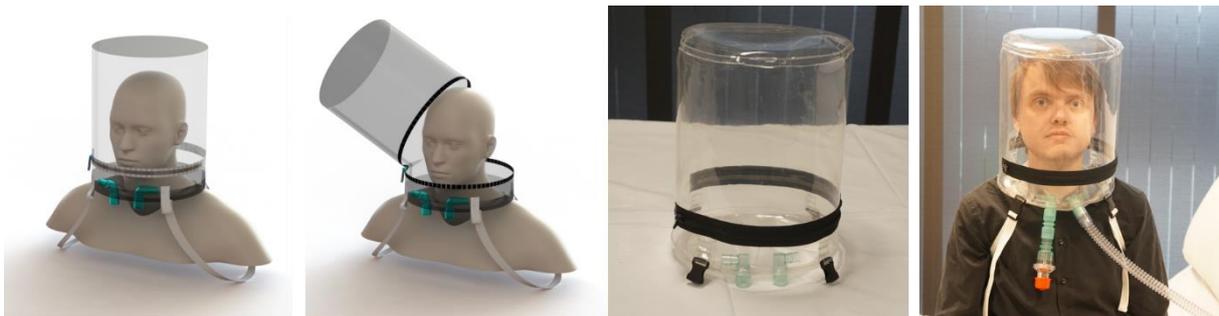


TechMed Centre (University of Twente) and PCV Group develop respirator hood for COVID-19 patients

Over the past few weeks, TechMed Centre researchers have joined forces with developers from PCV Group in Enschede to rapidly develop a breathing support hood. “This minimally invasive ventilation technology (Continuous Positive Airway Pressure, or CPAP) offers an alternative for COVID-19 patients who are not sick enough for admission to the Intensive Care Unit (ICU) but who are too ill to be treated in ordinary wards”, according to Professor of Health Technology Implementation Ruud Verdaasdonk and lung physiologist Frans de Jongh.

The breathing support hood is a respirator hood that delivers oxygen to the patient with a slight overpressure in their lungs. This treatment may postpone, reduce, or entirely prevent a patient’s admission to the ICU. Like the TechMed Center, PCV Group was keenly aware of its social responsibility. Their 20+ years of experience in designing medical products and other equipment made them the perfect partner for the TechMed Centre.



Cooperation

Soon after the corona epidemic began, it became clear that there would be an urgent, worldwide demand for ICU capacity, especially with regard to ventilators. This prompted PCV Group and TechMed Center to rapidly assemble a group of regional and national production companies and knowledge partners. The members of this group include Lampe Group, ECM Europe bv, Intersurgical Nederland bv, Unitron and Minivalve International. In the spirit of social responsibility, they are all contributing their services free of charge during this time of crisis.

Approach and result

The development team’s approach focused on designs that could rapidly be made available, and on exploring potential improvements such as preventing coronavirus particles from leaking out, ease of use for medical staff and patient comfort. This work has led to the development of two designs, which will be used to evaluate a range of options and to open routes to the market. Working prototypes of both designs have now been assembled.

Validation study

The University of Twente’s simulation centre is currently completing a series of validation studies, and the two working prototypes have been extensively tested. The results are very promising for a clinical study. The pressure on ICU capacity in the Netherlands has now subsided. Whereas hospitals had previously asked that these products urgently be tested in practice, this is no longer the case.

The researchers and developers involved have therefore decided to conclude the project at the end of this phase. Two effective designs are now ready and waiting. Should it prove necessary, Dutch companies can quickly complete the development of these designs and start producing this equipment.



Follow-up steps

A logical next step would be to market the product, in partnership with a Dutch distributor or market operator. Projects like this show that the Netherlands has the capacity to develop and produce top-quality medical equipment, thus reducing the country's reliance on foreign suppliers. That said, the partners are entirely open to approaches from interested international parties.

This cooperative venture shows that the short lines between the business community and knowledge institutions (both regional and national), such as the TechMed Centre, facilitate rapid innovation. Here, the TechMed Centre functions as a hub, linking together healthcare facilities, the business community and those involved in scientific research.

Visit the [special website](#) to learn more about the steps that the TechMed Centre is already taking as part of the wider effort to tackle the corona crisis.

PCV Group

PCV Group is a company that specialises in product development and innovation. PCV stands for People Creating Value. According to the company's CEO, Fred van Dijk, that is exactly what has happened here—in a very short space of time. As he puts it, "we responded to a challenging and urgent technical and societal issue with great passion and energy, to deliver effective designs and working prototypes". PCV Group is based at Oldenzaalsestraat 125, in Enschede.

Additional information is available at the following website: www.pcvgroup.com