

Technology offer IP-011

Device for respiratory testing in laryngectomized or tracheostomized patients

A new diagnostic device developed by IMIB researchers improves the connection between laryngectomized/tracheostomized patients and the spirometer through a dual-component system that includes an antimicrobial and antiviral filter to reduce the risk of infection. It works by providing an adapted coupling that prevents air leaks and ensures reliable measurements. It is useful for monitoring respiratory disorders associated with these conditions.

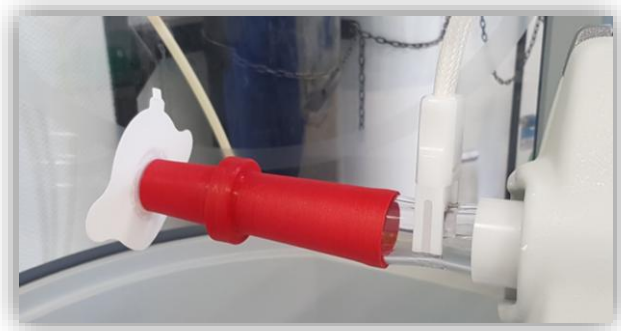


Figure. Tracheostomy adapter.

State of development

TRL-3 Proof of concept

Industrial Property

Granted Spanish Utility model

Priority date: 29/07/2021

Objective of the collaboration

License and/or co-development

Contact

Innovation Unit at IMIB

innovacion@imib.es



Market needs

Laryngectomized and tracheostomized patients often suffer from otolaryngological and pulmonary conditions that require frequent respiratory monitoring through respiratory tests. However, current spirometer adapters do not fit their anatomy properly, causing air leaks and unreliable results. Inadequate devices lead to poor respiratory control, resulting in misdiagnoses and inappropriate treatments. Existing options present usability and safety issues. Therefore, there is an urgent need for reliable and safe diagnostic devices to prevent and manage respiratory complications in this population.



Technical solution from IMIB

The device provides a secure connection between the spirometer and the laryngectomy/tracheostomy through a dual-component system that includes an antimicrobial and antiviral filter to reduce the risk of infection. Tests conducted with the prototype of the adapter showed better coupling both to the patient and to the pneumotachograph. Clinical evaluation showed successful performance in baseline spirometry, with greater reliability in measurements and increased comfort for the patient. Additional clinical trials are underway.

Benefits

- Compatible with a wide range of respiratory tests, including spirometry, plethysmography, and gas transfer measurements.
- Flexible, ergonomic design easily adapts to individual patient anatomy.
- Improved test accuracy thanks to airtight sealing and minimized air leakage.
- Enhanced patient comfort by reducing allergens, coughing, and nausea through antimicrobial filtration.