

## ACT - Aerosol Containment Tent

### Portable Negative Pressure for Procedures

The ACT is the only portable negative pressure unit on the market that enables clinicians to perform procedures safely while the patient is contained under validated negative pressure. This enables containment of potentially infectious aerosols during Aerosol Generating Medical Procedures (AGMP). The ACT provides critical protection for clinicians conducting life-saving aerosol generating procedures on patients, such as Intubation/Extubation, High Flow O<sub>2</sub>, BiPAP, CPAP, BVM Ventilation and CPR.

#### **THE ISSUE**

Currently, clinicians are at risk for COVID-19 exposure when conducting these procedures; standard PPE and even N95 respirators alone may not be effective. Aerosols can travel up to 10 metres and be infectious for over 3 hours following an aerosol generating procedure\*. This can expose clinicians and other patients in the environment to aerosolized viruses such as COVID-19. While negative pressure isolation rooms are recommended for performing these AGMPs the reality is that most hospitals only have 1 or 2 negative pressure rooms and they are often full or patients cannot be easily moved to these rooms for treatment. Many remote communities do not have negative pressure rooms for treating patients.

Staff isolation due to potential COVID-19 exposure is an emerging problem creating difficulty with hospital staffing and ballooning overtime budgets. Current estimates for delays of 6 common procedures in Canada due to COVID are an estimated \$1.3 Billion, according to the Canadian Medical Association.

#### **THE SOLUTION**

By containing aerosols in a HEPA-filtered negative pressure unit, the ACT eliminates the aerosols that could lead to exposure and infection. Instead of moving a patient to a negative pressure room, the negative pressure can be moved to the patient so guidelines can be followed for performing AGMPs safely. The system also enables Operating Rooms to continue to function and provide critical services including potentially life-saving elective surgeries.

With over 2000 air exchanges per hour (ACH) and negative differential pressure ranging from 15 to 30+ Pa, the ACT far exceeds the minimum standards of 7.5 Pa and 20 ACH set out by the CSA for negative pressure.

Reduced staff exposure enables hospitals to maintain a high level of staffing capacity and decreases budgetary pressure associated with delays. Clinician safety

**ACT - Aerosol Containment Tent**  
**Portable Negative Pressure for Procedures**

can be achieved for aerosol generating procedures in all areas of the hospital such as ICU, OR, the Emergency Department and COVID units.

The ACT must become standard of care and included in hospital protocols for ALL aerosol generating procedures (AGMPs), such as intubations.

Designed and created by a Canadian team of innovators including an Emergency Room Physician and a team of Engineers, this device from MACH32 is regulated by Health Canada as a Class I Medical Device. The ACT is a [Catalyst4Care](#) Project.

\*References:

<https://www.nejm.org/doi/full/10.1056/NEJMc2004973>

[https://wwwnc.cdc.gov/eid/article/26/9/20-1806\\_article](https://wwwnc.cdc.gov/eid/article/26/9/20-1806_article)

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7215485/>

Additional Resources:

[Association of Anaesthetists - Risks to healthcare workers following tracheal intubation of patients with COVID-19: a prospective international multi-centre cohort study](#)

[BMJ - Classification of aerosol-generating procedures: a rapid systematic review](#)

[CBC News - "Which Surgeries Require Extra PPE? New review rounds up international guidance"](#)

[Report and Recommendations by Mario Possamai on Canada's COVID Response to Protecting Healthcare Workers](#)