CORONASYS INNOVATION SHEET 32

GRADIAN CCV

Background

Many Covid- 19 patients need mechanical ventilation[12]. This can be a major challenge especially in rural areas where ICU beds and oxygen- supply are scarce and power cuts frequent. Gradian Health Systems[3] has developed a ventilator designed especially for those environments.

Features

The Gradian CCV is a portable ventilator designed for challenging environments. It can be operated for 21 hours on battery and has a built-in oxygen compressor that allows to mix in room air or use an external oxygen source. Some commonly used ventilation modes are pre-programmed allowing clinicians less experienced in ventilation therapy to optimize patient ventilation. The product comprises of generic components, that are locally available at low costs. The ventilator can be used for adults and children > 5 Kg[456].

State of information: 12/02/2020

Broader Implementation: 2020

Countries: USA, Rwanda, Nigeria, Nepal, Zambia, Uganda, Tanzania, Sierra Leone and Kenya

Focus area: Treatment

Developers: Gradian Health Systems

Beneficiaries: Clinics and physicians in remote areas

Potentials

Gradian Health Systems is a Nonprofit Medical Technology company that targets low- resource settings. The company also offers comprehensive customer support via Email, Whatsapp, Phone and in-person as well as locally contextualized training for medical teams[7]. Gradian Health Systems also developed the Universal Anaesthesia Machine, “the first internationally-certified anaesthesia machine that can generate its own medical oxygen and work without electricity”[8].

Points to consider

As of now, the company is not yet present in the near and middle east and Europe[9], so its additional services like local customers support and training might not be available in these areas.

Conclusion

The CCV ventilator might be an affordable and valuable asset in low- resource settings and challenging environments.

[1] National Institutes of Health. "COVID- 19 Treatment GuidelinesOxygenation and Ventilation." COVID-19 Treatment Guidelines, July 17, 2020. https://www.covid19treatmentguidelines.nih.gov/critical-care/oxygenation-and-ventilation/.

[2] Wunsch, Hannah. "Mechanical Ventilation in COVID-19: Interpreting the Current Epidemiology." American Journal of Respiratory and Critical Care Medicine 202, no. 1 (July 1, 2020): 1. https://doi.org/10.1164/rccm.202004-1385ED.

[3] Gradian Health Systems. "Gradian Health Systems | A Nonprofit Medical Technology Company," 2020. https://www.gradianhealth.org/.

[4] Gradian Health Systems. "CCV-Specifications," 2020. https://www.gradianhealth.org/customer-support/

[5] "CCV User Guide," 2020. https://www.gradianhealth.org/customer-support/.

[6] Gradian Health Systems. "Product Note: COVID-19 | Gradian Health Systems," April 28, 2020. https://www.gradianhealth.org/product-note-covid-19/.

[7] Gradian Health Systems. "Training." Gradian Health Systems, 2020. https://www.gradianhealth.org/training/.

[8] Gradian Health Systems. "Anaesthesia Workstation." Gradian Health Systems, 2020. https://www.gradianhealth.org/our-products/uam/.

[9] Gradian Health Systems. "Gradian's Global Presence." Gradian Health Systems, 2020. https://www.gradianhealth.org/where-we-work/gradians-global-presence/.

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.

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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4 Portable TRI- KLEEN 500UV
5 Convalescent Plasma Therapy
6 ASIC-App
7 BinaxNOW Antigen Test
8 Corona Traffic Light
9 Aproof at Home Antibody Test
10 IVAT Hygiene Tower
11 LY-CoV555 Antibody Treatment
12 4C Mortality Score
13 Regional Corona Prediction Model
14 Computer-designed Mini- Proteins
15 Covid-19 Simulator
16 Trimodulin
17 BNT162b2-Vaccine
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All previous CoronaSys Innovation Sheets are available online:
http://coronasys.a-kfs.de/category/innovation-stream/

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