

CORONASYS INNOVATION SHEET 3

MOVES SLC™ PORTABLE ICU

Background

Covid-19 infections can lead to respiratory distress, and especially patients with pre-existing conditions may need intensive care¹². However, advanced intensive care units are not always available, particularly in rural areas. Shortages in ICU beds, ventilators, and compressed oxygen can further complicate the challenges in fighting Covid-19³⁴.

Features

The MOVES® SLC™ addresses these problems by providing ventilation, oxygenation, vital signs monitoring, and suction, without the need for compressed oxygen⁵, and while operating on battery power for more than six hours⁶. Its low weight of just 17 Kg makes it easy to handle. It is intended for adults and pediatric patients who weigh between 10 kg and 120 kg. MOVES® SLC™'s circle-circuit ventilator enables a high FiO₂ of up to 85% with low flow O₂ so that no O₂ tanks are required⁷. If a higher FiO₂ is required, the system can operate with 95% less oxygen than the open-circuit ventilators currently in use according to the manufacturer⁸⁹.

Potentials

The system can quickly be set up bedside in any location to ventilate and monitor patients¹⁰. It can be used for intra- hospital or inter- hospital transport, to set up a temporarily OR or to scale up intensive care and ventilator capacities in hospitals, field hospitals or other locations¹¹.

Points to consider

Although the MOVES® SLC™ does comply with a wide range of international standards, potential users should check the compatibility with their systems. The system does not have defibrillation capability¹².

Conclusion

The product might be a valuable addition to existing equipment and can be used to temporarily scale up ICU capacities in the wake of the Covid-19 pandemic and in the context of other disasters.

State of information: 19/08/2020

Market launch: 2017

Implemented in:

- Canada
- Belgium
- Australia
- United States
- Malaysia
- Israel

Focus area: Treatment

Developers: Thornhill Medical

Beneficiaries:

- critically ill patients
- health care providers

¹ Shang, You et al.(2020)Management of critically ill patients with COVID-19 in ICU: statement from front-line intensive care experts in Wuhan, China. *Annals of intensive care* vol. 10,1 73. 6 Jun. 2020, doi:10.1186/s13613-020-00689-1 Online: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7275657/> [08/18/2020]

² Price, Susanna et al. (2020). Respiratory management in severe acute respiratory syndrome coronavirus infection." *European heart journal. Acute cardiovascular care* vol. 9,3 (2020): 229-238. doi:10.1177/2048872620924613. Online: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7215090/> [08/18/2020]

³ Aziz, Shadman et al. (2020) Managing ICU surge during the COVID-19 crisis: rapid guidelines. *Intensive care medicine* vol. 46,7 (2020): 1303-1325. doi:10.1007/s00134-020-06092-5 Online: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7276667/> [08/19/2020]

⁴ Goh, K. J., Wong, J., Tien, J. C., Ng, S. Y., Duu Wen, S., Phua, G. C., & Leong, C. K. (2020). Preparing your intensive care unit for the COVID-19 pandemic: practical considerations and strategies. *Critical care (London, England)*, 24(1), 215. <https://doi.org/10.1186/s13054-020-02916-4> [08/19/2020]

⁵ Thornhill Medical (2020).Online: <https://thornhillmedical.com/moves-slc/> [08/18/2020]

⁶Covid19 innovation hub (08/05/2020): Thornhill Medical - MOVES® SLC™ Online: <https://covid19innovationhub.org/innovation/moves-slc> [08/18/2020]

⁷Thornhill Medical (2020). A revolution in portable life support. Online: <https://thornhillmedical.com/wp-content/uploads/2020/04/MOVES-SLC-2020-Web.pdf> [08/18/2020]

⁸Thornhill Medical (2020). The Advantages of the MOVES® SLC™ Portable Circle-Circuit Ventilator Design. Online: <https://thornhillmedical.com/resources-int/deeperdive-int/the-advantages-of-the-moves-slc-portable-circle-circuit-ventilator-design/> [08/18/2020]

⁹ Thornhill Medical (2020). Create ICU Beds Wherever And Whenever You Need Them. Online: <https://thornhillmedical.com/wp-content/uploads/2020/03/MOVES-SLC-COVID-19-1.pdf> [08/18/2020]

¹⁰ Mazgay, Will (04/08/2020). Toronto firm's portable life support units could supplement ICU beds [UPDATED] <https://www.canadianmanufacturing.com/manufacturing/a-toronto-firms-portable-life-support-units-could-supplement-icu-beds-250598/> [08/18/2020]

¹¹ Business Insider (03/21/2020).Thornhill Medical Joins Canadian Response to COVID-19 <https://markets.businessinsider.com/news/stocks/thornhill-medical-joins-canadian-response-to-covid-19-1029019768#> [08/18/2020]

¹² Thornhill Medical (2020). Frequently asked questions. Online: <https://thornhillmedical.com/resources-int/#faq-movesslc> [08/18/2020]

Background on Innovation Sheet Series

As part of a real time evaluation of the SARS CoV 2 pandemic (with focus on epidemiological, medical, economical, societal, technical and cultural developments in Germany and Armenia) the CoronaSys research team, under the leadership of Prof. Dr. Martin Voss, is conducting a continuous monitoring of developments and medical, technical, and social innovations concerning Covid-19.

Multiple national and international media outlets, research platforms and scientific and organizational guidelines, briefs and updates are screened to feed into this outlet. The rationale behind this is to support the projects' network partners in Armenia and Germany with short summaries of key developments and promising innovations that are shaping the global, German and Armenian outbreak response and recovery.

The aim of these short briefs is to give condensed and structured information on selected innovations emerging out of the conducted horizon scanning. This could be mainstream big-ticket items or fringe subjects that are easily overlooked in the global flood of information. Some innovations will be followed through their evolution in time while others may only appear once. While subjectively selected, the briefs are descriptive in nature and leave analysis and critical interpretation to the reader. Network partners in both countries are invited to provide feedback on their interest areas and suggest particularly relevant topics for the CoronaSys Workshop series.

The CoronaSys Innovation Sheet Series is published by the [Academy of the Disaster Research Unit](#), which is, as a non-profit limited liability company, a spin-off of the [Disaster Research Unit](#) at the Free University of Berlin. The series is part of the research project "[CoronaSys](#): Addressing the corona pandemic in Armenia through systemic risk management", sponsored by the German Federal Ministry of Education and Research.

Previous CoronaSys Innovation Sheets

- 1 "New" Antiviral Face Masks
- 2 "Dyphox" Surface Coating

All previous CoronaSys Innovation Sheets are available online:

<http://coronasys.a-kfs.de/category/innovation-stream/>

If you have any questions, suggestions, or if you wish to be taken on (or off) the project mailing list for CoronaSys updates, innovation sheets, and workshop invitations, please send a message to Janina Schäfer (schaefer@a-kfs.de). For general project inquiries, you may contact the team lead Sara Merkes (merkes@a-kfs.de) or the project lead Martin Voss (voss@a-kfs.de).

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