

BostonVent: A Revolutionary Ventilator

Background

Born of the COVID-19 pandemic, BostonVent is an *open-source* ventilator developed by a volunteer team of engineers and anesthesiologists to:

1. Increase access to ventilators in low- and middle-income countries. While the US has more than 70,000 ICU ventilators, 41 African countries have 2,000 units in total. *Ten countries have none at all.*
2. Support easy and inexpensive stockpiling of ventilators in case of widespread future need, such as a new wave of COVID-19 cases or another future pandemic.

Two rounds of prototypes have been produced with support from the Massachusetts General Brigham's COVID-19 Innovation Center. We are currently seeking \$35,000 in donations to support our next stage of development.



What Makes BostonVent Different?

BostonVent is designed to be *inexpensive, safe, effective, manufactured from common parts, easy to service, highly transportable, and highly robust*. Manufactured cost will be under \$1,000, with a selling price of \$4,000 or less (vs \$20,000 and up for current ICU ventilators).

One critical difference between BostonVent and other low-cost ventilators is support for *all essential features of standard ICU ventilators*. BostonVent is fully appropriate for use during all stages in respiratory illness from initial resuscitation through recovery and liberation from mechanical ventilation.

FDA and EU clearance

BostonVent also sets itself apart with an architecture designed to readily meet the safety standards mandated by the US FDA and EU Medical Device Directive. While other low-cost ventilators are eligible for Emergency Use Authorization (i.e., only for limited use as a last resort when nothing else is available), BostonVent is designed for full clearance and use as a standard ICU ventilator.

Team

BostonVent's 10-person active volunteer team includes anesthesiologists/intensivists affiliated with Harvard Medical School, engineers at entities affiliated with Harvard Medical School or MIT and a former IBM software manager. Two engineers have more than 35 years of combined experience in FDA-regulated devices.

Funding

We seek donations of \$35,000 for materials and services needed for two further rounds of prototypes. Prototypes will be fully validated by Massachusetts General Hospital's respiratory research laboratory. Additional funding of approximately \$850,000 will be sought to complete FDA/EU clearance-related efforts, and to commence manufacturing.

The BostonVent effort will become self-sustaining through device sales as well as a unique IP licensing model.