Recruitment, Readiness, and Retention of Providers at a Field Hospital During the Pandemic

Ishaan Gupta MD[1] , Zishan K. Siddiqui MD[2], Mark D. Phillips MD PhD[3], Amteshwar Singh MD MEd[1], Shaker M. Eid MD MBA[1], Laura Wortman MHA[4], Flora Kisuule MD[1], James R. Ficke MD[5], CONQUER COVID Consortium[6] and Melinda E. Kantsiper MD[1]

[1]Division of Hospital Medicine, Johns Hopkins Bayview Medical Center, Baltimore, Maryland, USA; [2]Department of Medicine, Johns Hopkins University, Baltimore, Maryland, USA; [3]Johns Hopkins Community Physicians, Baltimore, Maryland, USA; [4]Healthcare Transformation & Strategic Planning, Johns Hopkins Medicine, Baltimore, Maryland, USA; [5]Department of Orthopaedic Surgery, Johns Hopkins University, Baltimore, Maryland, USA and [6]CONQUER COVID Consortium at Baltimore, Maryland, USA

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Abstract

In response to the coronavirus disease (COVID-19) pandemic, the State of Maryland established a 250-bed emergency response field hospital at the Baltimore Convention Center to support the existing health care infrastructure. To operationalize this hospital with 65 full-time equivalent clinicians in less than 4 weeks, more than 300 applications were reviewed, 186 candidates were interviewed, and 159 clinicians were credentialed and onboarded. The key steps to achieve this undertaking involved employing multidisciplinary teams with experienced personnel, mass outreach, streamlined candidate tracking, pre-interview screening, utilizing all available expertise, expedited credentialing, and focused onboarding. To ensure staff preparedness, the leadership developed innovative team models, applied principles of effective team building, and provided "just in time" training on COVID-19 and non-COVID-19-related topics to the staff. The leadership focused on staff safety and well-being, offered appropriate financial remuneration, and provided leadership opportunities that allowed retention of staff.

Pandemics pose a serious global health risk. In addition to the direct catastrophic morbidity and mortality, the pandemics cause indirect health effects through depletion of resources, increased health care waste, pandemic fatigue, disproportionately poorer outcomes in low-income areas, and creation of bottlenecks by overwhelming the health care system. To manage the surge of cases that overwhelmed the existing health care infrastructure, countries throughout the world have organized alternative care sites, including mobile hospitals, field hospitals, and military hospitals, in response to the COVID-19 pandemic.[1,2]

The Governor of Maryland declared a State of Emergency and Existence of Catastrophic Health Emergency—COVID-19 on March 5, 2020.[3] The Governor issued a directive to set up a field hospital on March 16, 2020.[4] The state of Maryland requested the Federal Emergency Management Agency to set up a 250-bed federal medical station at the Baltimore Convention Center.[5] This 250-bed field hospital was jointly operated under a public-private partnership between the State of Maryland, Johns Hopkins Medicine (JHM), and the University of Maryland Medical System (UMMS). The first patient was admitted on April 27, 2020. JHM credentialed the health care providers, and UMMS credentialed the nursing and allied staff. This was based on deliberate decisions to balance the responsibilities between the 2 systems.

The leadership was tasked with recruiting and onboarding 65 full-time equivalent (FTE) providers in 4 weeks. Such a task represents an exceptional challenge given that it takes 3–6 months to hire a physician in traditional hospital settings.[6] Following a review of 300 applications, 186 applicants were interviewed, and 159 clinicians were credentialed to work. During the pandemic, the Baltimore Convention Center field hospital (BCCFH) also served as a mass testing site, monoclonal antibody infusion site, and mass vaccination site. The current manuscript focuses on the provider staffing of the inpatient field hospital at BCCFH. This manuscript describes the process of recruitment, principles of staff readiness, and retention at the field hospital. These strategies may inform staffing at alternative care sites in public health emergencies.
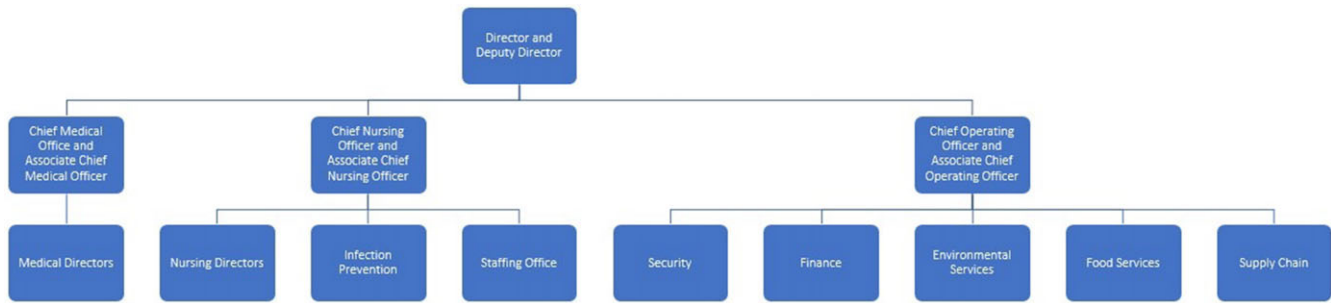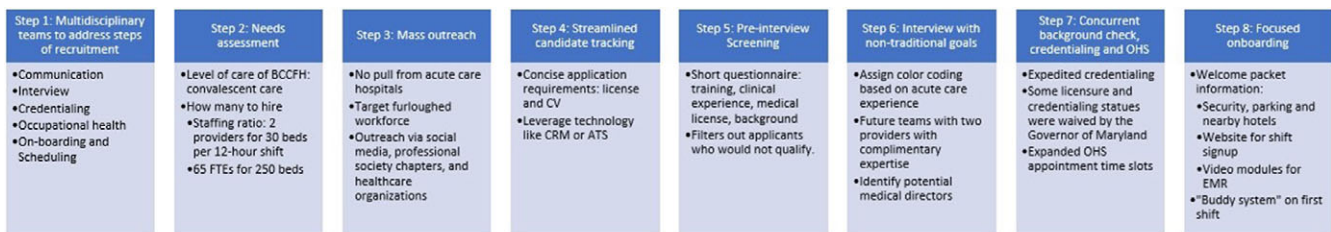
Figure 1. Organizational structure of the Baltimore Convention Center field hospital.

FTE: Full time equivalent, CV: Curriculum Vitae, CRM: Candidate Relationship Manager, ATS: Applicant Tracking System, OHS: Occupational Health Screeening, EMR: Electronic Medical Record

Figure 2. Key steps for expedited recruitment and onboarding of providers at a field hospital.

Recruitment

The field hospital was led by the Director with 30 years of experience in the armed forces with an executive leadership role. The Deputy Director had 30 years of experience in the armed forces and served as a commander in military hospitals in the past. A Chief Medical Officer (CMO) and Associate Chief Medical Officer (ACMO), with more than 30 years of experience in practice building and operationalizing service lines, led the clinical operations. The organizational structure of the field hospital is shown in Figure 1. Eight key steps (Figure 2) were instrumental to the hiring process.

Step 1: Multidisciplinary Teams to Address Steps of Recruitment

The initial group responsible for hiring included CMO, ACMO, human resource personnel, occupational health services, and credentialing personnel. This group developed into 5 subteams based on the steps of recruitment and expertise of each team member. These teams were developed by consensus among the leadership group. The expertise of these teams allowed them to anticipate the potential challenges with hiring and apply the best practices of the traditional hiring process.

1. Communication team: responsible for outreach, communication with applicants, setting up the interviews, and screening of applicants.
2. Interview team: responsible for identifying appropriate candidates during interviews and matching the candidate to a potential role in the hospital.
3. Credentialing team: responsible for expediently ensuring clinician's compliance with practice standards set by the State of Maryland and credentialing institution that is, JHM.
4. Occupational health team: responsible for ambulatory health screening of staff and training for infection control practices.

5. Onboarding and scheduling team: responsible for providing brief—yet, inclusive—onboarding, including scheduling the providers' clinical shifts in the hospital.

Step 2: Needs Assessment

Field hospitals can provide a spectrum of care, based on their intended purpose, from critical care services to convalescent care.[1] This purpose is determined by the characteristics of the at-risk population and regional resources. The level of medical care at the type of field hospital, term of operation, the admission criteria, and the level of resources required would inform the required expertise and the number of required staff.[7]

1. Whom to hire: The CMO and associate CMO made this decision with inputs from the nursing leadership. This was informed by the admission criteria of the field hospital and as well as the regional availability of the required clinician expertise. During the initial setup, the BCCFH provided low acuity convalescent care to patients with COVID-19. There was an increase in the furlough of the outpatient providers, subspecialists, and urgent care providers during the initial surge of the pandemic.[8] This provided a trained pool of regionally available providers. BCCFH hired physicians, physician assistants (PA), and nurse practitioners (NP). The PAs and NPs needed a minimum of 2 years of work experience and were supervised by a physician. In the second surge, the admission criteria of BCCFH expanded to provide care to patients requiring a higher level of acute care like remdesivir, steroids, and so on. This prompted the recruitment of providers with higher acute care experience like hospitalists during the second surge.
2. How many to hire: At BCCFH, the following roles were identified for providers: a triage physician at each shift, providers for rounding and admitting during the day shift, and cross covering and admitting providers overnight. BCCFH aimed

to hire 65 FTE to cover 250 beds at the field hospital. This was based on the staffing ratio for 2 providers per 30 beds for a 12-hour shift. Previously, the alternative care site plans from other US states have suggested at least 2 providers per 50 beds for 12-hour shifts.[7,9] The clinical leadership, that is, CMO, ACMO, and nursing leadership made the decision about the staffing ratio at BCCFH. The leadership considered that there was limited information available about the course of COVID-19 in March 2020. The early reports from New York suggested some patients may have rapid deterioration of their clinical and respiratory status necessitating more staff.[10]

3. How to hire: Like the "pro re nata (PRN) staffing" models used in many hospitals, all providers were hired under as-needed basis to consider ever-evolving staffing needs based on the actual or expected patient census in the field hospital.[11] Key personnel with critical skills, such as certified registered nurse anesthetists, who constitute a scarce resource during the pandemic, were hired under a contract with fixed working hours.

Step 3: Mass Outreach

At the initial phase of the pandemic, there were concerns about frontline clinicians' non-availability due to sick days, COVID-19 quarantine, competing clinical responsibilities elsewhere in the region, burnout, and mass breakout among staff members. Additionally, the nature of the public health emergency might deter some from working in high-risk environments.[12] To address these challenges, the CMO, ACMO, and the communication team devised a mass outreach strategy with 3 underpinning principles.

1. "No-Pull" policy from regional acute care hospitals: In discussions with stakeholders at JHM and UMMS, there was a concern for frontline provider shortage. Given these concerns, the BCCFH leadership decided not to hire staff from the front lines in acute care settings (hospitalists, intensivists), to minimize the institutional shortage of clinicians.

2. Target trained workforce regionally: It is important to point out that, while there was an escalating need for acute care health care workers regionally, there was a concurrent increase in furloughs of health care workers in non-acute care settings.[8] The regional urgent care and primary care providers were the bulk of the applicants who were subsequently hired at BCCFH.

3. Non-traditional outreach: Traditionally internal referrals, third-party recruiters, advertisements in journals, job fairs are among the common sources of applicants. With the constraint of time and the scale of recruitment, non-traditional strategies were used to reach to a large pool of potential applicants. These included leveraging existing networks with local leadership to send recruitment emails to their staff, focused outreach to groups on social media, print and radio advertisements, the social network of the hired staff, and email the member list of the Maryland chapter of the Society of Hospital Medicine.

Step 4: Streamlined Candidate Tracking

A centralized application email and a candidate relationship management software were used to manage the large volume of applicants in an expedited, effective, and efficient manner. The software was available to the recruitment team through one of the partnering institutions (JHM). Specific aspects of this strategy are as follows:

1. Centralized contact email was used by all applicants for submissions and follow-up communication.
2. Initial application requirements were concise, and the applicant only needed to submit curriculum vitae and medical license.
3. Applicant Tracking System (ATS) or Candidate Relationship Management (CRM) software solution allowed to build customized algorithms to match the appropriate candidates, broadcast emails, schedule interviews, and track applicants' progress through the next steps. The partnering institution, JHM, already had CRM access internally and was made available for BCCFH's use at no additional cost. This step was critical to expeditiously navigate the rate-limiting step of sorting through applications.
4. Shared spreadsheet for applicant information: A live online spreadsheet with details of potential interviewees was designed by the communication team and securely shared across the other teams. Each team updated the progress of the applicants in the hiring process in the spreadsheet. This significantly reduced the burden of email exchange amongst team leaders. The spreadsheet allowed to track each applicant's progress through each step and troubleshoot applications with slow progress time.

Step 5: Pre-Interview Screening

Virtual or phone screening using a pre-specified questionnaire (Supplement) was employed by the recruitment team. The screening questionnaire was developed by the communication team in consultation with the interview team. It was developed to effectively screen applicants who did not have the required credentials for BCCFH. It included questions about their training, clinical experience, medical license, agreement to compensation, and brief questions about the background. This step mitigated resource waste by avoiding the downstream interview, occupational health visit, credentialing, and human resources processes.

Step 6: Interview With Non-Traditional Goals

The interviews were conducted virtually by the interview team (CMO, ACMO, and medical director). During the interview, the interview team assigned each applicant into 1 of 3 categories (red, blue, or yellow) at the end of the interview, based on their acute care experience and expertise. The red category included providers with significant acute care experience, the blue category included providers with intermediate acute care experience, and the yellow category included providers with no or limited acute care experience. Given the diverse background, training, expertise, and experience of all applicants, the interview team created innovative team structures to utilize all available expertise. Triage was assigned to a red provider only during day or night. The day shifts were staffed with a minimum of 2 red providers. For rounding, the providers were paired in teams based on the color categories. A yellow category provider was always paired with a red category provider. A blue category provider could be paired with another blue or red category provider. The red and blue category providers were preferred for night shifts. The night team always included at least 1 red category provider. The providers with acute care experience, familiarity with the electronic medical records (EMR), and flexibility in their availability and roles were preferred during the interview. Providers who had regular availability were desirable for day rounding shifts to maintain patient care continuity. Potential candidates for the role of the medical director were also identified during the interview. These included providers who had prior

administrative experience, or managed practices, or had additional training experience in public health.

Step 7: Concurrent Background Check, Credentialing, Occupational Health Screening

Credentialing and occupational health screening were performed concurrently. The credentialing team had more than 10 years of experience in credentialing physicians through JHM. The credentialing process required limited information and forms from each applicant. The applicant was asked information about their medical training, state licensure, DEA licensure, and board certification. The providers were enrolled into Medicare, Maryland Medicaid, and other commercial payors. The executive order by the Governor of the State of Maryland waived some local and state statutes for the licensing and credentialing of health care workers.[4] The executive order allowed for interstate reciprocity of health care licenses, allowed an expanded scope of practice for health care practitioners with supervision, and allowed inactive practitioners to provide health care services without first reinstating their license. The governor also ordered the secretary and all boards and commissions to expedite all requests from inactive practitioners to reinstate inactive licenses. Background checks were performed for all providers and outsourced to a third-party vendor through JHM. For occupational health screening, appointment time slots for N-95 fit testing, and infection control practices training (eg, donning and doffing, cleaning of equipment) were expanded to ensure adequate availability for all providers.

Step 8: Focused Onboarding

Once providers were ready for scheduling, they were provided with onboarding materials. The welcome letter contained information about parking, access to the website for signing up for shifts, a tip sheet, and video modules of the EMR and the communication application used in the hospital, information about security, and nearby hotels. It also included information on training like fire safety and the online death certificate completion process in Maryland. Prior competencies were accepted in place of HIPAA (Health Insurance Portability and Accountability Act) and compliance training. While this is not ideal in traditional hiring, the added benefit of this training was weighed against the time delay for onboarding providers. For scheduling, the providers were able to denote their availability using the SignUpGenius® website. The scheduling team made final assignments based on need, team structure, and continuity of care. For the first shift, we used a "buddy" system, where each provider was paired with another experienced provider to orient them to the workflow and EMR. This allowed for a hands-on orientation as well as a seamless transition into the team.

Staff Readiness

Providers from varied backgrounds and health systems were working in a non-traditional setting at the field hospital. In addition, there was limited information about COVID-19 initially with rapidly evolving scientific literature. This presented unique challenges to ensuring staff preparedness at the field hospital. The medical and nursing leadership developed several strategies (Figure 3) based on their experience and team discussion to support the staff.

1. *Early engagement of staff*

   To bring together the main stakeholders, clinicians, nursing, and ancillary staff were invited to schedule themselves for shifts at the BCCFH to assist with setup (during hospital construction). This opportunity was also used for onboarding and simulation drills. This established professional working relationships between staff members who had never worked together. They were encouraged to provide input into the structure and operations of the field hospital. These inputs directly informed workflows and protocols like rapid response protocols, patient rounding models, and multidisciplinary rounding models.

2. *Establish the identity and culture of the field hospital*

   A logo was developed for the field hospital and united the team under the hospital motto, "One Team. One Fight." This established a culture of team and identity for the field hospital amongst staff from different hospital systems, health care settings, cultures, specialties, and expertise. The hospital logo and motto were used on t-shirts and jackets. The organizational culture of team spirit fostered interactions among team members and improved effectiveness of teams.[13]

3. *Develop a team-based rounding model*

   This model was developed by the CMO and ACMO to provide physician oversight to APPs and to utilize all available expertise effectively. Additionally, team partners staggered breaks after spending time in the "hot zone" in full personal protective equipment (PPE), which ensured no interruption in the continuity of care. This team structure allowed providers time for respite without affecting care for the patients during the day and night shifts, while simultaneously fostering a team culture.

4. *Just-in-time training sessions*

   These training sessions focused on COVID-19-related updates and non-COVID-19-related practical education sessions. These sessions were led by faculty from the partnering institutions (JHM and UMMS). This was especially important as the scientific evidence on COVID-19 grew exponentially during the initial surge. The patient population at the BCCFH comprised mostly of underserved patients with a disproportionately higher percentage of patients with uncontrolled diabetes, substance use disorder, and mental health disorders. The educational series focused on best practices like medication-assisted treatment for opioid use disorder, inpatient diabetes management, and de-escalation strategies in health care. Since the use of EMR was incorporated at the field hospital, weekly sessions with the EMR team were conducted with tips and troubleshooting for the frontline providers.

5. *Be nimble and flexible*

   Flexibility is a key characteristic for a field hospital and its staff to adapt to the needs of the community and the pandemic.[14] During the course of the pandemic, the admission criteria were expanded to include not only patients who were convalescing from COVID-19 but also those on therapeutics like remdesivir, steroids, and other intravenous medications. Similarly, the initial workflow was based on patients who would bring their medications and a limited formulary of medications dispensed by the pharmacist.
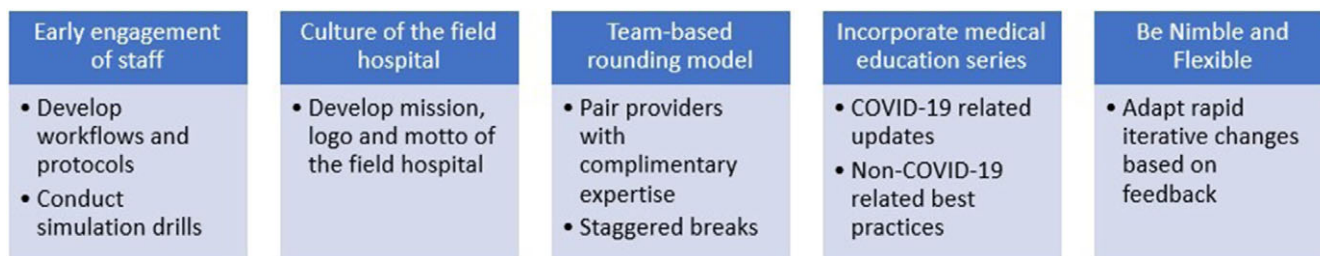
Early engagement of staff	Culture of the field hospital	Team-based rounding model	Incorporate medical education series	Be Nimble and Flexible
• Develop workflows and protocols • Conduct simulation drills	• Develop mission, logo and motto of the field hospital	• Pair providers with complimentary expertise • Staggered breaks	• COVID-19 related updates • Non-COVID-19 related best practices	• Adapt rapid iterative changes based on feedback

Figure 3. Principles to ensure staff preparedness at a field hospital.

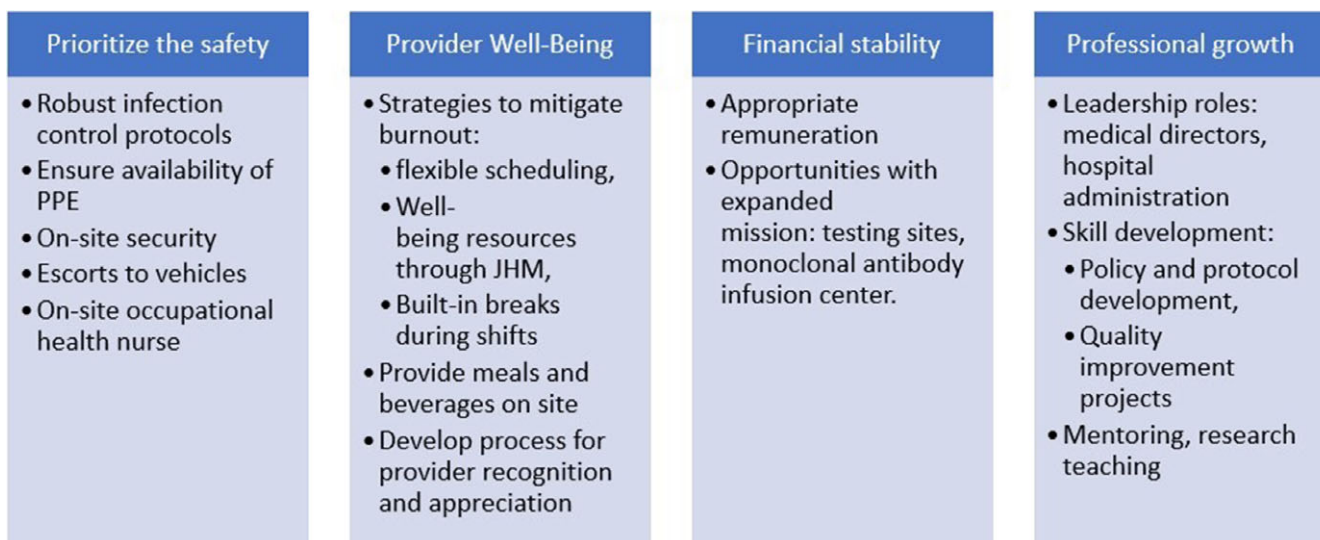| Prioritize the safety	Provider Well-Being	Financial stability	Professional growth

• Robust infection control protocols
• Ensure availability of PPE
• On-site security
• Escorts to vehicles
• On-site occupational health nurse
	• Strategies to mitigate burnout:
	  • flexible scheduling,
	  • Well-being resources through JHM,
	  • Built-in breaks during shifts
	• Provide meals and beverages on site
	• Develop process for provider recognition and appreciation
		• Appropriate remuneration
		• Opportunities with expanded mission: testing sites, monoclonal antibody infusion center.
			• Leadership roles: medical directors, hospital administration
			• Skill development:
			  • Policy and protocol development,
			  • Quality improvement projects
			• Mentoring, research teaching

Figure 4. Strategies to retain staff at a field hospital.

With the expansion of the admission criteria, this workflow was restructured and an automated medication dispensing system was introduced. These workflow changes were developed by the medical leadership (CMO, ACMO, and medical directors), in collaboration with pharmacy and nursing leadership. Rapid iterative changes were expected at the field hospital and had implications on daily practices for the providers and staff. The ability to effectively initiate and implement such changes has been instrumental for the effectiveness of BCCFH.

Retention

Hiring and onboarding a replacement is time and resource-intensive, and high turnover leads to health care waste.[15] The eventual goal of any field hospital is to close, and attrition was expected as the staff returned to their regular work in primary care and urgent care. BCCFH directors, medical leadership (CMO, ACMO), and nursing leadership developed strategies to prevent attrition due to hospital factors (Figure 4). While some of these strategies like safety protocols and remuneration were a part of initial staffing, others were developed during the pandemic.

1. *Prioritize the safety of personnel*

Literature from previous pandemics notes that adequate safety practices are key for the morale of the frontline staff.[16] Strict adherence to infection control protocols and availability of PPE ensure staff safety. Adequate PPE was secured and a streamlined process for donning and doffing was established. An occupational health nurse was made available on site to address any breaches in infection control. Security was present on site, and escorts were available to the parking.

2. *Focus on provider well-being*

Pandemics impact the psychological well-being of health care workers.[17] To mitigate this, flexible scheduling models were devised. Meals and beverages were provided to the staff on site. The staff was given free access to resources through the Office of Well-Being at JHM. A process of appreciation and recognition of frontline staff was instituted. A workflow with staggered breaks was built to avoid burnout during the long use of PPE.

3. *Provide financial stability with cross-training and re-deploy already trained staff as the mission of the field hospital expands*

The staff was offered appropriate compensation. The needs of the field hospital as well as the providers are fluid during the pandemic.[14] During the times when the patient census in the acute hospital was low, the already trained staff was deployed at other missions of the field hospital like walk-up free community testing, monoclonal antibody infusion center, and mass vaccination site. This ensured that BCCFH was able to retain already trained staff for future surges, as well as support the other missions. In an internal survey, the providers reported good morale and satisfaction with the financial compensation at BCCFH.

4. *Offer opportunities for professional growth and leadership*

The CMO and associate CMO identified leaders from the frontline staff who served as medical directors in the hospital. Potential candidates were identified during the initial interview and the ongoing functioning of BCCFH. These candidates were medical directors at outpatient clinics, managed medical practices, led education curricula in residency programs, and were pursuing graduate education in public health. As medical directors, they provided oversight to everyday functioning at the hospital, made schedules, performed quality assurances, and developed workflows and protocols. While the BCCFH was able to utilize their skills, this opportunity was important for their professional growth into future leaders in health care. Further, as the mission of the field hospital has expanded into the major testing site and the monoclonal antibody infusion site, there were opportunities for staff in leadership and administrative roles.

Limitations of the Recruitment Model

The above-described model for ACS staffing may be appropriate for pandemics or disease outbreaks where there is an urgent but not immediate need for health care professionals. A public health emergency, like an earthquake, hurricane, or large-scale terrorist attack, which requires an immediate response within hours, may need activation of already established emergency medical personnel. Additionally, if the public health emergency decreases the effective regional pool of the health care workers either due to sickness or trauma, personnel from outside the region would be needed to staff the field hospital. Third, this model may not be ideal if the field hospital provides specialist services like intensive care.

Conclusion

A strategic approach to recruitment, readiness, and retention of health care providers allowed the BCCFH to meet its mission to provide care to patients with COVID-19 in the State of Maryland during the pandemic. While in commission, the inpatient unit of BCCFH provided 1495 patient encounters with a total of 6754 occupied bed days. These principles provide a framework for other alternative care sites during the current pandemic and in future public health emergencies. Preparedness for future pandemics should focus on innovative staffing models and identifying potential resources at the alternative care sites.

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