

# Toaster-sized ventilator from India helps hospitals in virus fight

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Originally created by a robot scientist and a neurosurgeon to help India's poor, the AgVa ventilator is now offering hope in the country's coronavirus fight

Originally created by a robot scientist and a neurosurgeon to help India's poor, a toaster-sized ventilator is offering hope in the country's fight

against the coronavirus pandemic and demand is booming.

The virus at its most lethal attacks the lungs, making ventilators—which pump breathable air into a patient—critical for hospitals around the world as they are swamped with COVID-19 cases.

With the toll rising in India, where a nationwide lockdown is in force, production of AgVa's portable ventilator has shot up from 500 a month to 20,000.

"There was no way we could have foreseen something as big as this," said neurosurgeon Deepak Agrawal, who co-developed the device with [robot scientist](#) Diwakar Vaish.

Priced at around \$2,000, the AgVa ventilator is a fraction of the price of conventional ventilators, which go for more than \$10,000.

India, like most countries, has a critical shortage of beds and ventilators for its 1.3 billion people. The South Asian nation has so far reported more than 1,600 cases and 38 deaths from COVID-19.

To boost preparedness for a surge in cases, the Indian government has banned the export of [coronavirus](#)-linked medical exports, including ventilators.

The AgVa plant near the capital New Delhi has been given permission to work flat out to make what could be a key weapon when India has to fully confront the pandemic.



Demand for AgVa's toaster-sized ventilators is booming as India prepares for a surge in coronavirus cases

The makers say the AgVa—which weighs just 3.5 kilos (7.7 pounds)—will help move less critical patients back to their homes as their machine is easy to transport and install, and needs low power.

"In case you want to convert a hotel into an ICU, you can simply put this device and start working as it doesn't require other infrastructure," said Vaish.

Maruti Suzuki, India's biggest passenger car maker, has pledged to help AgVa ramp up production after the government called on all auto firms to contribute to the anti-coronavirus effort.

## Plug and breathe

Seeing people queue for life-support equipment at the All India Institute for Medical Science in Delhi in 2016 convinced Vaish and Agrawal that there was an acute need for a cheap and portable ventilator.

"ICU care is very expensive. In the [private sector](#), even the richest of rich can't afford it for a long time," said Vaish.

They avoided expensive imported parts to keep the cost low, Agrawal added.





AgVa says it has avoided imported parts in its ventilator design to keep cost low

With its cash-starved health system, India has only around 40,000 ventilators, and experts who have seen the coronavirus crisis explode in Europe have warned this could become a catastrophic shortage for India.

R.V. Asokan, secretary general of the Indian Medical Association, said the AgVa portable ventilator was the kind of innovation needed to fill health gaps.

"It is a basic model which will serve in the current scenario as it is a straightforward oxygenation device," said Asokan, who added that it would help COVID-19 patients but not those who have had transplants and other major surgeries.

Sunita Sharma, whose son was hospitalised for five years with a crippling nerve condition, was given one of the machines for free.

"My husband and I had to take turns to stay with him at the hospital and that affected our lives," Sharma told AFP.

"I was devastated when the doctors told me my son would have to spend the rest of his life on a [ventilator](#) bed.

"At least now I can stay home to take care of him and the rest of the household."

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