing time to close all the valves every time the patient leaves the room.



“ With the O2COMFORT flowmeter we aim to improve the medical comfort as well as the efficacy (of oxygen treatment in hospitals). ”



Biography

Philip Hendrickx

Philip Hendrickx is the co-founder of Oxypoint NV, a spin-off from the University of Antwerp. He is an experienced founder with a demonstrated history of working in the hospital & health care industry. Skilled at Innovation Management, Entrepreneurship, Biotechnology, and Intellectual Property. Next to that he is a strong business development professional with an MBA focused in Master in Management from the Antwerp Management School.

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