



Strengthening critical care capacity to manage COVID-19 patients in Mongolia

From December 2020 to December 2023, EpiC provided technical assistance (TA) and capacity-strengthening support to the government of Mongolia to respond to the COVID-19 pandemic and prepare for future epidemics. The United States Government (USG), through the United States Agency for International Development (USAID), provided the Government of Mongolia with a donation of 50 ventilators for intensive care units to assist its fight against COVID-19. The donation delivered on the U.S. administration’s pledge to provide these critically needed supplies and support Mongolia’s ongoing efforts to mitigate the impacts of the COVID-19 pandemic in the country. The Meeting Targets and Maintaining Epidemic Control (EpiC) project collaborated closely with the Ministry of Health (MOH) to strengthen the country’s capacity for critical case management.

Activities and Accomplishments

FACILITY-LEVEL ASSESSMENTS

All 12 facilities that received ventilators were provincial secondary-level hospitals. EpiC conducted rapid facility-level assessments (FLA) of critical care capacity, available resources, and TA needs to strengthen clinical management of COVID-19. An orientation on objectives and data collection tools was led by the University of California San Francisco (UCSF) in February 2021.

EPIC’S KEY ACCOMPLISHMENTS

- Supported installation of 50 Vyair ventilators at 12 provincial hospitals and procurement of 50 test lungs to support the use of ventilators
- Conducted rapid assessment in 12 facilities on capacity gaps and technical assistance (TA) needs
- Built COVID-19 clinical management capacity among 114 critical care providers across 31 provincial and district hospitals
- Translated the BASIC for COVID-19 course developed by the Chinese University of Hong Kong and offered it to medical professionals as an online self-learning course through the Mongolian National University of Medical Sciences
- Enrolled 39 intensive care providers from tertiary facilities of Ulaanbaatar in Fundamental Critical Care Support course offered by the Society of Critical Care Medicine

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Over 40 staff, including biomedical engineers, technicians, and intensive care unit (ICU) providers attended the orientation. The assessment found that while all 12 facilities possessed some capacity to utilize ventilators and provide care, including critical care for mechanically ventilated patients, none met all recommended criteria for the optimal readiness level to deal with the potential COVID-19 surge.

The FLA further revealed that beyond improving infrastructure and reliable supply of consumables, facilities would benefit from capacity strengthening of the intensive and critical care workforce to manage COVID-19 cases, including severe and critically ill patients requiring mechanical ventilation. Facilities indicated high demand and preference for in-person and on-the-job, skill-enhancing capacity building activities. The results informed the design and development of the subsequent clinical TA.

TECHNICAL ASSISTANCE AND TRAINING ON COVID-19 CLINICAL MANAGEMENT

Informed by the FLA, EpiC provided TA to strengthen critical care case management skills among clinicians. EpiC collaborated with national experts from the critical care, emergency medicine, and anesthesiology advisory councils at the MOH to adapt and translate a clinical training curriculum on adult COVID-19 case management developed jointly by UCSF, EpiC, and the Reaching Impact, Saturation and Epidemic Control (RISE) project, as well as globally available COVID-19 technical resources.¹ These national experts were invited to serve as master trainers to roll out cascade trainings for the intensive care workforce at provincial, general, and Ulaanbaatar district hospitals. UCSF conducted a virtual orientation session on the curriculum and latest global clinical guidance on case management and bedside care for the master trainers in August 2022.

Between August and November 2021, EpiC organized three-day workshops at five strategically selected provincial hospitals that received Vyair ventilators. The workshops reached 91 critical care doctors and nurses from all provincial hospitals, which included 20 main provincial and four inter-Soum designation facilities. A single three-day workshop was held in Ulaanbaatar in February 2022 for providers from secondary health care facilities in Ulaanbaatar city and the satellite province of Tuv, bringing the total to 31 facilities and 114 providers. All workshops were conducted in person.

Clinical TA workshops received overwhelmingly positive feedback. Participants expressed high satisfaction and appreciation that the training was in person, timely, and practical. Many attendees indicated that the training lifted their confidence to manage COVID-19 patients. Improvement in critical care knowledge was evident in significant increases in post-test scores compared to pre-test scores (post-test scores increased by 25% and 26% for doctors and nurses, respectively, compared to pre-test scores).

¹ Available from <https://opencriticalcare.org/resources/covid-19-case-series-for-teachers-2/> and <https://covidprotocols.org>

The project translated and printed more than 250 technical resources including job aids, quick references on critical care and advanced cardiac and basic life support, posters on the hypoxia algorithm, an inter-facility patient transfer checklist, and a respiratory care pocket reference card. These materials were disseminated to participants during clinical workshops.



Dr. B. Tsolmon, master trainer and head of the Intensive Care Center at Intermed Hospital in Ulaanbaatar, conducts a skills-building session on Vyair ventilators with workshop participants in Uvurkhangaig province. Photo by Ya. Badamsuren.

EpiC also supported the registration of 39 English-speaking learners from tertiary hospitals in Ulaanbaatar for the online Fundamental Critical

Care Support course offered by the Society of Critical Care Medicine. The BASIC for COVID-19 course developed by the Chinese University of Hong Kong was translated into Mongolian, and the course was converted into an online self-learning format by the Mongolian National University of Medical Sciences (MNUMS) for medical students and professionals.

COORDINATION WITH STAKEHOLDERS

EpiC collaborated with many stakeholders to design, plan, and implement project activities. The Division of Biomedical Investment and Division of International Cooperation, MOH, and EpiC coordinated inspection and shipment of donated ventilators to facilities designated by the MOH. EpiC coordinated with the Department of Health Care Policy and Implementation under the leadership of Dr. Buyantogtokh, project director at the MOH, to conduct facility assessments and implement clinical TA activities. The chair of Emergency Medicine at MNUMS led preparation of clinical training content.

The MOH designated the Health Development Center (HDC) to support the facility assessments and clinical TA workshops. HDC connected EpiC with the health departments of 21 provinces to distribute the assessment tools, coordinate workshop dates, identify participants, and manage other logistics. EpiC Mongolia routinely informed the MOH, USAID, and FHI 360 of progress through weekly and monthly reports and meetings.

Conclusions

EpiC has enhanced the country's capacity to manage critically ill COVID-19 patients and provide care for mechanically ventilated patients. The FLA tool and reports have been handed over to the MOH. To ensure long-term use of the ventilators, EpiC procured 50 ventilator test lungs, which are used for testing and training. EpiC is coordinating with Vyair to procure four sets of preventive maintenance kits, including oxygen analyzers, and train two MOH-designated biomedical engineers on maintenance of ventilators. Once trained, these engineers will be certified by Vyair to undertake routine maintenance and repairs of the country's Vyair ventilators. Additionally, EpiC supported the MOH with procurement of 4,280 units of adult circuits and 960 units of pediatric circuits compatible with Vyair ventilators while waiting for the MOH to allocate funds for routine procurement in its future annual budget. The procurement was undertaken in two phases — the first round with ventilator TA funds and the second round with American Rescue Plan Act funds.

Training materials, technical resources, and a well-equipped cadre of master trainers will be used to train new doctors and nurses and provide refresher training on COVID-19 adult case management in the future. The MOH's continuous education and training agency periodically conducts continuing medical education on priority topics as deemed necessary. The resources and tools generated from the EpiC project have been added to their catalog of existing resources and will be offered as both pre- and in-service trainings.

Meeting Targets and Maintaining Epidemic Control (EpiC), a global project funded by the U.S. President's Emergency Plan for AIDS Relief (PEPFAR) and the United States Agency for International Development (USAID), is dedicated to achieving and maintaining HIV epidemic control. EpiC is led by FHI 360 with core partners Right to Care (RTC), Palladium, and Population Services International (PSI). EpiC and its consortium members are implementing COVID-19 activities in more than 20 countries on three continents. In 13 of those countries, EpiC is providing technical assistance (TA) to governments and specific health facilities that received U.S. Government (USG)-donated ventilators and to health providers on COVID-19 clinical case management.