

UMN Develops First-Of-Its-Kind Alternative To Traditional Ventilators

University of Minnesota



Ventilators serve a crucial role in treating COVID-19—but the surge in patients outpaced the number of ventilators available. The low-cost device, known as the “Coventor” was designed by University of Minnesota researchers and an alumnus as a compact, first-of-its-kind alternative to traditional ventilators, offering another means to increase the oxygen levels in patients’ blood.

The [US Food and Drug Administration](#) authorized the production, use, and distribution of the device. UMN released the Coventor as open-source, letting companies interested sign a [free electronic license](#) and download the manufacturing specifications.

“From the outset, the mission of this project was to make this emergency device available to people in need, wherever they might be in the world, as quickly and safely as possible,” said Stephen Richardson, MD, a lead developer of the Coventor and a cardiac anesthesiology fellow in the Medical School, M Health Fairview. “Through the tremendous hard work, ingenuity, and force of will of hundreds of individuals coming together as a team, we made that a reality in a matter of weeks.”

The UMN research team, supported by a Rapid Response Grant from the Office of Academic Clinical Affairs, included researchers from the Earl E. Bakken Medical Devices Center, the College of Science and Engineering, and UMN's Medical School.

Support from Boston Scientific as the lead design partner and manufacturer, with input from Medtronic and UnitedHealth Group, helped the device through the FDA process. Financial and in-kind support was provided by Midwest companies Digi-Key, MGC Diagnostics, and Protolabs, as well as Teknic Inc. from the state of New York.

UnitedHealth Group, Medtronic, and Boston Scientific are helping deploy thousands of devices to health care providers short on traditional ventilators. The academic-industry collaboration ensured the Coventor received the technical, clinical, regulatory, and manufacturing expertise it needed to reach the market successfully.

"Thanks to the dedication of all involved, this elegantly simple, effective design now has the potential to help fight this pandemic across the world," Richardson said. The Coventor and several other technologies are available for licensing on UMN's [COVID-19 Innovations page](#).

A COMMITMENT TO PUBLIC GOOD

The Coventor is one example of how institutions across the country are applying their research and expertise to fight the pandemic.

During this time, University technology transfer offices act as the bridge for new technologies to reach those who can quickly put them to work. UMN is among the 92 institutions to voluntarily sign on to AUTM's [COVID-19 Licensing Guidelines](#), which aim to expedite solutions that address the pandemic by prioritizing the availability of COVID-19-related technologies for companies or organizations to license and put to use in society.

"Signing the AUTM pledge puts into words the shared commitment that the University of Minnesota and numerous other research institutions have to unite in serving the public good, especially during trying times," said Rick Huebsch, executive director of UMN Technology Commercialization. "The speed at which we can bring new discoveries into society is paramount right now, so we have all hands-on deck. It's encouraging to see the unprecedented level of collaboration taking place between industry leaders and University experts."

This story was originally published in 2020.

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