A Case Series: Describing the Coronavirus Pandemic Response in Small Naval OCONUS Military Treatment Facilities

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ABSTRACT

Introduction: The European SARS-CoV-2 (COVID-19) outbreak threatened military beneficiaries receiving care outside of the United States. Military treatment facilities located outside the United States were the first to respond to the pandemic, requiring immediate action to establish novel protocols. The purpose of this case series is to describe challenges, solutions, and future recommendations during a pandemic response at three small naval military treatment facilities located outside the continental United States (OCONUS).

Results: The analysis and discussion reviews challenges in information processing, communication methods and patterns, process changes, actions for staff protection, and change fatigue experienced during this time.

Conclusions: Recommendations for future work include filling the gaps in the evidence for a prolonged pandemic response and crisis management, such as the current SARS-CoV-2 pandemic, including best practices to communicate, maintain staff resilience, and manage or mitigate associated prolonged stress and uncertainty.

INTRODUCTION

On February 22, 2020, the European Centre for Disease Prevention and Control (ECDC) reported the first outbreak of COVID-19 outside of Asia.¹ These first European outbreaks, attributed to community spread, occurred in the Northern Italy regions of Lombardy, Piedmont, and Veneto. Potentially exacerbated by the high volume of tourist travel into Milan and Venice for the season of Carnevale, these regions became the first European sites of hospital overcrowding, high COVID-19 death rates, and dramatic lockdown measures.²,³

BACKGROUND AND SIGNIFICANCE

Three U.S. naval hospitals in Europe, located in Naples and Sigonella, Italy, and Rota, Spain, were within a day’s travel of these outbreak locations in the spring of 2020 (see Fig. 1), ~6 weeks before significant outbreaks occurred in the CONUS.³⁻¹⁹ In response, these small hospitals planned and organized to receive overwhelming inpatient admissions while simultaneously delivering recommendations to mitigate community spread and provide outpatient care to service members and military beneficiaries.

The purpose of this case series is to describe and inform policy makers of the challenges and interim solutions implemented during the initial crisis at three small naval overseas military treatment facilities (MTFs) as well as provide future recommendations to support isolated sites during pandemic response.

ANALYSIS

From the onset of the pandemic in Europe, one of the most difficult challenges was providing evidence-based policy recommendations and directives to staff and the community. This was because of the inundation of rapidly changing, and often, conflicting information. An initial strategy was to quickly adapt standard processes in an effort to protect staff and patients against the spread of COVID-19 while also conserving supplies and re-purposing equipment. Many changes in routine operations were contrary to processes deep rooted in military culture and required significant engagement with the operational military commands to implement.

Policy and Care Recommendation Challenge

DoD early response included travel tracking and reporting, regional stop movement orders, and regional reporting requirements for suspected and confirmed cases. The
Defense Health Agency (DHA) and DoD guidelines deferred exclusively to guidelines from the U.S. CDC. In addition to the DoD, DHA, ECDC, and CDC, leadership teams considered policies and recommendations from host-nation health ministries, World Health Organization (WHO), regional military commands, and other governmental organizations (see Fig. 2). When evaluating and implementing these often contradictory guidelines, the Hospital Incident Command System (HICS) members determined which were feasible and most aligned with local factors such as infection rate, testing availability, and hospital capacity.

Communication

Communication within the facility, to regional military commands and to the community, was an ongoing challenge that demanded medical leadership’s time and attention daily. Messaging occurred primarily via hospital Facebook pages and during virtual town hall sessions, where community members were urged to remain home for minor illnesses and utilize virtual health services when appropriate. As many members of the community traveled to Northern Italy within weeks of the February and March 2020 Lombardy and Veneto outbreaks, some patients presented with mild-to-no symptoms or were instructed to “go to medical to get checked out.” These visits congested Emergency Departments (ED) and traditional primary care nurse advice lines. However, because of extremely limited testing capabilities and developing COVID-19 clinical definitions, COVID-19 diagnosis and disposition recommendations were based exclusively on symptomology. To improve communication and relieve the congestion, MTFs established COVID-19 advice phone lines manned by nurses, providers, and later by dental staff in some facilities. These lines were intended to reduce foot traffic from “worried well” and redirect patients to virtual health services when appropriate. Although some patients still pursued in-person care, these lines effectively triaged concerns, provided meaningful reassurance, and decreased unnecessary visits for those who did not require face-to-face evaluation.

Messaging from MTF leadership to regional military leadership was ongoing and frequent. Each facility relied on regional leaders to enforce public health mitigation measures and disseminate guidelines for military personnel with mild illness or recent positive contacts in the absence of widely available testing. Although diffusion of this message took some time to reach front-line leaders, most were highly accepting of broad mitigation measures. Even within these small hospitals, internal messaging was an ongoing challenge. The terminology used to describe pandemic response phases and policy changes was novel to many health care workers. Staff at each facility commonly assumed and confused an interconnected relationship between changes to health protection condition (HPCON) status and pandemic response phase or their impact to policy and practice changes. This issue led to the development of a consolidated chart for public awareness of HPCON-based policies.

Policy developers relied heavily on understanding senior leadership’s perspectives of risk mitigation and vulnerabilities to rapidly implement and revise those policies, as seen in...
**FIGURE 2.** COVID-19 policy and care recommendation inputs. DoD, Department of Defense; U.S., United States; DHA, Defense Health Agency.

**FIGURE 3.** Public affairs informational poster from U.S. Naval Hospital Naples. HPCON, Health Protection Condition; OR, Operating Room; ER, Emergency Room.
the example of personal protective equipment (PPE) policies. Leadership concern for asymptomatic spread led to the ED’s adoption of an extended wear/reuse strategy with fitted N95 masks for all patient encounters, with additional airborne precautions for any patient with symptoms suspicious for COVID-19.24

**Shifting from Standard Processes**

The pandemic response precipitated many rapid shifts from standard processes, a significant challenge for an organization foundationally built on standard operating procedures. With the establishment of the HICS, large-scale decision-making authority shifted to designated HICS members.17 Guidelines for clinical decision-making came from the operations director rather than a shared governance model or shared decision-making, as is typical for clinical process changes. Although occasionally frustrating for staff, this effectively streamlined decision-making when rapid changes and concise communication were crucial.

Initially, in the setting of unclear infectious symptomology, leaders concerned about workplace transmission referred many asymptomatic or mildly ill members for evaluation and a “sick in quarters” (SIQs) recommendation. The typical process for military units is to send injured or ill staff directly to a medical provider, whether that is desired by the individual or not. As regional cases escalated and understanding of disease transmission remained very limited, hospital leadership urged non-medical units to adopt permissive SIQ postures, allowing individuals to self-report the need to stay home for mild symptoms. Although this strategy was accepted by higher level unit commanders and leaders in theory, it did not reach all levels of leadership. This may have been because of rapid communication cycles or military culture’s reliance on face-to-face accountability of personnel. Patients still frequently presented by direction of their work-center supervisors despite these directives.

With increased working from home and new permissiveness in SIQ, leaders were concerned about malingering. When these potential malingering cases were identified, the team struggled to clear patients to return to work when they continued to report respiratory symptoms, in the setting of limited testing capabilities. The public health teams and family practice providers developed additional screening criteria for patients with prolonged respiratory symptoms to address said cases. Of note, the majority of patients were eager to return to work quickly, and these potentially malingering cases were rare.

Early tracking of potential exposures lacked a formal structure or site for documentation of interactions or care. Telephone consults (t-con), a non-charged encounter in the DoD electronic health record (EHR), were used to document travel history during any initial travel screenings. These t-cons quickly became overwhelming and inadequate for facilitating adequate follow-up. Eventually, a separate clinic was created within the EHR with a standardized template for all encounters, which facilitated tracking of symptoms, treatment, and follow-up.

**Protecting Staff/“Protecting the Skin of the Ship”**

The Naval concept of “protecting the skin of the ship,” the basic premise that a disabled warship cannot complete the mission, became a mantra in these MTFs. In small, isolated hospitals, this translated into protecting health care personnel to ensure continued ability to care for patients. Asymptomatic COVID-19 diagnosis required at least 14-days away from work, and a symptomatic COVID-positive member could be away even longer because of recovery time. Therefore, facilities implemented early precautions intended to protect staff members at the expense of patient satisfaction, family involvement in care, and immediate access to care, regardless of specialty. External tents were established for screening, treatment, and disposition of all stable patients with potential COVID-19 symptoms. Although the list of symptoms changed over time, limiting facility access, isolating, and evaluating potential cases through tents began early and continued consistently throughout the following months.

In an effort to limit exposure to family practice providers and nurses, who were planned backup for ED and inpatient staff, sites implemented limited acute care clinics with little-to-no wellness or routine care activities. Along with the triage tents, this dramatically reduced hospital foot traffic. Although no staff in these three sites had a known case of COVID-19 during the early months of the pandemic response, this contingency plan maximized the protection of staff.

A restrictive visitor policy was implemented, wherein only pediatric patients, those with developmental or other disabilities requiring support, or laboring mothers were allowed one visitor. Visitors who met these guidelines were required to be symptom-free and remain with the patient in their room for the duration of the admission and not permitted to come and go at will from the facility or patient room.

These dramatic changes, temporarily shifting from a patient satisfaction focus toward patient and staff protection, were initially well received as the communities were fearful of community spread. As regional cases decreased, beneficiaries became progressively less accepting of these restrictions and increasingly voiced concerns through the formal customer service channels as well as informal community Facebook pages.

During the initial weeks of COVID-19 response, these MTFs neither did adopt a universal masking policy nor did restrict entrance to facilities. Initial reluctance was attributed to concern of the image masks portrayed to the community and secondary incitement of fear. This was complicated by conflicting guidance among expert resources such as the WHO and the CDC.25 As asymptomatic spread of SARS-CoV2 became more widely acknowledged, these hospitals adopted aggressive PPE policies for staff and patients.
Re-purposing Equipment and Processes

Tents normally reserved for other routine functions were repurposed as external screening sites for potentially infectious patients. Facilities and logistics departments rapidly established power, environmental controls, and data lines to make the tents a safe environment for patients awaiting evaluation, results, and disposition. Some MTFs were able to temporarily convert exam rooms into negative pressure rooms for those potentially contagious patients who required more complex treatment.

New virtual health tools became integrated into the screening and care process for potential COVID-19 patients in the emergency departments. Although virtual health has been historically used for specialty consults, it has not been a traditional part of emergency care. Virtual exam room and video call-bell conferencing platforms decreased the frequency and risk for staff exposure during evaluation of patients in the external tents.26 These strategies significantly reduced PPE burn rates by decreasing the frequency of donning and doffing, while also contributing to less cumulative exposure to potentially contagious patients, decreasing risk of transmission.

These MTFs do not traditionally admit critical care patients; therefore, facilities are staffed to manage acute stabilization rather than provide long-term critical care. As intensive care units (ICUs) in high-prevalence areas quickly filled beyond capacity, each facility prepared contingency plans to hold critical care patients for extended periods. Each facility repurposed an in-patient negative pressure room, relocated supplies, cardio-respiratory monitors and ventilators or anesthesiology machines, staged transport ventilators as backups, and revised contingency staffing plans to care for these patients.

Fatigue with Process Changes

Although military members are generally resilient to uncertainty and rapid change, the rate of policy change and gaps in comprehensive information was unprecedented. Policy shifts, as often as three to four times per week, negatively influenced staff’s confidence in correctly applying said policies. As it became clearer that COVID-19 response was going to be a prolonged hospital operation and rapid policy change continued, hospital staff members increasingly expressed fatigue and frustration with the ongoing uncertainty.

Staff resiliency and morale was both difficult to maintain and critically important during this period. Italian and Spanish regional and national governmental bodies imposed early restrictions, which only permitted essential trips outside the house, such as grocery shopping and seeking or providing health care.27 These precluded almost all normal stress relief outlets, including gym access, social gatherings, outdoor activities, and recreational travel.

Front-line clinical leadership also experienced fatigue with rapid process changes. As screening, testing, and treatment criteria were developed and refined, conflicting guidance complicated many processes. For example, the Italian Ministry of Health’s early definition of fever as >99.5°F (37.5°C) conflicted the U.S. CDC definition of >100.4°F.28 These seemingly simple nuances were complicated by the hospitals’ requirements to adhere to certain host nation guidelines.

Leaders attempted to mitigate these challenges by communicating policy changes at each shift change. Explaining background factors, new regional information, or new scientific understanding that prompted those changes decreased some frustrations and led to more effective application of updated guidelines. As many staff members only left their home to work, many leaders found the need to increase work place comfort measures and social support engagement.

DISCUSSION AND POLICY IMPLICATIONS

The leadership teams would sustain some of the actions taken during the pandemic response and would also elect to do a few things differently, summarized below based on the lessons learned over the first 7 months.

Communication

In anticipation of increased demand for care, quickly establish a separate avenue for the mildly ill or worried well that diverts them away from typical first-line evaluation sites. Senior leadership can effectively empower point-of-care decision makers by communicating underlying principles, specific concerns, and goals rather than the details of a given policy. Throughout the military health care system, some MTFs participated in recurring calls facilitated by the Joint Trauma System (JTS) to share clinical information; however, earlier centralized knowledge sharing may have improved the first wave response. Some information presented by the COVID-19 JTS group was also later disseminated via online platforms and other established clinical communities.29

Shifting from Standard Processes

Highest levels of support and advocacy are required for any dramatic culture shift. Adapting to a more permissive SIQ process was an ongoing challenge. Some units more readily adopted this change than others, but only after hospital executive leadership pushed other regional leadership in advocacy of the hospital. Even with said support, it is extremely difficult to sustain.

Because of the extensive and ongoing need to analyze emerging evidence, it was effective to divide and conquer information synthesis by professional expertise. To maintain clinical agility, each facility relied heavily on subject matter experts, such as internal medicine, for disease progression and treatment recommendations.

Unlike some U.S. health care systems, the military health care system has long placed emphasis on occupational and environmental medicine.30 As such, these facilities have embedded public health experts. However, these few public health staff were simultaneously consumed by contact tracing,
monitoring confirmed cases, and advising regional operational leadership and were removed from developing frontline screening processes for communicable disease. Thus, when these small groups of subject matter experts become overburdened, diverting additional support staff to the hands-on tasks could allow them to provide more policy advising.

**Protect the Skin of the Ship**

When risk of disease spread is unknown, leaders could benefit from implementing aggressive, widespread protective measures during the initial phase of response, and progressively modify these measures as new data becomes available. In a small facility, mechanisms that decrease risk to health care workers are especially important.\(^3\)

Protective measures may not be well received by the community as MTFs shift away from patient satisfaction priorities. Commanding officers must temporarily accept this risk to protect the health care team and decrease the risk of community spread. Displeasure may be mitigated by robust communication but likely cannot be avoided in periods of rapid change and sudden restrictions.

**Re-Purposing Equipment and Processes**

Creative re-purposing of equipment can be a stopgap for expanded patient care needs, and innovation was key. Facilities were able to create additional negative pressure spaces fairly quickly with locally purchased parts. Video teleconference options effectively decreased exposure to infectious patients while still meeting many of the needs of patients. The uncertainty about the need to hold ICU patients was a huge shift in functions and created high demand on staff and support teams.

**Fatigue with Process Change**

Leaders should actively and aggressively monitor for signs of increased stress in staff members. Without normal outlets for decompression, the cumulative changes and restrictions were more challenging than additional workplace demands would typically be. The response is ongoing, and the increased workload, stress, and family demands have been difficult for many of the staff.

For frontline decision makers, expect to be asked to make decisions beyond one’s comfortable expertise and that guiding policy will change frequently. Make decisions based on what is available. The imperfect 60% or 70% solution now, based on available information, is better than no answer for frontline staff. Each building block leads to greater clarity during the next process change.

**FUTURE RECOMMENDATIONS**

significant gaps remain in the published literature which would inform the next initial and prolonged pandemic response. In addition to disease-specific research, there is an imperative to study patient, staff, and facility-related outcomes during a pandemic. Therefore, further investigation is needed into the best practices to maintain staff resilience and mitigate the effects of prolonged stress and uncertainty. Identifying the most effective internal and external critical incident communication methods may improve community compliance with medical directives and health care provider understanding during times of rapid change. Additionally, rapidly deployed system-level decision support is needed for the sites most proximal to outbreaks, particularly in deconflicting and prioritizing differing guidelines from various governing health bodies. Given the international mission of many MTFs, there is a critical need for clearer guidance as to which entity retains jurisdiction of local health policy during crisis.

Lastly, health care staff who were intimately involved in the pandemic response should move beyond collecting internal after-action reports and seek to publish the knowledge acquired. These detailed technical, experiential, and health care transformation accounts of lessons, successes, and failures would then be available to inform leaders, policy makers and medical planners before and during the next world-wide event.

**ACKNOWLEDGMENTS**

The authors wish to thank LT Christopher Caprio, NC, USN at U.S. Naval Hospital Rota, Spain, Ms. Christina Clarke, the U.S. Naval Hospital Naples Public Affairs Officer, and the TriService Nursing Research Program’s Writing Workshop team for their review, insights, guidance, and support during the preparation of this manuscript.

**DISCLAIMER**

The views expressed in this supplement do not necessarily represent the official policy or position of the TriService Nursing Research Program, the Uniformed Services University of the Health Sciences, the Department of Defense, or the U.S. Government.

**CONFLICT OF INTEREST STATEMENT**

The authors have no known conflicts of interest of financial or material support disclosures.

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