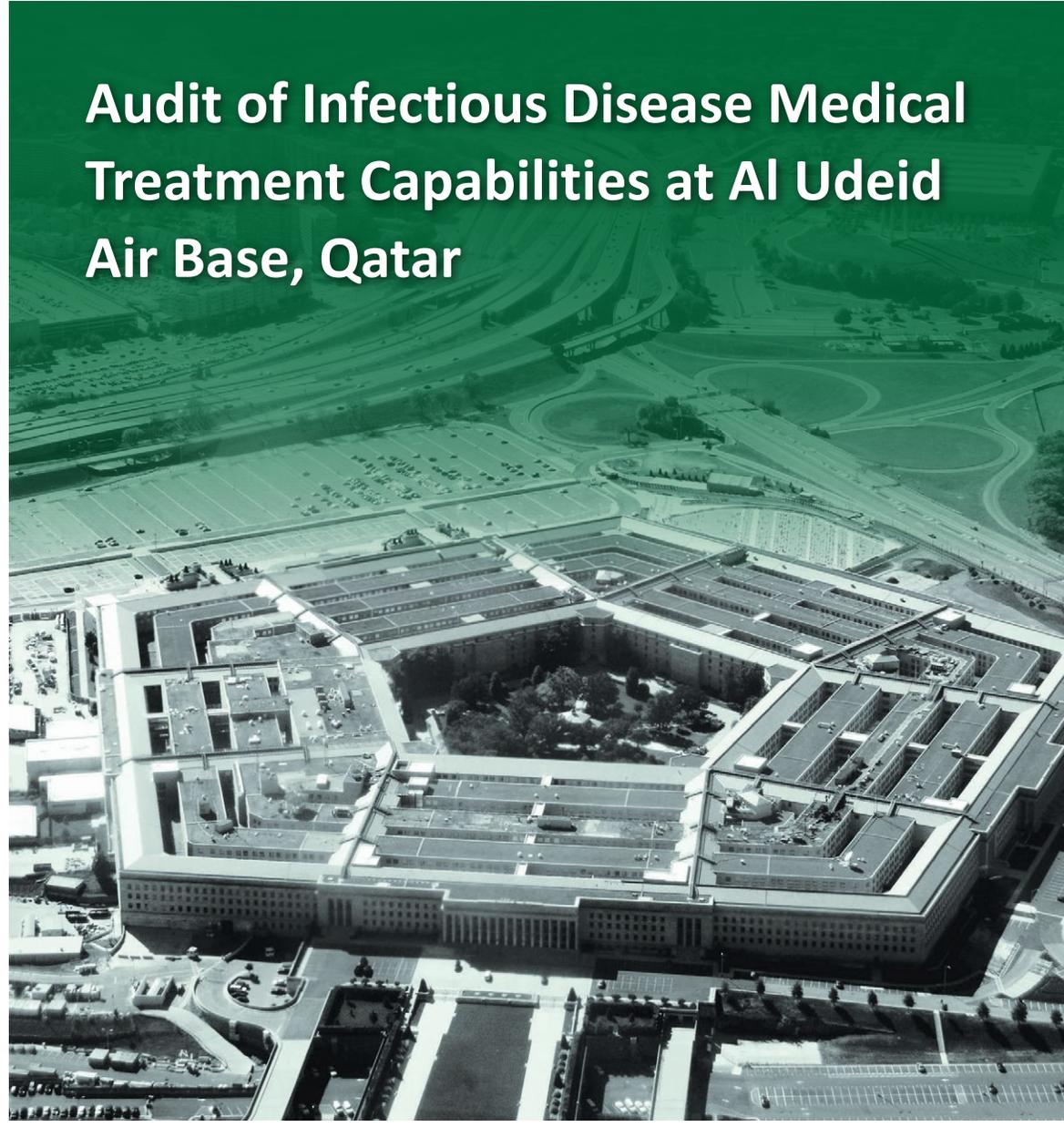


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INSPECTOR GENERAL

U.S. Department of Defense

DECEMBER 21, 2020



Audit of Infectious Disease Medical Treatment Capabilities at Al Udeid Air Base, Qatar

INTEGRITY ★ INDEPENDENCE ★ EXCELLENCE

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Results in Brief

Audit of Infectious Disease Medical Treatment Capabilities at Al Udeid Air Base, Qatar

December 21, 2020

Objective

The objective of this audit was to determine whether Al Udeid Air Base (AUAB), Qatar, had the capabilities to treat coronavirus disease-2019 (COVID-19) patients and isolate or quarantine suspected infected service members, civilians, and contractors.

Background

On March 11, 2020, the Director-General of the World Health Organization declared COVID-19 a global pandemic. On March 20, 2020, the AUAB Installation Commander declared a public health emergency at AUAB due to COVID-19. AUAB supports multiple theaters of operation across the United States Central Command area of responsibility, including Iraq and Afghanistan. The 379th Expeditionary Medical Group (EMDG) provides medical care for personnel on AUAB. The 379th EMDG provides care and executes operations specific to COVID-19, including isolation and quarantine operations, aeromedical evacuation, COVID-19 training for medical staff, and maintaining equipment and supply levels.

Finding

The 379th EMDG had the capabilities to treat COVID-19-infected patients and isolate or quarantine suspected infected service members, civilians, and contractors. Specifically, the 379th EMDG developed COVID-19 response plans, established procedures to screen AUAB personnel attempting to enter the DoD medical treatment facility, and initiated COVID-19 testing. In addition, the 379th EMDG conducted COVID-19 treatment training and had the recommended medical equipment to treat COVID-19 patients. Furthermore, the 379th EMDG increased its on-hand inventory of personal protective equipment supplies to protect its staff and acquired COVID-19 test kits to detect infected service members, civilians, and contractors.

~~(U//FOUO)~~ As a result, the 379th EMDG was able to quickly identify COVID-19 patients at AUAB, expedite restriction of movement measures, and conduct contact tracing to prevent the spread of the virus throughout AUAB. In addition, the ■ personnel who tested positive for the virus recovered and returned to duty. Furthermore, no 379th EMDG personnel contracted COVID-19 while treating the ■ personnel who tested positive for virus.

Recommendations Table

Management	Recommendations Requiring Comment
Commander, 379th Expeditionary Medical Group	None

Note: The following categories are used to describe agency management’s comments to individual recommendations.

- **Unresolved** – Management has not agreed to implement the recommendation or has not proposed actions that will address the recommendation.
- **Resolved** – Management agreed to implement the recommendation or has proposed actions that will address the underlying finding that generated the recommendation.
- **Closed** – OIG verified that the agreed upon corrective actions were implemented.



**INSPECTOR GENERAL
DEPARTMENT OF DEFENSE
4800 MARK CENTER DRIVE
ALEXANDRIA, VIRGINIA 22350-1500**

December 21, 2020

MEMORANDUM FOR UNDER SECRETARY OF DEFENSE FOR PERSONNEL
AND READINESS
COMMANDER, U.S. CENTRAL COMMAND
DIRECTOR, JOINT STAFF
AUDITOR GENERAL, DEPARTMENT OF THE AIR FORCE

SUBJECT: Audit of Infectious Disease Medical Treatment Capabilities at
Al Udeid Air Base, Qatar (Report No. DODIG-2021-040)

This final report provides the results of the DoD Office of Inspector General's audit. We considered management's comments on a discussion draft copy of this report when preparing this final report. We did not make any recommendations; therefore, no management comments are required.

We appreciate the cooperation and assistance received during the audit. If you have any questions, please contact me at [REDACTED]

A handwritten signature in black ink, reading "Richard B. Vasquez".

Richard B. Vasquez
Assistant Inspector General for Audit
Readiness and Global Operations

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Acronyms and Abbreviations

Introduction

Objective

The objective of this audit was to determine whether Al Udeid Air Base (AUAB), Qatar, had the capabilities to treat coronavirus disease-2019 (COVID-19) patients and isolate or quarantine suspected infected service members, civilians, and contractors. Specifically, this audit focused on the Expeditionary Medical Group's (EMDG) efforts to train its medical personnel on the treatment of COVID-19 and implement its infectious disease containment measures.¹ See the Appendix for a discussion of the scope and methodology and prior audit coverage.

Background

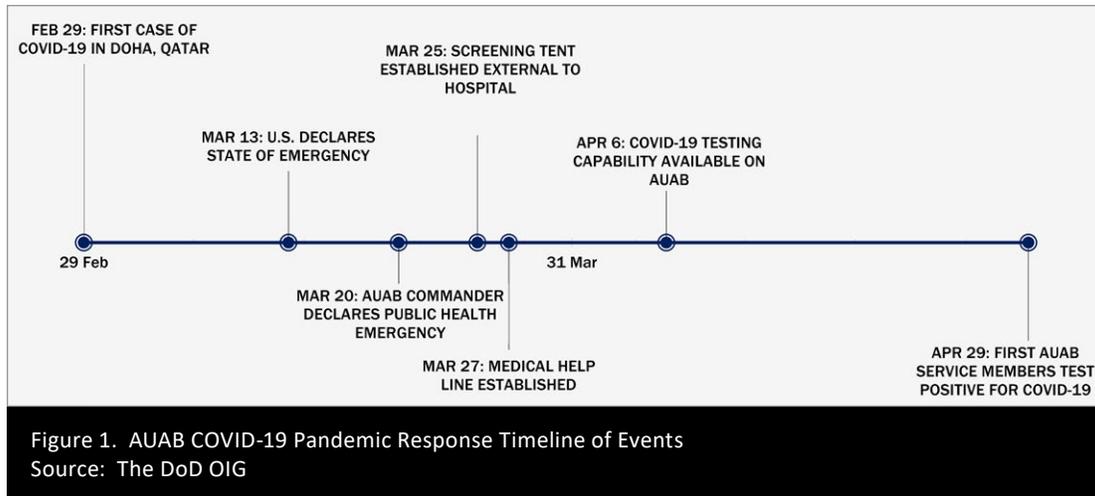
COVID-19

On March 11, 2020, the Director-General of the World Health Organization declared COVID-19 a global pandemic. COVID-19 is an infectious respiratory disease that as of November 2020 had no specific vaccine or treatment. According to the World Health Organization:

- Severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) is the virus that causes COVID-19.
- Most people infected by COVID-19 will experience mild to moderate respiratory illness and can recover without requiring special treatment.
- As of October 26, 2020, Qatar had 131,170 confirmed cases of COVID-19, with 230 cases resulting in death.

~~(U//FOUO)~~ The first case of COVID-19 in Doha, Qatar, was identified on February 29, 2020. On March 20, 2020, the Commander of the 379th Air Expeditionary Wing (AEW) at AUAB declared a public health emergency at AUAB due to COVID-19. The first service member tested positive for COVID-19 on April 29, 2020. As of September 25, 2020, there had been ■ confirmed cases of COVID-19 on AUAB, which has a population of about 7,500 U.S. military, civilian, contractor, and Coalition partner personnel. Figure 1 shows a timeline of pandemic response events at AUAB.

¹ Report No. DODIG-2020-128, "Audit of Screening and Quarantine Procedures for Personnel Entering Al Udeid Air Base, Qatar," September 24, 2020. The DoD Office of Inspector General (OIG) concurrently conducted this audit to determine whether the Air Force had implemented screening and quarantine procedures for personnel entering AUAB. While the 379th Air Expeditionary Wing implemented screening and quarantine procedures for personnel entering AUAB in accordance with DoD and Air Force criteria in response to COVID-19, the audit identified some internal control weaknesses in screening procedures.



U.S. Air Force Central Command, Al Udeid Air Base

AUAB supports multiple theaters of operation across the U.S. Central Command (USCENTCOM) area of responsibility (AOR), including Iraq and Afghanistan. U.S. Air Forces Central Command is the air component of USCENTCOM and is responsible for air operations and the movement of supplies and equipment within the USCENTCOM AOR. The 379th AEW, located at AUAB, supports a wide range of missions, including bomber; airlift; refueling; aeromedical evacuation; and intelligence, surveillance, and reconnaissance for humanitarian activities in Iraq and Afghanistan. The 379th AEW includes four groups: the 379th Expeditionary Operations Group, 379th Expeditionary Maintenance Group, 379th Expeditionary Mission Support Group, and 379th EMDG.

Roles and Responsibilities for Treating COVID-19 Patients at AUAB

Installation Commander

According to Air Force Instruction (AFI) 10-2519, the installation commander has the ultimate responsibility and authority for managing public health emergencies and incidents of public health concern.² The installation commander, in consultation with the public health emergency officer, may declare a public health emergency at the installation and implement relevant emergency health powers to achieve the greatest public health benefit while maintaining operational effectiveness.³ The commander's authority overseas extends generally only to U.S. service members, DoD civilian and contractor employees, and their dependents.

² AFI 10-2519, "Public Health Emergencies and Incidents of Public Health Concern," December 10, 2019.

³ The Public Health Emergency Officer is the central point of contact and information hub for health-related information during a declared public health emergency.

379th Expeditionary Medical Group

The 379th EMDG is an Expeditionary Medical Support +10 deployable medical capability, which consists of 67 personnel, including a mobile surgical team, a primary care team, and a critical care team. Expeditionary Medical Support +10 is an increment of medical capability that has 10 medical and surgical beds and can support a population of 3,000 to 5,000.⁴ The 379th EMDG operates a Role-2 surgical facility, consisting of an 11-bed hospital and a 21-bed En Route Patient Staging Facility, which supports AUAB and USCENCOM patients.⁵

According to the 379th EMDG officials, to prevent and prepare for infectious diseases, they conduct the following activities:

The 379th EMDG operates a Role-2 surgical facility, consisting of an 11-bed hospital and a 21-bed En Route Patient Staging Facility, which supports AUAB and USCENCOM patients.

- staff training;
- education campaigns, including handwashing campaigns and flu campaigns;
- public health inspections;
- data analysis to identify irregular trends; and
- quarantine of members who come in contact with personnel infected with COVID-19 to avoid further spread of a communicable disease.

COVID-19 Pandemic Response Criteria

The DoD and the Centers for Disease Control and Prevention (CDC) have established pandemic response criteria, which provide guidance for responding to public health emergencies, such as the COVID-19 pandemic. Specifically:

- DoD Instruction 6200.03 establishes guidance to protect DoD installations and personnel from communicable diseases.⁶
- DoD COVID-19 Practice Management Guide provides clinicians and DoD medical treatment facilities (MTFs) with best practices based on the latest evidence to optimize the DoD response to the COVID-19 pandemic.⁷

⁴ Although originally set up as an Expeditionary Medical Support +10 deployable medical capability, according to 379th EMDG officials, AUAB has expanded its capability to meet increased demand for a population at risk of approximately 7,500 personnel.

⁵ A Role-2 facility is capable of providing advanced trauma management and emergency medical treatment, such as damage control surgery.

⁶ DoD Instruction 6200.03, "Public Health Emergency Management (PHEM) Within the DoD," March 28, 2019.

⁷ Department of Defense, "COVID-19 Practice Management Guide," version 3, May 14, 2020.

- AFI 10-2519 provides guidance to protect Air Force-led installations and base personnel and to establish emergency health powers, roles, and responsibilities.⁸ Additionally, AFI 10-2519 requires installations to develop disease containment and public health emergency response guidance.
- USCENTCOM’s “COVID-19 Pandemic Playbook for Operational Environments” provides guidance for pandemic response and is used as a tool for public health providers and staff in the USCENTCOM AOR.⁹
- The CDC provides medical professionals with infection prevention and control recommendations for patients with suspected or confirmed COVID-19 in healthcare settings.¹⁰
- The CDC provides guidance on the appropriate use of testing for COVID-19.¹¹
- The CDC provides strategies to optimize Personal Protective Equipment (PPE) supplies in healthcare settings.¹²

In addition to COVID-19 pandemic response criteria, Air Force Manual 41-209 provides guidance for establishing and operating medical logistics support for Air Force MTFs and other activities.¹³ Furthermore, the Air Force Medical Logistics Guide provides step-by-step implementation guidance to meet the mission and policy requirements in Air Force Manual 41-209.¹⁴

Isolation and Quarantine Procedures

According to DoD Instruction 6200.03, disease containment (isolating and quarantining personnel) involves activities such as implementing a restriction of movement to prevent the spread of an infectious disease.¹⁵ A restriction of movement limits movement of an individual or group to prevent or diminish the transmission of a communicable disease, including limiting ingress and egress to, from, or on a military installation; isolation; and quarantine. The DoD COVID-19 Practice Management Guide states that medical professionals should prioritize isolation of COVID-19–infected personnel to contain or mitigate virus transmission. The guide states that patients can be treated where they are stationed unless their condition requires access to a higher level of care.

⁸ AFI 10-2519, “Public Health Emergencies and Incidents of Public Health Concern,” December 10, 2019.

⁹ USCENTCOM, “COVID-19 Pandemic Playbook for Operational Environments,” May 12, 2020.

¹⁰ CDC, “Interim Infection Prevention and Control Recommendations for Patients with Suspected or Confirmed Coronavirus Disease 2019 (COVID-19) in Healthcare Settings,” May 18, 2020.

¹¹ CDC, “Overview of Testing for SARS-CoV-2,” June 13, 2020.

¹² CDC, “Summary for Healthcare Facilities: Strategies for Optimizing the Supply of PPE During Shortages,” July 16, 2020.

¹³ Air Force Manual 41-209, “Medical Logistics Support,” January 4, 2019.

¹⁴ Air Force, “Air Force Medical Logistics Guide - A ‘How To’ Guide for Implementing AFI 41-209, Medical Logistics Support,” February 14, 2018.

¹⁵ DoD Instruction 6200.03, “Public Health Emergency Management (PHEM) within the DoD,” March 28, 2019.

AUAB Treatment Recommendations

Recommendations for properly treating COVID-19–infected personnel include trained medical personnel, specific equipment and facilities, and sufficient PPE supplies. In addition, when an individual’s symptoms become more serious than what the MTF is capable of treating, medical evacuation is required.

Facilities for Treatment, Isolation, and Quarantine

The “DoD COVID-19 Practice Management Guide” suggests establishing COVID-19 hospital wards as a space management effort in response to COVID-19. Furthermore, the USCENTCOM “COVID-19 Pandemic Playbook” recommends healthcare and public health providers in the USCENTCOM AOR to establish isolation areas to protect both non-COVID-19 infected patients and the general population.

Aeromedical Evacuation

AUAB is the USCENTCOM AOR hub for the aeromedical evacuation of patients with severe COVID-19 symptoms to obtain a higher level of care. Aeromedical evacuation evacuates patients by air to save life, limb, and eyesight; prevent undue suffering; and preserve military strength. It is a critical capability supporting overseas contingency operations, enabling the mobility airlift system to move patients with severe symptoms to deliver access to higher-level medical care.

Medical Personnel Training

According to AFI 44-108, medical personnel should conduct infection prevention and control training to minimize, reduce, or eliminate the risk of infection. The 379th EMDG officials stated that while COVID-19 might be new, the medical group has dealt with infectious diseases before. The 379th EMDG medical group practices and follows the same disease prevention training for COVID-19 as it would for influenza, such as training on isolation and quarantine procedures.

Equipment Recommended for COVID-19

The USCENTCOM “COVID-19 Pandemic Playbook for Operational Environments” identified the type of equipment recommended to assist units dealing with COVID-19. Examples of equipment that the 379th EMDG should have to treat COVID-19 patients include in-line suction, ventilators, oxygen tanks, and respirators.¹⁶

¹⁶ In-line suctioning is used when suctioning an endotracheal tube or a patient with a tracheostomy.

PPE Supplies

The 379th EMDG officials stated that they maintained a Surgeon General 05 (SG05) PPE stockpile for use in the event of a public health emergency. Air Force Manual 41-209 defines SG05 as Pandemic Influenza PPE. SG05 PPE includes N95 respirators, surgical masks, gowns, goggles, gloves, and hand sanitizer. According to the AF Medical Logistics Guide, SG05 PPE quantity recommendations are calculated using assumptions regarding the anticipated number of patients that might need to be treated during a pandemic and the number of healthcare providers assigned to the MTF.

Review of Internal Controls

DoD Instruction 5010.40 requires DoD organizations to implement a comprehensive system of internal controls that provides reasonable assurance that programs are operating as intended and to evaluate the effectiveness of the controls.¹⁷ We did not identify any internal control weaknesses during the course of the audit.

¹⁷ DoD Instruction 5010.40, "Managers' Internal Control Program Procedures," May 30, 2013.

Finding

AUAB Had Capabilities for COVID-19 Treatment, Isolation, and Quarantine

The 379th EMDG had the capabilities to treat COVID-19–infected patients and isolate or quarantine suspected infected service members, civilians, and contractors. Specifically, the 379th EMDG developed response plans, established procedures to screen AUAB personnel attempting to enter the MTF, and initiated COVID-19 testing. In addition, 379th EMDG conducted COVID-19–specific treatment training and had the recommended medical equipment to treat COVID-19 patients. Furthermore, the 379th EMDG increased its on-hand inventory of PPE supplies to protect its staff and acquired COVID-19 test kits to detect infected service members, civilians, and contractors.

(U//FOUO) As a result, the 379th EMDG was able to quickly identify COVID-19 patients at AUAB, expedite restriction of movement measures, and conduct contact tracing to prevent the spread of the virus throughout AUAB. In addition, the █ personnel who tested positive for the virus recovered and returned to duty. Furthermore, no 379th EMDG personnel contracted COVID-19 while treating the █ personnel who tested positive for the virus.

379th EMDG Developed Isolation and Quarantine Procedures

The 379th EMDG developed procedures to mitigate the spread of COVID-19 throughout AUAB. Specifically, we found that 379th EMDG officials developed response plans; established procedures to restrict access to the main MTF; screened

⋮ *The 379th EMDG developed procedures to mitigate the spread of COVID-19 throughout AUAB.*

AUAB personnel attempting to enter the MTF for COVID-19 symptoms; and tested, isolated, and quarantined personnel either suspected of or infected with COVID-19.

379th EMDG Developed COVID-19 Response Plans

In response to COVID-19, 379th EMDG officials developed a three-phase COVID-19 Clinical Operations Response Plan and a Concept of Operations Plan for admitting patients to the COVID-19 Hospital Annex Ward. The 379th EMDG’s three-phase COVID-19 plan outlined actions such as establishing a COVID-19 screening tent, issuing

restriction of movement orders, developing a triage plan, scaling back non-critical operations in the MTF to reduce exposure, and establishing a medical help line to provide AUAB personnel access to medical advice via telephone.¹⁸

The Concept of Operations Plan includes step-by-step procedures for admitting COVID-19–infected patients from the screening tent and the isolation and quarantine dorm to the COVID-19 Hospital Annex Ward based on progression of their symptoms. The Concept of Operations Plan also requires 379th EMDG personnel to treat patients who are in quarantine because of exposure to a COVID-19–infected person as though those exposed patients also tested positive for the virus. The 379th EMDG’s three-phase COVID-19 Clinical Operations Response Plan and Concept of Operations Plan both align with DoD COVID-19 Practice Management Guide requirements related to clinical management of COVID-19 patients.

~~(U//FOUO)~~ Additionally, the 379th EMDG developed aeromedical evacuation procedures to bring COVID-19 patients into AUAB and for evacuating COVID-19 patients it cannot treat at AUAB, including [REDACTED] for COVID-19 patient transport as required by the 379th AEW AUAB Disease Containment Plan.¹⁹ AUAB can evacuate patients with severe symptoms to other locations that offer more specialized care, such as the Landstuhl Regional Medical Center in Germany. According to 379th EMDG officials, as of September 25, 2020, the 379th EMDG had not entered any AUAB personnel into the aeromedical evacuation system for COVID-19 treatment. In addition, the 379th EMDG officials stated that they had not received any COVID-19 patients from other installations in the USCENTCOM AOR for treatment. Therefore, the 379th EMDG had not executed the aeromedical evacuation procedures for COVID-19 patients.

379th EMDG Restricted Access to the MTF and Screened AUAB Personnel Prior to Entering the MTF

To mitigate the spread of COVID-19 throughout AUAB, the 379th EMDG established procedures to restrict access to the main MTF and screened AUAB personnel attempting to enter the MTF for COVID-19 symptoms. The CDC’s interim guidance on COVID-19 states that healthcare officials should reduce exposure risk by limiting points of entry and screening everyone entering the MTF for COVID-19 symptoms.²⁰ The 379th EMDG restricted access to the main MTF by establishing a single point of entry and checkpoint where 379th EMDG officials screen those entering the

¹⁸ According to 379th EMDG officials, the 379th EMDG medical help line provides 24-hour access to medical professionals via telephone to minimize visits to the MTF.

¹⁹ “Department of the Air Force 379th Air Expeditionary Wing, Al Udeid Air Base, Qatar Disease Containment Plan,” February 15, 2017. The purpose of this plan is to prepare, prevent, respond, and mitigate the effects of an emerging pathogen or biological weapon to maintain AUAB’s critical missions.

²⁰ CDC, “Interim Infection Prevention and Control Recommendations for Patients with Suspected or Confirmed Coronavirus Disease 2019 (COVID-19) in Healthcare Settings,” May 18, 2020.

MTF for COVID-19 symptoms. Specifically, the screening process consists of the 379th EMDG MTF officials asking personnel attempting to enter the MTF if they were experiencing symptoms such as fever, sore throat, shortness of breath, or loss of smell or taste, and taking their temperature. According to 379th EMDG officials, if anyone mentions experiencing symptoms or has a temperature registering at 100.4 degrees Fahrenheit or higher, 379th EMDG officials do not allow personnel to enter the MTF and direct them to the COVID-19 screening tent outside of the facility.

During three of the audit team's walkthroughs of the MTF that took place June 17, 2020, to June 19, 2020, 379th EMDG officials asked the three audit team members attempting to enter the MTF about experiencing COVID-19 symptoms. In addition, 379th EMDG officials used a temperature scanner to check each member of the audit team. We observed that the officials followed the same procedures for AUAB personnel entering the MTF after the audit team. None of the audit team members or AUAB personnel observed were experiencing COVID-19 symptoms or registered a temperature of 100.4 degrees Fahrenheit or higher; therefore, the audit team was not able to observe 379th EMDG officials direct personnel to the COVID-19 screening tent outside of the MTF for further screening.

379th EMDG Established COVID-19 Testing at AUAB

As a part of the procedures developed to mitigate the spread of COVID-19 throughout AUAB, the 379th EMDG tested personnel either suspected of or infected with COVID-19. The CDC recommends testing all close contacts of persons with COVID-19 due to the high likelihood of exposure. The CDC guidance states that because of the potential for asymptomatic and pre-symptomatic transmission, it is important to quickly identify and test contacts of individuals with COVID-19. The CDC's Overview of Testing for SARS-CoV-2 recommends viral testing from respiratory system samples (such as nasal swabs) to diagnose persons with an infection of COVID-19.²¹ Specifically, the CDC recommends using tests with an Emergency Use Authorization from the Food and Drug Administration.²²

The 379th EMDG established a dedicated COVID-19 screening tent located outside of the main MTF, where 379th EMDG staff collected respiratory samples from AUAB personnel experiencing COVID-19 symptoms, and from their close contacts, for viral testing. The 379th EMDG identified AUAB personnel requiring testing through

²¹ CDC, "Overview of Testing for SARS-CoV-2," June 13, 2020.

²² A Food and Drug Administration Emergency Use Authorization allows unapproved medical products or unapproved uses of approved medical products to be used in an emergency to diagnose, treat, or prevent serious or life-threatening diseases or conditions when there are no adequate, approved, and available alternatives.

The 379th EMDG identified AUAB personnel requiring testing through self-reporting, screening procedures, or investigating the contacts of COVID-19-positive personnel.

self-reporting, screening procedures, or investigating the contacts of COVID-19-positive personnel. The 379th EMDG acquired diagnostic testing supplies to use with its BioFire and Cepheid GeneXpert systems to test AUAB

personnel for the virus that causes COVID-19.²³ Both systems have a Food and Drug Administration Emergency Use Authorization.

~~(U//FOUO)~~ The viral testing process conducted by the 379th EMDG provides results within 1 hour, allowing 379th EMDG officials to expedite restriction of movement measures and contact tracing to prevent the spread of the virus. According to 379th EMDG officials, if AUAB personnel tested positive for COVID-19, 379th EMDG medical personnel would place them in isolation and place their close contacts that tested negative in quarantine. As of September 28, 2020, the 379th EMDG had tested [REDACTED] AUAB personnel.

On June 19, 2020, the audit team toured the dedicated COVID-19 screening location. During the tour, EMDG officials explained that they collect respiratory system samples from personnel in the COVID-19 screening location, then transfer the samples to the MTF lab for testing. The audit team observed that the 379th EMDG had two viral testing systems that allowed the 379th EMDG to see test results within 1 hour. The EMDG's BioFire system is capable of completing 48 COVID-19 tests per day and the Cepheid GeneXpert system is capable of completing 384 tests per day. The 379th EMDG complied with the CDC recommendation to use tests with Food and Drug Administration Emergency Use Authorizations, such as the BioFire and Cepheid GeneXpert systems, to test for COVID-19. Figure 2 shows the BioFire system in the MTF laboratory.

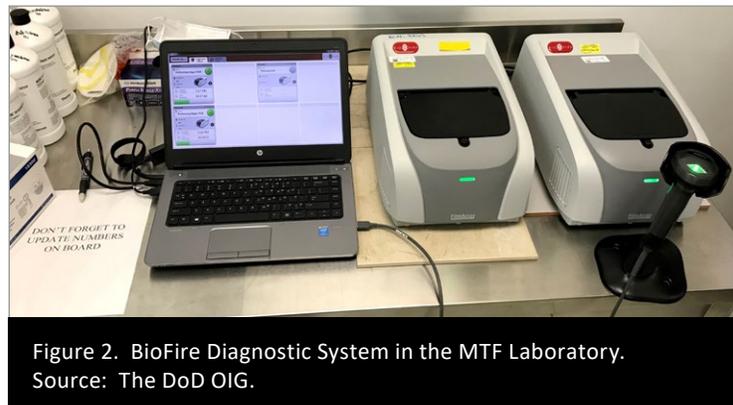


Figure 2. BioFire Diagnostic System in the MTF Laboratory.
Source: The DoD OIG.

²³ The BioFire and Cepheid GeneXpert systems are laboratory machines capable of detecting and diagnosing the virus that causes COVID-19 through testing respiratory system samples.

379th EMDG Created Dedicated Isolation and Quarantine Facilities at AUAB for COVID-19

The 379th EMDG created dedicated treatment, isolation, and quarantine facilities at AUAB for personnel who were either suspected of or infected with COVID-19. The DoD COVID-19 Practice Management Guide suggests establishing COVID-19 hospital wards as a space management effort in response to COVID-19. The guide states that the wards can be located within the MTF or established separately near the MTF. During our walkthrough, we confirmed that the 379th EMDG established a COVID-19 Hospital Annex Ward (formerly the 21-bed En-Route Patient Staging Facility) to avoid contaminating the main MTF, as recommended by the DoD COVID-19 Practice Management Guide.

AUAB had 176 beds in separate facilities dedicated for the treatment, isolation, and quarantine of COVID-19 patients. During our walkthrough, we confirmed the location of AUAB’s 176 beds as follows:

AUAB had 176 beds in separate facilities dedicated for the treatment, isolation, and quarantine of COVID-19 patients.

- 20 beds in the COVID-19 Hospital Annex Ward;
- 60 beds in the COVID-19 Hospital Annex Trailers; and
- 96 beds in the isolation and quarantine dormitory.²⁴

The COVID-19 Hospital Annex Ward had 20 beds specifically for COVID-19–infected patients that require acute care. According to the 379th EMDG officials, as of July 28, 2020, the 379th EMDG had not admitted anyone to the COVID-19 Hospital Annex Ward. Figure 3 shows the main treatment area of the AUAB COVID-19 Hospital Annex Ward.



Figure 3. AUAB COVID-19 Hospital Annex Ward
Source: The DoD OIG.

²⁴ The isolation and quarantine dorm contained 48 rooms equipped with two beds each.

(U//FOUO) The 379th AEW AUAB Disease Containment Plan states that [REDACTED] like COVID-19. Furthermore, the 379th AEW AUAB Disease Containment Plan requires that [REDACTED]. The plan states that [REDACTED].

(U//FOUO) In accordance with the 379th AEW AUAB Disease Containment Plan, the 379th EMDG established a COVID-19 isolation and quarantine dorm, which was [REDACTED]. The COVID-19 isolation and quarantine dorm had 96 dedicated beds for isolation and quarantine of COVID-19–infected and exposed personnel who did not require acute care. When we toured the facility, we found that personnel in isolation and quarantine were restricted to their rooms and housed individually. Each room was equipped with a phone, a shared kitchen, and bathroom. In addition, the 379th EMDG officials stated that the heating, ventilation, and air conditioning system that services the isolation and quarantine bay was separate from the remaining systems in the facility. The 379th EMDG officials monitored isolation patients on the ground floor, and quarantine patients on the top floor. Furthermore, 379th EMDG officials established 60 additional beds in the COVID-19 Hospital Annex Trailers for isolation and quarantine of COVID-19 patients. Figures 4 and 5 show the isolation and quarantine dorm and an isolation room.



Figure 4. Isolation and Quarantine Dorm
Source: The DoD OIG.



Figure 5. Isolation Room.
Source: The DoD OIG.

379th EMDG COVID Training, Medical Equipment, and PPE Supplies

The 379th EMDG officials stated that they conducted training specific to COVID-19 treatment and infectious disease containment procedures. Additionally, the 379th EMDG procured test kits, medical equipment, and PPE supplies to diagnose and treat COVID-19 patients.

379th EMDG Personnel Conducted COVID-19–Specific Training

The 379th EMDG officials stated that they conducted both routine and COVID-19–specific training to prepare to provide care for those infected with and displaying symptoms of COVID-19. Specifically, the 379th EMDG officials stated that they conducted the annual basewide Disease Containment Plan exercise on January 20, 2020, where the 379th EMDG collaborated with the 379th AEW and host nation partners on infectious disease containment procedures. In addition to the basewide exercise, on November 26, 2019, the 379th EMDG participated in a Disease Containment Plan tabletop exercise to confirm that proper processes were in place for disease containment and to ensure that participants understood their roles in the event of a public health emergency.

The 379th EMDG officials stated that they conducted weekly COVID-19 training for medical personnel. Specifically, according to 379th EMDG officials, they conducted weekly training, including ventilator operation, prone positioning, and Joint Trauma System training. In addition, part of the training is devoted to ensuring medical personnel appropriately use PPE to mitigate their exposure to the disease.

On June 18, 2020, the audit team observed 379th EMDG officials providing hands-on prone positioning training to medical personnel as part of the weekly COVID-19 training. The 379th EMDG officials educated the staff on prone positioning techniques to turn patients flat on their chests, and position their heads and arms to ensure their airways were open. During the training, 379th EMDG officials explained that respiration improves when applying the prone position technique. Figure 6 shows the 379th EMDG personnel conducting prone positioning training.

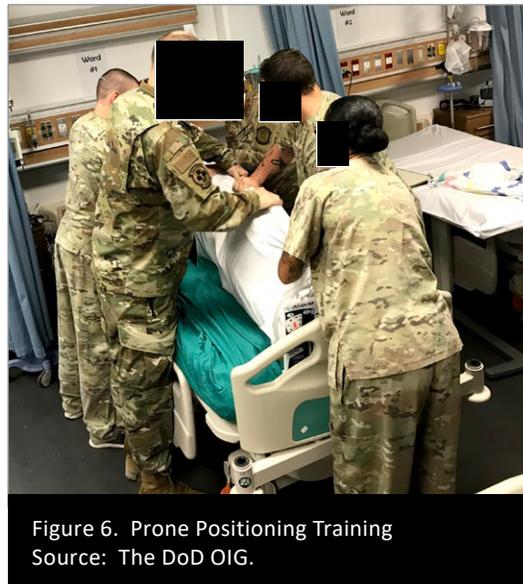


Figure 6. Prone Positioning Training
Source: The DoD OIG.

Furthermore, the 379th EMDG conducted aeromedical evacuation training to optimize disaster response preparations. On June 19, 2020, the audit team observed 379th EMDG officials and the Aerospace Medical staff performing an aeromedical evacuation exercise, displaying their capabilities related to treating, isolating, quarantining, and transporting patients. The 379th EMDG officials conducted a walkthrough of the step-by-step process for aeromedically receiving patients from an aircraft and transporting those patients to the AUAB air terminal. In addition, the audit team observed how the 379th EMDG responds when transporting a patient from the COVID-19 bus to the COVID-19 Hospital Annex Ward for treatment.

379th EMDG Had Sufficient Staffing Levels

The 379th EMDG officials stated that they had sufficient staffing levels to support the current population at risk on AUAB of approximately 7,500 personnel. According to Air Force Tactics, Techniques and Procedures 3-42.71, an Expeditionary Medical Support +10 consists of 26,000 square feet of operating space and 67 personnel.²⁵ Furthermore, the Air Force guidance states that an Expeditionary Medical Support +10 can support a population of 3,000 to 5,000. According to 379th EMDG officials, the 379th EMDG was initially set up as an Expeditionary Medical Support +10 deployable capability; however, the 379th EMDG has expanded its capability over the past 20 years to meet demand.²⁶ As of July 2020, the 379th EMDG officials stated that their facility had of over 50,000 square feet of operating space and 160 personnel to support AUAB's population of 7,500, which provides additional capacity to diagnose and treat COVID-19 patients.

379th EMDG Acquired COVID-19 Test Kits

In March 2020, the 379th EMDG began acquiring COVID-19 test kits to test AUAB personnel for COVID-19. (U//FOUO) In March 2020, the 379th EMDG began acquiring COVID-19 test kits to test AUAB personnel for COVID-19.

Specifically, the 379th EMDG officials acquired 891 BioFire and 630 Cepheid GeneXpert COVID-19 test kits. Between April 6, 2020, and September 28, 2020, 379th EMDG officials had completed [REDACTED] COVID-19 tests at AUAB.

²⁵ Air Force Tactics, Techniques and Procedures 3-42.71, "Expeditionary Medical Support (EMEDS) and Air Force Theater Hospital (AFTH)," August 27, 2014.

²⁶ An Expeditionary Medical Support +10 capability is part of the Air Force theater level medical services for deployed forces. Their scalable design allows for deployed medical capabilities to range from small to large teams in order to provide medical care.

As of September 28, 2020, the 379th EMDG had ordered and received additional test kits, bringing the on-hand supply of BioFire and Cepheid GeneXpert test kits to 375 and 1,040, respectively. Furthermore, in the event of a surge of COVID-19 cases at AUAB, 379th EMDG officials can complete 432 COVID-19 tests per day between both their BioFire and Cepheid GeneXpert systems. Figure 7 shows a Cepheid GeneXpert test kit in the MTF laboratory.



Figure 7. Cepheid GeneXpert Test Kit
Source: The DoD OIG.

Medical Equipment Availability at AUAB

The 379th EMDG had the recommended medical equipment to treat COVID-19 patients at AUAB in accordance with USCENTCOM guidance.²⁷ On August 20, 2020, the audit team completed a 100-percent inventory of the 379th EMDG's medical equipment on hand for treatment of COVID-19 patients. The audit team verified the following medical equipment at the 379th EMDG medical facilities:

- 1 oxygen generation system;
- 8 in-line suction;
- 10 portable circuits and 27 stationary circuits;²⁸
- 11 portable ventilators and 3 stationary ventilators;
- 23 viral filters;²⁹
- 29 in-line humidifiers; and
- 116 lightweight and transportable oxygen tanks and 20 large and non-transportable oxygen tanks.

²⁷ USCENTCOM, "COVID-19 Pandemic Playbook for Operational Environments," May 12, 2020.

²⁸ Circuits are the tubing that connects the ventilator to the patient.

²⁹ Viral filters are barriers to retain virus particles.

According to 379th EMDG personnel, there is no guidance that establishes the required quantities of the equipment listed above; however, 379th EMDG personnel believe that the current quantities of medical equipment on hand are sufficient to properly treat COVID-19 patients.

379th EMDG Had Most of the Recommended PPE

The 379th EMDG had sufficient amounts for five of the six PPE supply types, as recommended by the CDC, SG05 PPE calculator, and required by the DoD. Specifically, the 379th EMDG had excess surgical masks, gowns, goggles, gloves, and hand sanitizer. However, the 379th EMDG did not have the amount of N95 respirator masks on-hand that Air Force PPE guidance recommended, but had ordered additional masks to ensure that it had the recommended quantity.

The 379th EMDG had sufficient amounts for five of the six PPE supply types, as recommended by the CDC, SG05 PPR calculator, and required by the DoD.

Based on CDC recommendations and DoD requirements, to properly prepare for COVID-19, the 379th EMDG needed six PPE supply types—N95 respirator masks, surgical masks, gowns, goggles, gloves, and hand sanitizer.³⁰ The AF Medical Logistics Guide states that to determine its SG05 PPE quantity, the MTF can use the SG05 PPE calculator available on the AF Medical Logistics website.³¹ Specifically, the MTF enters the population at risk and the number of assigned healthcare providers into the SG05 PPE calculator, which determines the SG05 PPE quantity recommendations for the MTF. On August 20, 2020, the audit team conducted a 100-percent inventory of the 379th EMDG SG05 PPE stockpile to determine if the 379th EMDG had the recommended amount of SG05 PPE in accordance with the Air Force’s SG05 PPE calculator. The audit team determined that the 379th EMDG had excess quantities of surgical masks, gowns, goggles, gloves, and hand sanitizer. However, the audit team determined that the 379th EMDG did not have the recommended SG05 PPE quantities of N95 respirator masks. Specifically, the 379th EMDG had about half the recommended quantity of N95 respirator masks.

The Table shows a breakdown of the 379th EMDG SG05 PPE calculator recommended quantity, August 2020 inventory, and the percentage of the PPE item in the SG05 PPE stockpile.

³⁰ CDC, “Summary for Healthcare Facilities: Strategies for Optimizing the Supply of PPE During Shortages,” July 16, 2020, and DoD, “Department of Defense Guidance for the Use of Personal Protective Equipment and Non-Pharmaceutical Interventions During the Coronavirus Disease 2019 Outbreak,” March 10, 2020.

³¹ <https://medlog.us.af.mil/apps/medlog/#catdoctag/MTFSupport/Policy%2520%2526%2520Procedures>

Table. 379th EMDG SG05 PPE Inventory

PPE Items	SG05 PPE Calculator Required Quantity	August 2020 Inventory	Percent of SG05 PPE Requirement
Gowns	13,440	17,200	128%
Surgical Masks	6,720	37,600	560%
Goggles	148	175	118%
Hand Sanitizer	213	1,456	684%
Gloves	24,864	62,540	252%
N95 Respirator Masks*	119,347	58,885	49%

*This amount includes KN95 respirator masks.

Source: The DoD OIG.

The 379th EMDG took steps to acquire quantities of PPE recommended by the Air Force–provided calculator. According to 379th EMDG Medical Logistics Squadron personnel, in March 2020, the 379th EMDG began increasing its SG05 PPE stockpile in preparation for COVID-19 and had to find alternative suppliers due to a disruption in the PPE global supply chain. For example, the 379th EMDG supplemented its SG05 PPE stockpile by purchasing PPE, such as hand sanitizer and respirator masks, from the local economy. Specifically, on March 11, 2020, 379th EMDG Medical Logistics Squadron personnel purchased 5,000 KN95 respirator masks and 5,000 N95 respirator masks through a local supplier.³² In addition, on April 6, 2020, 379th EMDG Medical Logistics Squadron personnel purchased an additional 20,000 KN95 respirator masks from the local economy.³³ From February 6, 2020, through August 20, 2020, the stockpile of the respirator masks (N95 and KN95) at AUAB went from 33,640 to 58,885, an increase of 25,245.

From February 6, 2020, through August 20, 2020, the stockpile of the respirator masks (N95 and KN95) at AUAB went from 33,640 to 58,885, an increase of 25,245.

Since August 20, 2020, the 379th EMDG has ordered and received an additional 2,345 N95 respirator masks and as of August 2020, had nearly 58,000 N95 respirator masks on backorder. Once the 379th EMDG receives the backordered N95 masks, it will meet the SG05 PPE recommended quantity for masks. Therefore, we are not making a recommendation to address the N95 respirator mask stockpile shortage.

³² The difference between N95 masks and KN95 masks is where the masks are certified. N95 masks are certified in the United States, while KN95 masks are certified in China. Select KN95 respirator masks are included in the Food and Drug Administration Emergency Use Authorization for Non-National Institute of Occupational Safety and Health-Approved Disposable Filtering Facepiece Respirators. The CDC authorized use of KN95 masks in place of N95 masks.

³³ According to the 379th EMDG Medical Logistics Squadron personnel, the 379th EMDG provided some PPE, such as surgical masks, to other units on AUAB.

379th EMDG's Efforts Contributed to Preventing the Spread of COVID-19 Throughout AUAB

~~(U//FOUO)~~ During an infectious disease outbreak, it is crucial that treatment procedures and resources are in place and operating as intended to prevent the spread of disease and subsequent degradation of mission capabilities. Between April 2020 and September 2020, the 379th EMDG conducted targeted testing of ■ AUAB personnel.³⁴ The targeted testing implemented by the 379th EMDG provided results within 1 hour. As a result, the 379th EMDG was able to quickly identify COVID-19 patients at AUAB, expedite restriction of movement measures, and conduct contact tracing to prevent the spread of the virus throughout AUAB. In addition, the 379th EMDG officials stated that all ■ personnel who tested positive for the virus recovered and returned to duty, resulting in minimal impact to AUAB operations. Furthermore, the 379th EMDG officials stated that no 379th EMDG personnel contracted COVID-19 while treating the ■ personnel who tested positive for the virus.

³⁴ To execute targeted testing, 379th EMDG personnel interview the COVID-19 suspected person to determine whether to test the person for the virus; if a person is experiencing symptoms, 379th EMDG personnel collect a respiratory sample from the patient and then submit the specimen for testing in the MTF lab. If the test result is positive for COVID-19, the COVID-19-positive patient is interviewed to identify close contacts so that 379th EMDG personnel can contact those people and test them for COVID-19.

Appendix

Scope and Methodology

We conducted this performance audit from May 2020 through November 2020 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objective. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

The scope of our audit included assessing the 379th EMDG's capabilities to treat patients and isolate or quarantine suspected infected personnel at AUAB, Qatar, by determining whether procedures for infectious disease containment, training, and supply and resource management were in place to respond to the COVID-19 pandemic. We reviewed past audits and DoD reports on emergency management and infectious disease to understand previously identified issues.

To gain an understanding of AUAB screening and quarantine procedure requirements, we reviewed the following criteria:

- DoD Instruction 6200.03, "Public Health Emergency Management (PHEM) Within the DoD," March 28, 2019
- Department of Defense, "DoD COVID-19 Practice Management Guide," version 3, May 14, 2020
- AFI 10-2501, "Emergency Management Program," March 10, 2020
- AFI 10-2519, "Public Health Emergencies and Incidents of Public Health Concern," December 10, 2019
- Air Force Tactics, Techniques and Procedures 3-42.71, "Expeditionary Medical Support (EMEDS) and Air Force Theater Hospital (AFTH)," August 27, 2014
- USCENTCOM, "COVID-19 Pandemic Playbook for Operational Environments," May 12, 2020
- CDC, "Interim Infection Prevention and Control Recommendations for Patients with Suspected or Confirmed Coronavirus Disease 2019 (COVID-19) in Healthcare Settings," May 18, 2020
- CDC, "Overview of Testing for SARS-CoV-2," June 13, 2020
- 379th AEW, "AUAB Disease Containment Plan," February 15, 2017
- 379th EMDG "COVID-19 Hospital Annex Ward (CHAW) CONOPS," May 20, 2020
- 379th EMDG, "COVID-19 Response Plan," April 15, 2020

- CDC, “Summary for Healthcare Facilities: Strategies for Optimizing the Supply of PPE During Shortages,” July 16, 2020
- Department of Defense, “DoD Guidance for the Use of Personal Protection Equipment and Non-Pharmaceutical Interventions During the Coronavirus Disease 2019 Outbreak,” March 10, 2020

We conducted interviews and meetings with officials from the Air Force 379th EMDG and 379th Expeditionary Medical Support Squadron to discuss roles, responsibilities, and information related to isolation and quarantine, supplies, and training procedures at AUAB.

We performed a site visit to the 379th EMDG facilities at AUAB, Qatar, from June 17, 2020, through June 19, 2020. During the site visit, we conducted walkthroughs of the medical facilities and observed the 379th EMDG COVID-19 screening and treatment facilities and operations, isolation and quarantine dorms, medical supplies warehouse, and the MTF laboratory. We observed a training simulation, a training demonstration of 379th EMDG personnel putting on and removing PPE, and prone positioning training techniques that includes turning patients flat on their chests and positioning their heads and arms to ensure their airways were open.

To determine screening, quarantine, and isolation capabilities, we observed COVID-19 screening procedures at the MTF and conducted observations at isolation and quarantine facilities at AUAB. We compared the conditions observed to established criteria to assess whether the 379th AEW’s disease containment procedures complied with DoD and CDC requirements and recommendations. We toured the 379th EMDG sick call tent where officials conducted COVID-19 screening procedures and interviewed officials that performed the screening. In addition, we conducted walkthroughs of the isolation and quarantine dorm to determine whether the facility complied with disease containment criteria and the amount of bed space available for COVID-19 patients.

To determine treatment capabilities, we observed the 379th EMDG COVID-19 Hospital Annex Ward designated for treating COVID-19 patients that require acute care. We verified the type of medical equipment and bed space available for COVID-19 patients that require acute care. In addition, we observed the 379th EMDG procedures for putting on and removing required PPE for active patient care.

To determine if the 379th EMDG had the capability to test AUAB personnel for COVID-19, we conducted a walkthrough of the MTF laboratory to verify that the 379th EMDG had supplies and equipment capable of detecting and diagnosing the virus that causes COVID-19.

To determine if equipment for treating COVID-19 patients was present and inventory records were accurate, we performed an inventory review of 379th EMDG medical equipment on August 20, 2020. Specifically, the audit team performed a 100-percent inventory of ventilators using a report from the Defense Medical Logistics Standard Support system provided by 379th Medical Logistics Squadron personnel. The audit team compared the serial numbers on the report to the serial numbers on the ventilators to confirm the accuracy of the inventory records. In addition, the audit team verified the location and quantities of oxygen tanks, in-line suction devices, portable circuits, viral filters, in-line humidifiers, and an oxygen generation system, using a list of medical equipment provided by 379th EMDG officials.

To determine if medical supply levels for treating COVID-19 were present and accurate, we conducted a 100-percent inventory check of the 379th EMDG SG05 PPE stockpile. Specifically, on August 20, 2020, the audit team performed a physical inventory of PPE supply levels in the Medical Supplies Warehouse and compared the item ID, location, quantity, and lot number to the 379th EMDG SG05 PPE inventory report.

Use of Computer-Processed Data

We used computer-processed data to perform this audit. Specifically, the audit team used inventory reports from Defense Medical Logistics Standard Support to identify the on-hand inventory of PPE supply levels in the SG05 PPE stockpile and medical equipment.³⁵ To test the reliability of the data, the audit team completed a 100-percent inventory of PPE supply levels in the SG05 PPE stockpile by comparing the inventory reports to the SG05 PPE calculator requirements. As a result, the audit team determined that the computer-processed data from Defense Medical Logistics Standard Support were sufficiently reliable to support our findings and conclusions.

Prior Coverage

During the last 5 years, the DoD Office of Inspector General (OIG) and the U.S. Department of Health and Human Services (HHS) issued three reports discussing COVID-19 and emergency management. DoD OIG reports can be accessed at <http://www.dodig.mil/reports.html/>. The HHS report can be accessed at <https://oig.hhs.gov/>.

³⁵ The Defense Medical Logistics Standard Support system is a local server-based application that supports medical logistics functions internal to an MTF, deployed MTFs, and War Reserve Management sites.

DoD OIG

~~(U//FOUO)~~ Report No. DODIG-2020-128, "Audit of Screening and Quarantine Procedures for Personnel Entering Al Udeid Air Base, Qatar," September 24, 2020

~~(U//FOUO)~~ The report addressed the screening and quarantine procedures for personnel entering Al Udeid Air Base, Qatar, in response to the COVID-19 pandemic. The DoD OIG found that the 379th AEW Security and Support Squadrons developed and implemented screening and quarantine procedures for personnel entering AUAB; however, improvements were needed. Specifically, the report found that the Security and Support Squadron personnel conducting screening at the North Gate did not consistently check travel passes that were required for each person's re-entry, or require that [REDACTED].

Report No. DODIG-2018-092, "DoD Emergency Management Programs in the U.S. Africa Command," March 28, 2018

The report addressed whether DoD Components implemented the DoD Emergency Management Program in accordance with Federal and DoD policy for installations within the U.S. Africa Command AOR. The DoD OIG determined that U.S. Africa Command, the Military Departments, and Combined Joint Task Force-Horn of Africa Emergency Management officials did not develop Emergency Management Programs for locations in the U.S. Africa Command AOR. The DoD OIG concluded that without an Emergency Management Program, DoD installations in the U.S. Africa Command AOR did not have a formal and coordinated effort to prevent, prepare for, respond to, and recover from an attack or natural emergency.

Department of Health and Human Services OIG

Report No. OEI-06-20-00300, "Hospital Experiences Responding to the COVID-19 Pandemic: Results of a National Pulse Survey March 23-27, 2020," April 2020

The report addressed hospitals and their most significant challenges centered on testing and caring for patients with known or suspected COVID-19 and keeping staff safe. The Health and Human Services OIG reported substantial challenges maintaining or expanding their facilities' capacity to treat patients with COVID-19. Specifically, challenges included mitigation strategies and need for assistance related to PPE, testing, staffing, supplies and durable equipment; maintaining or expanding facility capacity; and financial concerns.

Acronyms and Abbreviations

AEW	Air Expeditionary Wing
AFI	Air Force Instruction
AOR	Area of Responsibility
AUAB	Al Udeid Air Force Base
CDC	Centers for Disease Control and Prevention
COVID-19	Coronavirus Disease–2019
EMDG	Expeditionary Medical Group
MTF	Medical Treatment Facility
PPE	Personal Protective Equipment
SARS-CoV-2	Severe Acute Respiratory Syndrome Coronavirus-2
SG05	Surgeon General 05
USCENTCOM	United States Central Command

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