AOG

ASSURED OUTCOMES GROUP

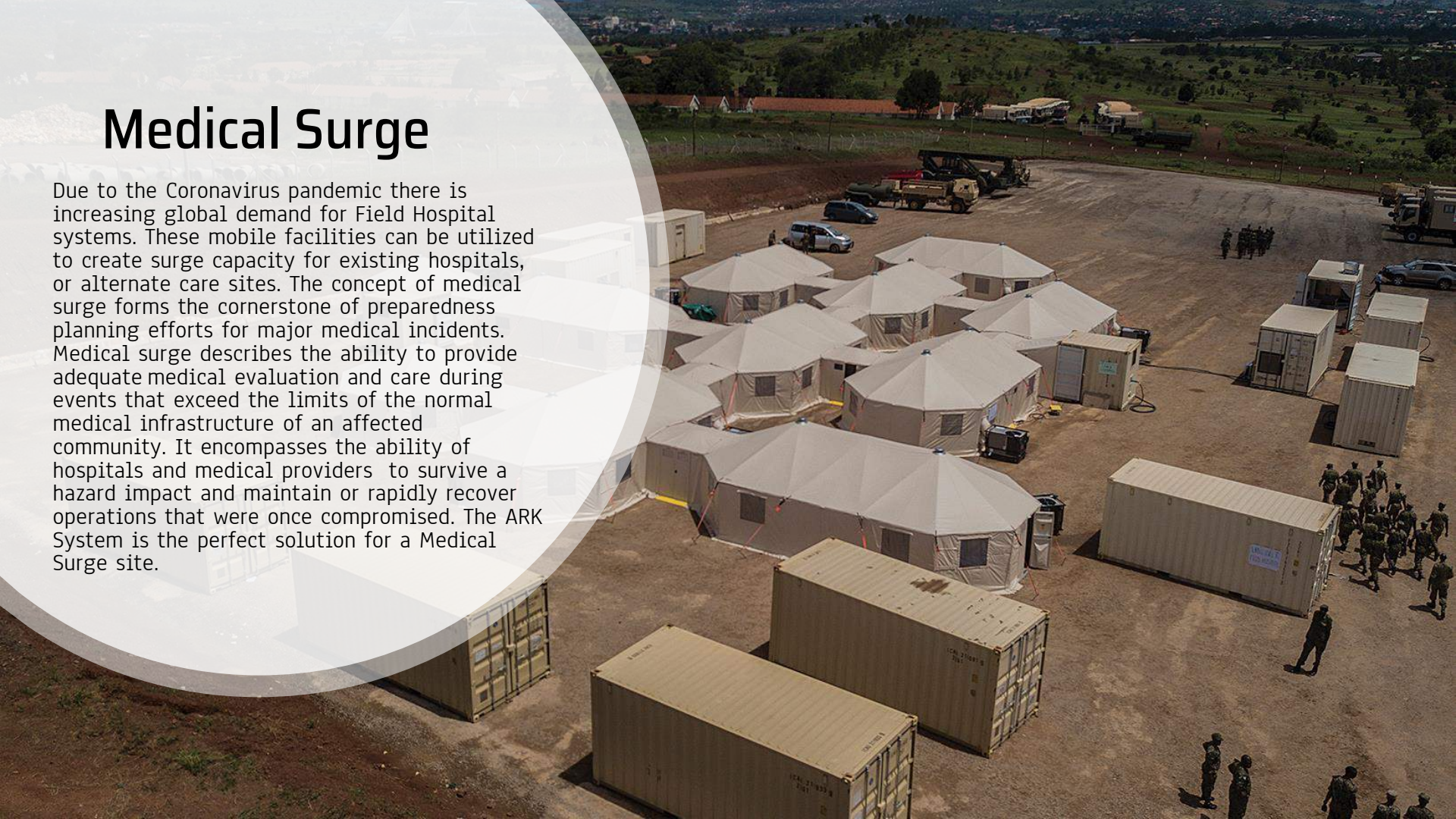
VIRUS QUARANTINE AND RECOVERY MEDICAL SURGE MODULE

AOG Adaptable Response Kit A.R.K.

Assured Outcomes Group A.R.K systems are complete medical facilities capable of operation in practically any environment. Our field hospital modules can be used when an existing hospital is rendered inoperable, in cases of extreme demand, or to bring medical care closer to patients in the event of a major disaster. Our systems are highly scalable, from a small clinic to a full service facility capable of supporting hundreds of people, with dedicated units for pharmacies, laboratories, X-ray imaging, dental care, and virtually any other medical specialty if needed. This allows a community to continue to develop a preexisting ARK system based on evolving situational needs. These field modules are also available for humanitarian and defense or security applications.

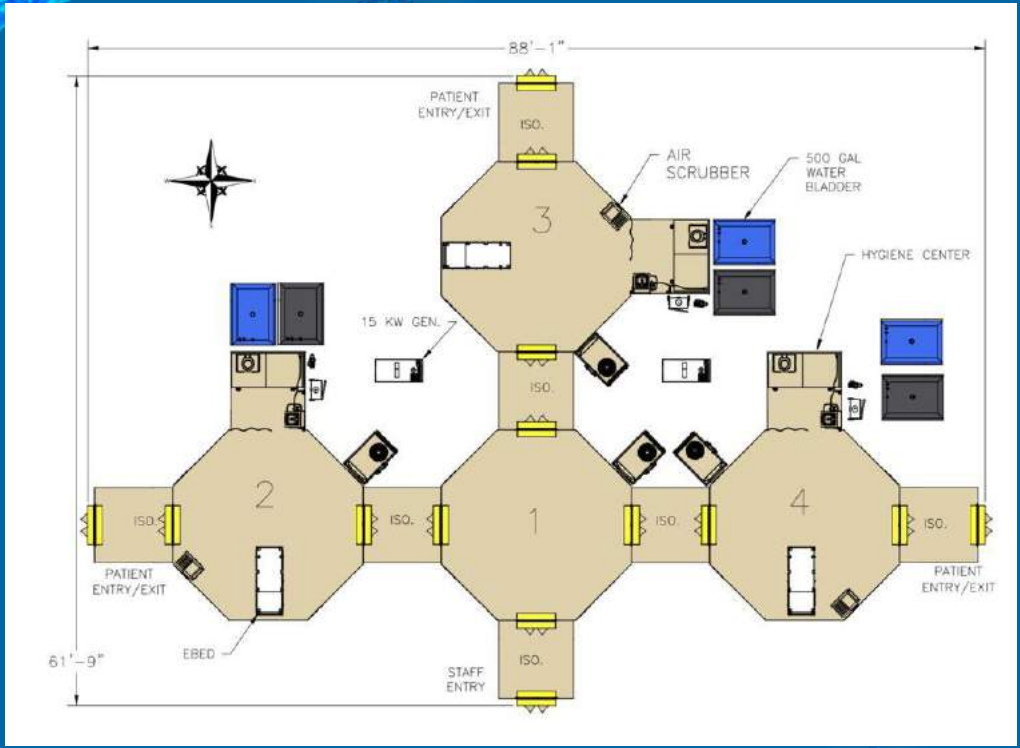
Medical Surge

Due to the Coronavirus pandemic there is increasing global demand for Field Hospital systems. These mobile facilities can be utilized to create surge capacity for existing hospitals, or alternate care sites. The concept of medical surge forms the cornerstone of preparedness planning efforts for major medical incidents. Medical surge describes the ability to provide adequate medical evaluation and care during events that exceed the limits of the normal medical infrastructure of an affected community. It encompasses the ability of hospitals and medical providers to survive a hazard impact and maintain or rapidly recover operations that were once compromised. The ARK System is the perfect solution for a Medical Surge site.



ARK

ADAPTABLE RESPONSE KIT



- Operational in practically any environment

Virus Quarantine and Recovery Module

The AOG V.Q.R.M

Due to the rapidly infectious nature of COVID-19, it is paramount to isolate identified infected individuals away from the general population of patients and providers in medical facilities. Field Hospital Modules have become a key part of the strategy in restricting the movement of the virus into hospitals around the world. The employment of the AOG V.Q.R.M will enable affected communities to render medical care to infected patients while also containing the spread of COVID-19.

The V.Q.R.M has been developed by a team of Board Certified Physicians hailing from Harvard, Yale, Princeton, Johns Hopkins, and Embry-Riddle having experience with Doctors Without Borders, US Military Special Operations Command Medicine, FEMA, and CDC whom specialize in the expedient deployment, care, and logistics of patients affected by disaster and disease around the world.

AOG's Centralized Clinical **Ecosystem**

AOG's Centralized Clinical Ecosystem (C2E) is a digital continuous monitoring solution that provides a centralized ecosystem where data and technologies are the foundation. The C2E allows staff to monitor patients and to integrate the data to chart the recovery and treatment paths of individual patients and operational units.

The C2E system utilizes wearables, sensors, and other tech that can be placed on or near patients where there is a contamination risk, viruses, disease and other hazards. The real-time data from such devices can reduce medical providers exposure, while reducing the overall number of staff required to treat patients.

AOG's Centralized Clinical **Ecosystem**

Through Artificial Intelligence the C2E system can constantly monitor the data to alert hospital operators and caregivers of any health change a patient is experiencing, which can enable more efficient care and better outcomes. Through big-data analytics, machine learning, and AI, patient decline—or unintended consequences—can be predicted before they occur and suggested interventions can be relayed to caregivers.

AOG's C2E system is a critical component of our Autonomously Controlled and Monitored Ventilation Splitter System and must be utilized in conjunction with it.

Autonomously Controlled and Monitored Ventilation Splitter System

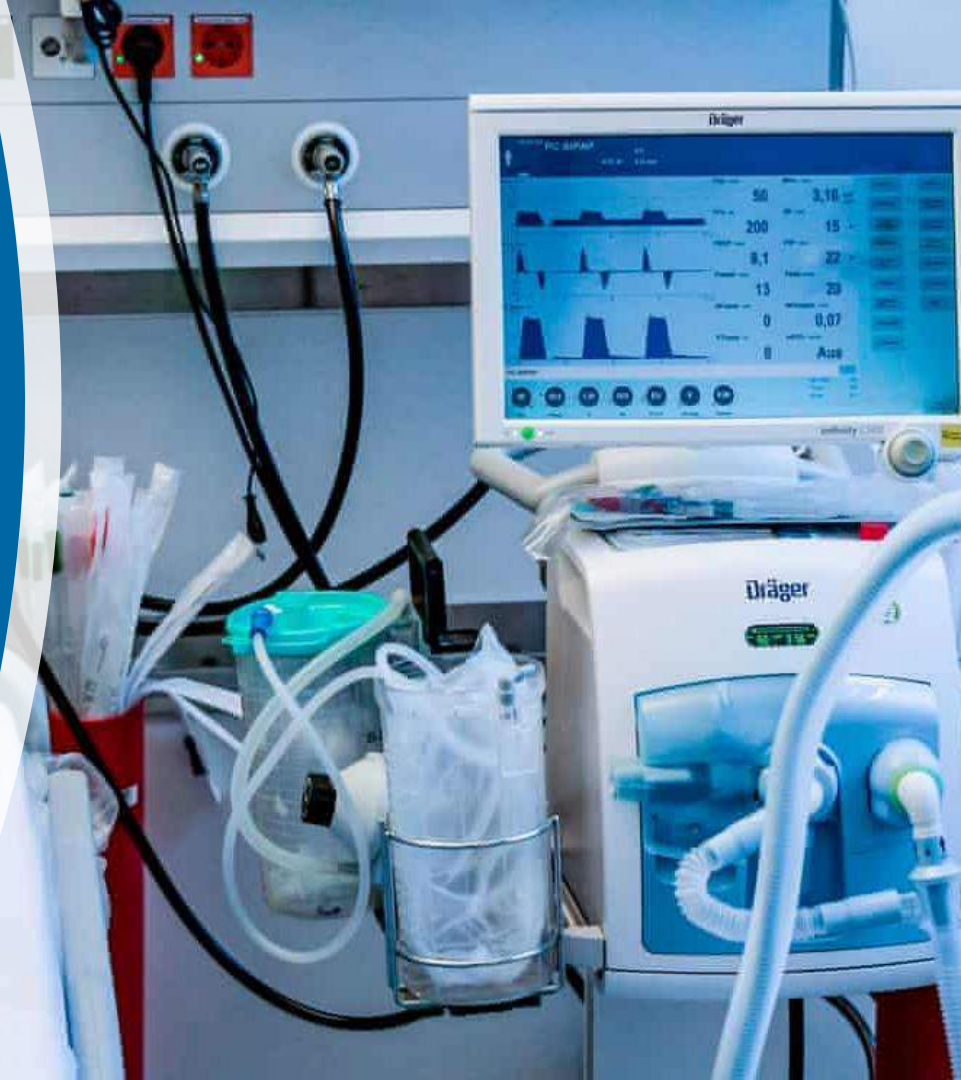
As the COVID-19 pandemic progresses, the strain on our healthcare system will exponentially increase. Ever increasing numbers of patients will require invasive ventilation in our ICUs as witness around the world. Currently our access to ventilators is already limited in some geographic hot spots. Inevitably, the number of COVID-19 patients requiring ventilators will has surpassed our inventory. Currently, there are 3 options: increase the number of ventilators, make decisions on which patients will be given a chance at survival with ventilation, or extend the capacity of our current ventilators.

The Split Ventilation System will provide an option in our current unprecedented period in modern medicine. The concept, and practical use of ventilator splitting has been around for nearly 15 years. This management option has been used sparingly as there has been no need other than mass casualty, domestic terrorism scenarios. One ventilator can provide enough pressure and volume to ventilate up to 4 patients.

Autonomously Controlled and Monitored Ventilation Splitter System

Splitting ventilation has been limited in the past by inferior control of volume or pressure to each individual patient. Variation in patient size, comorbidities and acute lung disease will unknowingly affect how each patient is ventilated.

Previously, using one ventilator for multiple patients did not allow monitoring of critical parameters for individual patients. Our solution is based on providing individual control of airway pressure and positive end-expiratory pressure (PEEP) along with individual monitoring of delivered lung volumes and pressures to each patient. The system will allow continued titration of ventilator support to each patient as their disease progresses or improves. Ventilation parameters that will be the same for each patient sharing a ventilator include respiratory rate and inspired oxygen concentration. Airway pressure and PEEP will be controlled to each patient. Ventilation will be computer controlled and the ability of remote monitoring will soon be available for overburdened areas. The system is reusable as it will be equipped with multiple viral filters. This product is a force multiplier, by using one existing ventilator and ventilating 4 patients. One Split Ventilation System will effectively add 3 ventilators to the fight against SARS-coV-2.



Hospital Grade Ventilator

Built to exceptionally high standards, all of the models in our ventilation portfolio comes standard with the latest respiratory therapies needed for intensive medical care – affording patients safe, individualized treatment. Additionally, they can be upgraded with options based on the specific needs of the hospital. A reduction in total quantity of equipment needed is achieved through configuring the ventilators in our portfolio as an integrated component of AOG's Electronically Adjusted and Monitored Ventilator splitting system and C2E.

TeleMedicine

AOG is on the front lines in the fight against Coronavirus (COVID-19). We are a full service telemedicine provider, both clinically and technologically. The paramount strategy is containment. Isolate the patient, protect the care team, and provide access to care through virtual health. Web enabled software and cloud services allow clinicians to examine, diagnose, and treat even the most at-risk patients anytime, anywhere. This enables the entire care team to understand what the status of a is patient no matter where they are in the world. Additional benefits include:

- Expediting clinical decisions and expanding a Provider's clinical reach using VER.
- Clinical accuracy of an in-hospital exam across all patient populations, neonate to adult.
- Effectively manages and monitors remote patients from any care setting with biometric trends and patient alert system.

When desired, Care Central also provides seamless integration to Electronic Health Records (EHR). This integration ensures a patient's health records are complete and up-to-date, which expedites clinical decisions and provides for a historically-accurate record of patient care.

The Care Central Clinician Web Portal also enables Providers to effectively manage and synchronously monitor patients from any care setting with vital signs, diagnostic trends, and a patient alert system.

CONNECTIVITY

- Satellite data provides secure global web access
- Mobile Broadband LTE Network connects any smart device to a secure CORE network
- Robust 802.11 access points offer aggregation of ancillary sensor data
- Monitoring software suite allows single point management of multiple patients
- Adaptable to interoperate with a variety of medical devices and sensors
- Mobile device and sensor management
- 24 hour remote maintenance and IT support

When local infrastructure is unreliable or non-existent, medical response teams can stay informed of the current situation and connected in a time of crisis.

A.R.K incorporates a fully contained and secure 4G LTE and 802.11 network to accommodate both communications and sustained connection of the C2E system and its myriad of wireless sensors and devices. For the first time ever, medical staff can communicate via smartphone, conduct critical messaging, and access the global internet from anywhere in the world.

The web is offered through a satellite terminal configured with the system for backhaul network access. This connectivity is critical for medical staff to conduct vital research, submit reports, and access a vast telemedicine solution suite.

Additionally, our remote backend services are provided for mobile device and sensor management, 24 hour maintenance and IT support, and with enough unrestricted data to service streaming telemedicine options.

The network is compatible with any internet ready device and serves as the backbone for all other features of the ecosystem.

SYSTEM MANAGEMENT

Innovating the Future of Medicine in 3 simple steps:

1. Integrating hardware and software solutions to wirelessly record and monitor HRV, O2, Temp, Respiration and BP via body worn sensors to a localized medical management suite, and to transmit relevant data to a remote health center via satellite.

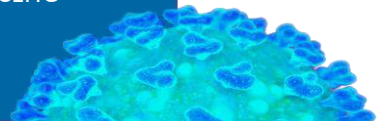
2. Run active machine learning that supports the local health center with the modeling for early diagnosis and recommended treatments.

3. Collect sensor data at the local level to allow 24 hour active monitoring of patient vital signs and treatment data, and offer global backhaul for examination reports, medical research and remote telemedicine solutions.

A.R.K. applies improved clinical management systems to reduce the cost and burden of traditional treatment and increase the access and opportunity for patients to receive health care worldwide. With the application of telemedicine, we can reduce the resource load on conventional hospitals, disperse care centers into austere locations, and encourage appropriate isolation of the infected.

Our proposed ecosystem offers an **end-to-end Telemedicine solution** to include the interconnectivity of medical sensors to clinical management systems and secure mobile communications with access to higher echelons of medical support.

What makes our solution unique is the effectiveness of the ecosystem when working as a whole. Patients wearing our next-gen biometric sensors tied into advanced monitoring software, allows for the integration of Artificial Intelligence to assist patient diagnosis and improve accuracy based on a robust **Machine Learning** library.



Virus Quarantine and Recovery Module (COVID-19) Facility Features

Negative Pressure Entry and Exit Vestibules

The negative pressure vestibules are used to contain airborne contaminants such as; viruses, bacteria, pollens, gases, VOC's (Volatile Organic Compounds) and chemicals and reduce the spread of COVID-19 and other viruses by containing it within the quarantine facility. The Entry vestibule also serves as a sign in, PPE issue, and donning room, whereas the Exit Vestibule serves as UV decon room, decon shower and PPE decontamination site.

Ultraviolet Portable Sanitizer

Ultraviolet Portable Air and Area Sanitizers are used to disinfect uninhabited rooms after COVID patients have been relocated and render them safe for future use. Using Amalgam Germicidal Ultraviolet Lamps, these special lamps generate high levels of germicidal ultraviolet radiation lethal to infectious microorganisms such as bacteria, mold, and virus.

DECON Shower

The DECON shower is set up at the exit vestibule to decontaminate multiple individuals simultaneously using 1-4 modular shower stalls and two additional hand-held sprayers. Divider curtains separate individual stalls for privacy.

Virus Quarantine and Recovery Module (COVID-19) Facility Features

Airborne Infection Isolation Beds (AIIBs)

AIIBs are single patient beds at negative pressure relative to the surrounding areas, Air from these beds are exhausted directly to the outside and filtered through a high-efficiency particulate air (HEPA) filter.

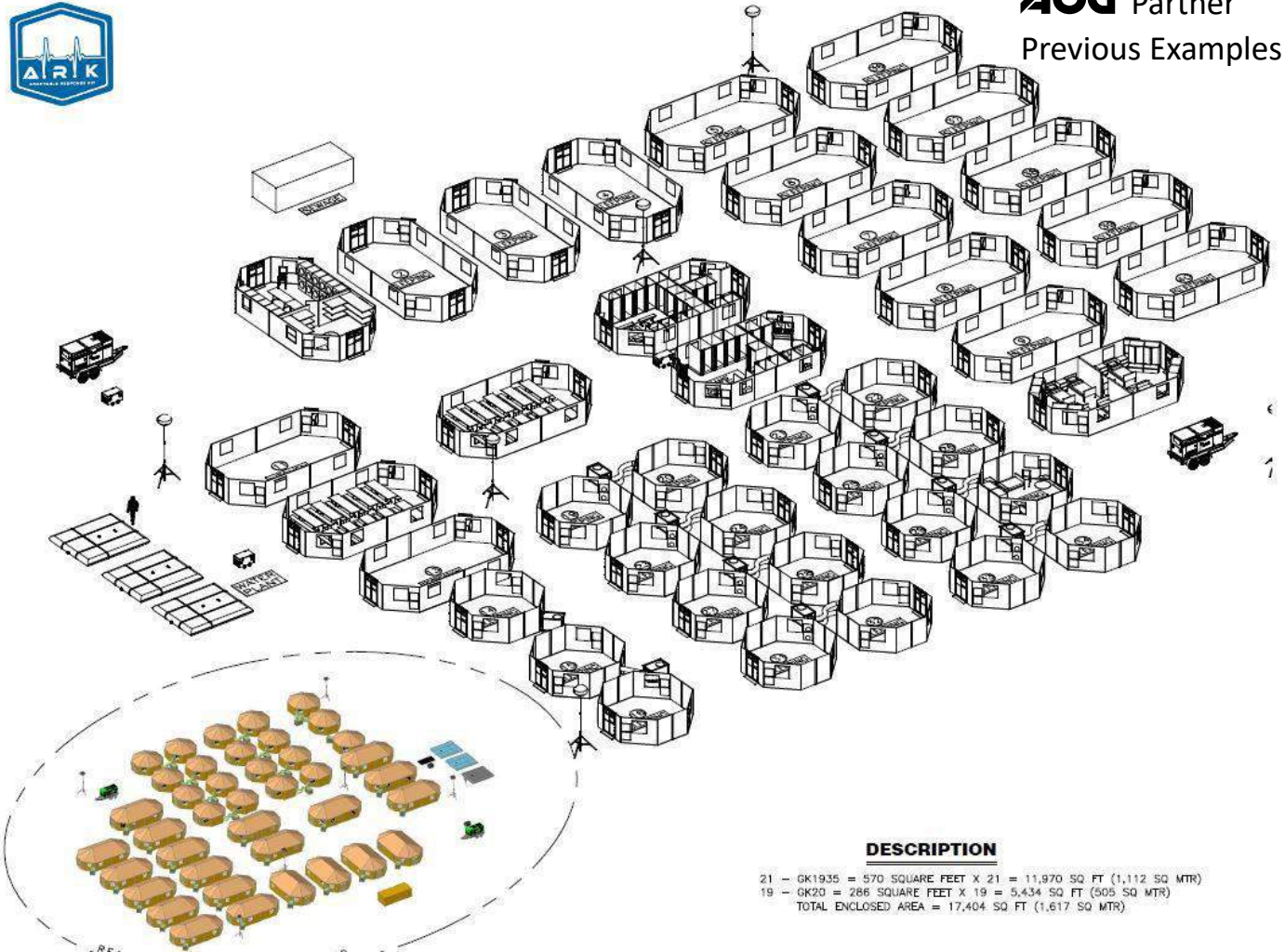
High Flow CPAP/BiPAP Machines

CPAP machines and ventilators are both considered mechanical ventilation; they both assist with patient breathing. CPAP machines deliver a steady stream of pressurized air to keep the airways open while sleeping, thus preventing the collapse of the passageway and episodes of interrupted breathing, for mild-to-moderate COVID cases where patients are having some respiratory distress, our modified CPAP machine with hood will be able to assist. Our modified BiPAP machines work similarly to CPAP but they deliver two types of air pressure, one for inhalation and one for exhalation. BiPAP therapy is used when CPAP therapy is not tolerated by some patients

Airway Management Intubation Cover

The Airway Management Intubation Cover is a pop-up device that is placed over the patient's head during periods of increased aerosolization, such as intubation and extubation. The tent will cover the head but allow proper visualization and effective access for these procedures. Attaching suction to the device will create a negative pressure isolation hood which will eliminate the infectious droplets from inside the cover. Ultimately this will reduce the spread of infectious droplets causing air contamination and will improve safety for these procedures. This air exchange will insulate and protect the intubating/extubating medical provider during these dangerous and vulnerable medical procedures. The Airway Management Intubation Cover is designed to be disposable and is packaged flat for storage efficiency.

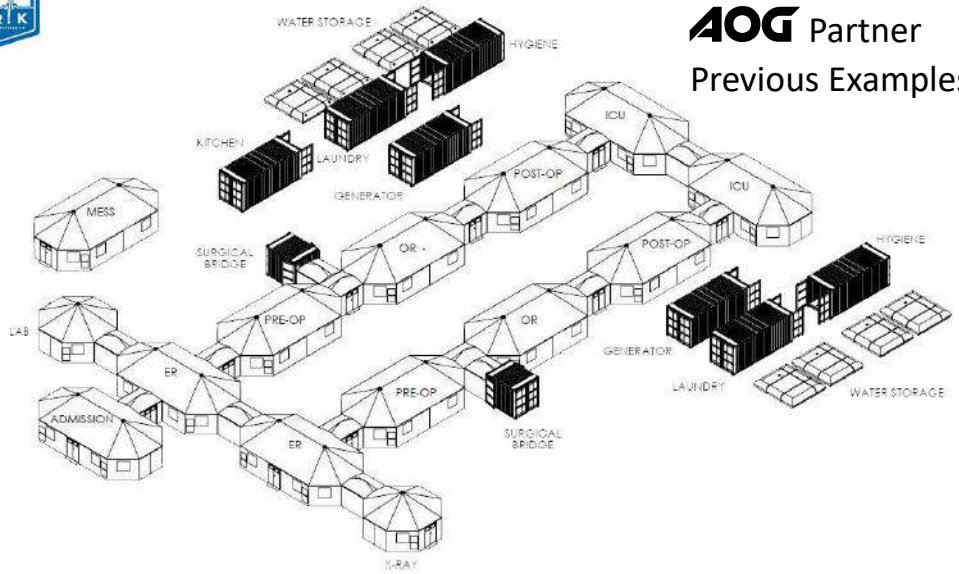
AOG Partner
Previous Examples



DESCRIPTION

21 – GK1935 = 570 SQUARE FEET X 21 = 11,970 SQ FT (1,112 SQ MTR)
19 – GK20 = 286 SQUARE FEET X 19 = 5,434 SQ FT (505 SQ MTR)
TOTAL ENCLOSED AREA = 17,404 SQ FT (1,617 SQ MTR)

AOG Partner
Previous Examples



AOG Partner Previous Examples

Assured Outcomes Group also offers customized A.R.K. packages to outfit field modules with essential medical equipment, supplies, and remote support for medical outbreaks, famine, disasters, conflict, and displacement. AOG can support with logistics services for sourcing, shipping and transporting of supplies, equipment, and other goods in response to emergencies and disasters. Furthermore AOG provides technical consulting services regarding the design, implementation, and integration of mobile hospital and treatment facilities for use in emergency and disaster response.

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Current Clientele:

United Nations

NASA

SPACEX

WORLD VIEW

Copper River
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