

Role 2 Set-Up in Garrison Operations for COVID-19 Response

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April 2021
21-0620

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INTRODUCTION

In April 2020, Charlie Company, 101st Brigade Support Battalion (BSB), 1st Armored Brigade Combat Team (ABCT) received the following mission to establish a Role 2 Aid Station ¹ operation at one of Irwin Army Community Hospital's (IACH) outlying clinics, Custer Hill Health Clinic (CHHC). The mission was to provide acute medical care and patient hold capabilities to the 1st Infantry Division (1ID) Soldiers at Fort Riley, KS in isolation or quarantine status during the COVID-19 pandemic. During the course of the operation, C/101BSB identified aspects unique to this mission and not previously encountered during their threat analysis, capability assessment, aid station setup, and integration with installation health service support (HSS).

THREAT ANALYSIS

The COVID-19 pandemic provided C/101BSB with an atypical threat and a new operational environment to work in. During conflicts, the Brigade Combat Team (BCT) medical operations see a high percentage of trauma casualties, and most disease and non-battle injuries (DNBI) are musculoskeletal, dermatologic, or heat/cold-weather-related. Per Army Training Pamphlet (ATP) 4-02.55 *ARMY Health System Support Planning* the Role 2 emphasizes measures including the airway, stopping bleeding, preventing shock, protecting wounds, immobilizing fractures, and providing blood products, limited x-ray, clinical laboratory, operational dental support, combat and operational stress control (COSC), preventive medicine, and physical therapy (PT).

Symptomatic COVID-19 patients require critical care interventions, and a few more patients require hospital admission for non-critical care interventions. Using the Department of Defense (DoD) COVID-19 Practice Management Guide, medical treatment facilities (MTFs) that admit COVID-19 patients need to emphasize measures like supplemental oxygen with nasal cannula, high flow nasal cannula, and face mask with reservoir bag, mechanical ventilation, patient repositioning to include proning ², daily lab monitoring, oral and enteral feeding, and blood clot and stomach ulcer prevention.

Additionally, similar to Chemical Biological Radiological and Nuclear (CBRN) operations, medical personnel have a high chance of COVID-19 “contamination” if proper personal protective measures are not followed. However, unlike most CBRN threats, COVID-19 casualties cannot be decontaminated prior to medical treatment – they remain contaminated throughout their treatment course.

CAPABILITY ASSESSMENT

Using the Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel, Facilities and Policy (DOTMLPF-P) analysis to assess capability requirements and gaps, C/101BSB identified five key operational attributes needed to prepare for the anticipated operational environment:

- general patient monitoring
- non-ventilator oxygen support
- ventilator support
- non-oxygen treatment
- personal protective equipment

General patient monitoring includes laboratory, intermittent and continuous patient monitoring, and the ability to perform procedures. The Brigade Support Medical Company (BSMC) doctrinally is able to perform basic lab work, intermittent patient monitoring to include vital signs, electrocardiogram to monitor heart rhythm and electricity conduction, and x-rays. Role 2 does not have the capability to perform the comprehensive set of lab work indicated per the DoD COVID-19 Practice Management Guide. To bridge that gap, C/101BSB would collect specimens and laboratory samples and evacuate them over to IACH for testing. This allowed for their low-density military occupational specialty (MOS) laboratory technicians (68K) training on specimen collections, not typical to their diagnostic services they routinely conduct and test in a deployed and potentially austere environment. The BSMC also lacks continuous monitoring equipment of a patient’s heart rate and blood oxygen levels, which inhibits the ability to care for multiple patients with severe respiratory disease.

The BSMC is doctrinally capable of providing non-ventilator oxygen support via nasal cannula, high-flow nasal cannula, and non-rebreather mask. Casualty estimates identified a higher number of COVID-19 patients anticipated to need a maximum flow of oxygen, which would require oxygen tank refills at a much higher frequency than usual. One oxygen tank can support one casualty requiring maximum oxygen flow through a nonrebreather mask for two hours. The operation would also require resupply of respiratory Class VIII ³ items at a higher rate compared to typical operations. C/101BSB Brigade Medical Supply Office (BMSO) also worked closely with IACH’s Chief of Logistics and the 1ID Division Surgeon to identify a way ahead for rapid oxygen tank refill and resupply. This provided another opportunity to partner with IACH in order for C/101BSB medics to receive top care training on the subjects of non-ventilator oxygen support. C/101BSB was able to conduct training in support of the 1ID COVID19 Response Plan despite not being in their typical training environment.



FIG 1. 1st ABCT, 1ID Combat Medical Specialist (68W), receive training from Dr. Vonderhorst, the Battalion Surgeon, on inserting nasopharyngeal airway (NPA).

Photo credit SFC Bambi Sharpe

The Role 2's ventilator capability usually supports casualties with healthy lungs and is used to stabilize patients prior to evacuation to a higher level of care. Ventilator support for ill or injured lungs is much more complex. The BSMC was equipped to intubate casualties but did not have the proper equipment to protect medical personnel during this aerosolizing procedure. The ventilators assigned to a BSMC based off the modified table of organizational equipment (MTOE) have limited adjustable settings that prohibit them from properly caring for patients with respiratory disease. BSMC's are not equipped to conduct the numerous support tasks that are associated with caring for a ventilated patient, including airway suction, respiratory therapist monitoring, cleaning the mouth to prevent infection, quickly obtaining lab work to help adjust ventilator settings, continuously providing medications to sedate a patient, and repositioning the patient in a hospital-grade bed. Additionally, C/101BSB has limited capability to manage complications for critically ill patients on a ventilator, to include advanced cardiac life support, continuous heart monitoring, and providing backup power to all equipment in case primary power source(s) fails. To address this shortfall, C/101BSB immediately began coordination with 1st Combat Aviation Brigade (1CAB) Air Medical Evacuation Company to train on the Impact 754 Uni-Vent Eagle Ventilator. The impact, 754 Uni-Vent Eagle Ventilator is considered to be the best ventilator for in-transit care and is Air Worthiness Ready (AWR), which is the standard for both rotary and fixed wing care. The 1CAB ventilators, which are a part of the 15 Air Ambulance Sets in a CAB, were more advanced than the Simplified Automated Ventilators (SAVeI and SAVeII) organic to the ABCT. C/101BSB used this as another opportunity to build partnership with sister units and conduct cross training in response to COVID-19.

Non-oxygen related treatment of COVID-19 patients includes medications, maintaining medical lines and tubes, and providing necessary non-medical life support to sustain the patient. Role 2 has limited

capabilities to provide extensive antibiotic therapies, blood clot prevention, and stomach ulcer prevention without augmented CLVIII, training, and the ability to conduct comprehensive lab work and continuous monitoring. Both medical lines, tubes and non-medical life support anticipated for COVID-19 patients are similarly limited without augmented CLVIII, training, and monitoring. As the result of these limitations, it was determined that any critical COVID-19 patient would not remain in the care of C/101BSB, and transferred to IACH or network hospitals.

Personal protective equipment (PPE) and infection control precautions for respiratory infections exceeds organic BSMC capabilities and requires additional CLVIII support, training, and N95⁴ FIT testing in order to conduct COVID-19 operations with appropriate PPE in accordance with DoD COVID-19 Practice Management Guide. The Center for Disease Control (CDC) recommends negative pressure rooms when possible for hospitalized patients, with an increased emphasis on those patients anticipated to need aerosolizing procedures. CHHC does not have negative pressure rooms, therefore, C/101BSB worked closely with IACH to ensure that all medical personnel operating within CHHC had been properly fitted for N95 masks and resourced with the recommended PPE and decontamination control measures by the CDC.

With limited time and resources, C/101BSB planned to augment its Role 2 capability by prioritized requests through the Division for additional manning, training, and materiel. Those requests focused on the operational attributes of general patient monitoring, non-ventilator oxygen support, non-oxygen treatment, and PPE.

SETUP

C/101BSB utilized the occupation CHHC as a way to maximize on the opportunity for training in the wake of a pandemic with heavy restrictions on collective training. All medical equipment sets (MES) moved into the fixed facility to include all ancillary services such as X-Ray, Dental, Laboratory, Physical Therapy, and Preventative Medicine. Soldiers of C/101BSB immediately began refining their footprint in the clinic based off the CDC guidelines and setup each room to minimize and eliminate cross contamination. Soldiers inventoried their equipment and determined the mission essential pieces of CLVIII that would contribute to the care of potential COVID-19 patients. C/101BSB cross trained with nurses from IACH on topics such as Foley care,⁵ Electrocardiograms, IV pumps, specimen draws, and PPE instructions.



FIG 2. SPC Mills, a C/101BSB 68W, receives training on sutures.

Photo credit Bambi Sharpe



FIG 3. 68Ws receive instructions on proper PPE usage and wear

Photo credit Bambi Sharpe

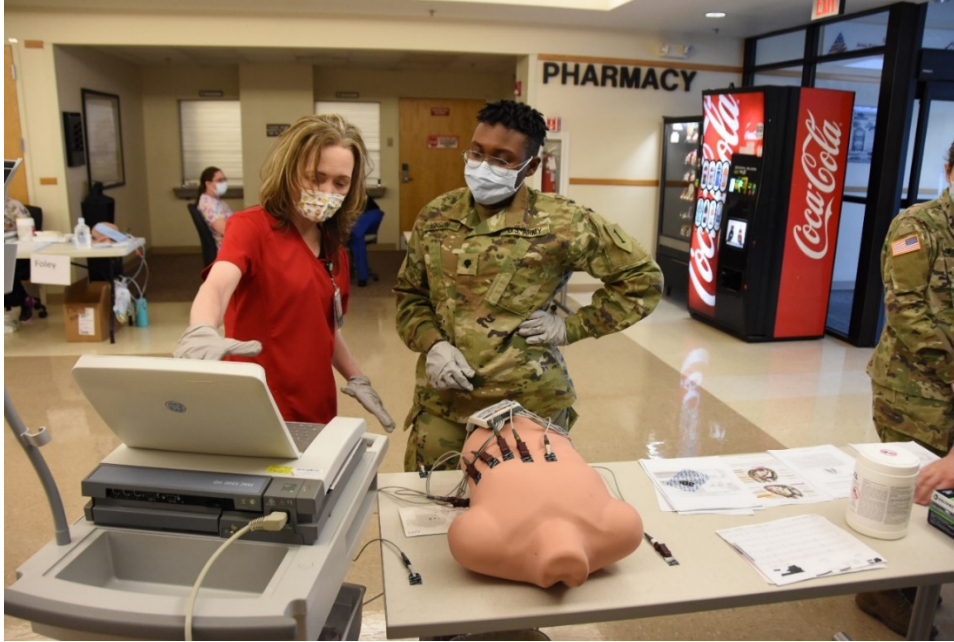


FIG 4. SPC Vinson works with an IACH Nurse and receives instruction on recording an Electrocardiogram or EKG

Photo credit Bambi Sharpe

With over 16 rooms and offices available for use, the unit moved all office equipment into an empty sheltered container outside to prevent contamination to equipment organic to the clinic. The company set up their Patient Hold rooms in the empty offices, and got creative with expanding their doctrinal Patient Hold capability from twenty beds to thirty beds. Although not the typical Patient Hold setup, capabilities remained the same, as the unit was prepared to hold patients for up to 72 hours. The outpatient side of the clinic included 11 exam rooms, intended for use to see patients who potentially exposed to COVID-19, or were potentially in contact with COVID-19 positive patients, and needed acute care while they recovered in isolation from symptoms. The decision was made that PT and Behavioral Health would distribute care via TeleHealth and telework, and there would be no routine dental care since that typically involves aerosolizing procedures.

The Company utilized the actual chests from their MES's to create a boundary between the waiting rooms of the patient hold side of the clinic and the outpatient side. Waiting room chairs on the outpatient side rearranged to ensure physical distance of 6 feet maintained for those patients waiting on outpatient care.

As C/101BSB continued to develop their operations, they continued to refine the external support from IACH that was imperative to the success of the clinic to receive safely overflow patients.

IACH INTEGRATION

C/101BSB worked directly with IACH to ensure the Role 2 plan nested with the Installation Health Support Plan. Key efforts associated with this were transitioning CHHC from an outpatient to an inpatient facility, planning CLVIII resupply, and coordinating patient flow.

IACH utilized current contracts for facility life support during COVID-19. CHHC fell under the outlying outpatient clinic contracts for cleaning, facility maintenance, and safety inspections. IACH realigned CHHC under its inpatient contracts to increase the ability to conduct housekeeping services and terminal cleaning of suspected and confirmed COVID-19 encounters to include nights and weekends. IACH also incorporated CHHC into its hospital scrubs, hospital bed linen distribution, and cleaning plan.

C/101BSB was prepared to utilize its own CLVIII supplies for patient treatment. After the above analysis with CLVIII expenditure rates, IACH and C/101BSB coordinated the CLVIII resupply plan to increase the type and amount of CLVIII for Role 2 treatment at CHHC.

Patient flow was a crucial planning component, and successful operations relied on ensuring that screened Soldiers were appropriately routed to the correct location: IACH, CHHC, or discharge home. C/101BSB and IACH developed patient flow plans that required IACH Emergency Department or the post central appointment line to consult C/101BSB prior to any patient movement to CHHC.

CONCLUSION

During the course of this operation, C/101BSB identified aspects unique to this mission and not previously encountered during their threat analysis, capability assessment, Role 2 setup, and integration with Installation Health Service Support. C/101BSB supported the COVID-19 Response efforts by quickly identifying gaps in the current operational environment and utilized resources and support available through IACH. Through integration and synchronization with IACH for external support and training, C/101BSB enabled 1ID and Fort Riley, KS, to rapidly expand its capabilities and improve the installation HSS plan.

Endnotes:

1. Role 2 Medical support is provided at brigade-size units and provides limited damage control resuscitation and damage control surgical capability to bridge the gap in early entry operations until deployment of a hospital. Nominal capacity is four trauma rooms and support to up to 20 patients.
2. Proning or prone positioning is the placement of patients into a prone position so that they are lying on their stomach. Used in the treatment of patients in intensive care with acute respiratory distress syndrome
3. Class VIII - Medical material (equipment and consumables) including repair parts peculiar to medical equipment and supplies to sustain life. Class VIII divided further into: Class VIIIa – Medical consumable supplies not including blood & blood products and Class VIIIb – Blood & blood components such as whole blood, platelets, plasma, packed red cells, etc.
4. An N95 respirator is a respiratory protective device designed to achieve a very close facial fit and very efficient filtration of airborne particles. Note that the designed edges of the respirator are to form a seal around the nose and mouth.
5. In urology, a Foley catheter is a flexible tube that a clinician passes through the urethra and into the bladder to drain urine. It is the most common type of indwelling urinary catheter.