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COVID-19: Medtronic Shares Ventilator Specs Amid Multi-Industry Efforts To Increase Ventilator Production

by Marion Webb

Medtronic shares an open-source design for its ventilator to help mitigate the nation's ventilator shortage for COVID-19 patients.

Medtronic PLC is publicly sharing design specifications for its PB 560 ventilator to help the global multi-industry effort to devise options for rapid ventilator manufacturing.

The medtech giant shared on 30 March all the *schematics and software* for its portable Puritan Bennett 560 ventilator, which was introduced in 2010 and is sold in 35 countries around the world.

This comes after the *US Food and Drug Administration* temporarily waived its enforcement and inspection requirements to allow companies that are not ventilator manufacturers to begin making much-needed parts for ventilators and other respiratory accessories to help tackle diminishing supplies in US hospitals as they treat the rising number of COVID-19 patients.

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"It's a good thing for manufacturers to release a comprehensive set of documentation that would

allow other capable groups to build ventilators that have a proven design," said Julian Goldman, an anesthesiologist and the director of Massachusetts General Hospital's Medical Device Interoperability and Cybersecurity program. He's also the hospital's medical director of biomedical engineering.

"One of the more difficult things to do is building a new ventilator and design it safely, and consider all of the hazards and all of the clinical needs. If it's an older design that is less capable than a state-of-the art modern ventilator, it would still be a lifesaving device," Goldman added.

"By openly sharing the PB 560 design information, we hope to increase global production of ventilator solutions for the fight against COVID-19," said Bob White, executive VP and president of the Minimally Invasive Therapies Group at Medtronic.

Medtronic CEO Omar Ishrak said in an interview with CNBC on 25 March that his company had already ramped up production of ventilators by 40%, making 250 ventilators a week, and is on track to double its capacity by working 24/7.

In the discussion, Ishrak also said Medtronic partnered with automaker Tesla Inc., which converted a New York production plant used to produce solar power cells, to make ventilators instead.

"One of our ventilators will be made by [Tesla] and they're fast on track to try to make that as well," Ishrak said. He also alluded during the discussion that Medtronic would open-source one of its lower-end ventilators used for less acute situations for others to make, noting that "this product is a little more generic in form and can be made more easily than the one we make."

Auto Makers Turn To Ventilator Production

Two weeks ago, auto giant General Motors Co. said it had teamed up with Seattle-based Ventec Life Systems to help meet the demand for ventilators. (Also see "*GM Partners With Ventec Life Systems To Make Ventilators*" - Medtech Insight, 20 Mar, 2020.)

And Ford Motor Co. announced a few days later that it joined *GE Healthcare* and *3M Health Care Ltd.* to make ventilators and respirators. (Also see "*Ford Races To The Rescue: US Auto Maker Partners With GE, 3M To Make Ventilators, Respirators During COVID-19 Crisis*" - Medtech Insight, 24 Mar, 2020.)

Meanwhile, 3D companies such as HP Inc., FormLabs and Prisma Health are also mobilizing their efforts to produce key components for ventilators, as well as personal protective equipment such as face masks and respirators, to help mitigate shortages in medical supplies. (Also see "*COVID-19: FDA Offers Cautionary FAQs On 3D Printing Of Key Medical Supplies*" - Medtech Insight, 27 Mar, 2020.)

Indeed, “there are many, many efforts to build and work together, and new teams are forming and they are gathering and they are sharing information,” said Goldman, whose own “call to action” on LinkedIn for clinical and engineering experts to join forces was heard by many.

“We have over 40 members of that [LinkedIn] group that stood up within a week, in which groups of experts in simulation and modeling are working together to develop tools, so that clinicians could look at better deploying that ventilation approach if it’s needed in an absolute emergency,” Goldman said.

Some hospitals, fearing that they may be faced with a ventilator shortage, meanwhile, are repurposing devices and equipment into makeshift breathing devices. At Northwell hospital in New York, doctors are repurposing devices normally used to treat sleep apnea patients into ventilators, according to published reports.

And San Diego-based ResMed Inc., which develops and sells equipment for sleep-related breathing disorders, is working with governments, health authorities, hospitals, physicians and patients to assess the need for ventilation therapy to treat COVID-19 patients.

“We are looking to double or triple the output of ventilators, and scale up ventilation mask production more than tenfold,” ResMed CEO Mick Farrell said. (Also see "*Exec Chat: ResMed's CEO Mick Farrell Outlines 2025 Strategy For 250 Million Users*" - Medtech Insight, 10 Sep, 2019.)

Meanwhile, in other parts of the world, manufacturing groups are also coordinating efforts to meet the rising demand for ventilators. In the UK, a group of manufacturers, received a government order to build 10,000 ventilators to help treated COVID-19 patients. The devices are being supplied by the Ventilator Challenge UK consortium, a group of 14 firms including non-health care groups such as Siemens AG, Rolls-Royce and Airbus. (Also see "*Smiths Medical Ramps Up ParaPAC Ventilator Production For UK Order Of 10,000 Units*" - Medtech Insight, 31 Mar, 2020.)

Goldman foresees rapid innovation.

“I think what we may see is ultrafast ventilators and rapidly developed ultra-simple ventilators that can be deployed over the next few weeks and then somewhat more sophisticated designs coming together over the next few months.”