Operation UNITED ASSISTANCE:

The DOD Response to Ebola in West Africa

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Joint and Coalition Operational Analysis (JCOA)
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Joint and Coalition Operational Analysis (JCOA)

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Abstract

This study analyzes Operation UNITED ASSISTANCE, the Department of Defense support to the United States Government's response to the Ebola crisis in Liberia in 2014-2015. While the military dealt with force health protection in the past (e.g., 1918 Spanish flu pandemic), Operation UNITED ASSISTANCE was the first US military operation to support a disease-driven foreign humanitarian assistance mission. The international community's lack of preparedness to respond to the scale and severity of the Ebola outbreak and delayed decision making allowed the disease to spread, complicating the subsequent Department of Defense and international response. The unique aspects of the mission, the evolving Department of Defense roles, the lack of understanding of the operational environment, and force projection shortfalls presented challenges in establishing an expeditionary base in an austere environment. Although limited in capability, the use of a Service component headquarters (HQ), coupled with key enablers, allowed immediate operations and time to prepare for a tailored headquarters and response force. The 101st Airborne Division (Air Assault) executed a disciplined operation that supported the United States Agency for International Development (the lead federal agency), avoided mission creep, and enabled a timely and ordered redeployment that included a 21-day controlled monitoring regimen. Despite the success of the operation, shortfalls were revealed in planning, policies, and preparedness across the Department of Defense, which need to be addressed for future, possibly more dangerous, global infectious disease outbreaks. While this report is primarily written for a United States military audience, others, including other United States Government departments and agencies, healthcare organizations, and nongovernmental organizations, may benefit from the discussion and recommendations contained herein.

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Operation United Assistance

Introduction

> The Ebola outbreak that started in December 2013 became a public health, humanitarian, and socioeconomic crisis with a devastating impact on families, communities, and affected countries. It also served as a reminder that the world is ill-prepared for a large and sustained disease outbreak.
>
> *World Health Organization (WHO) Leadership Statement*

In December 2013, a feverish, young boy in a remote jungle village in Guinea shivered uncontrollably; three days later he died. He was not seen by a doctor. He did not visit a hospital. No medical tests were performed. A few days later his sister died, followed by his pregnant mother, then village women who visited the family's now-bloody home. When the boy's grandmother grew ill, she headed for medical help in a larger town.

Although not confirmed by a medical laboratory for more than three months,[1] the Ebola virus disease (EVD) was on the move, in a socio-cultural ecosystem particularly ill-suited to stop it.[2] West Africa's socio-environmental milieu included porous borders, easy movement between rural and urban areas, rudimentary public healthcare systems, and burial customs that include physical, communal contact with the deceased. These factors provided tinder to fuel an EVD wildfire.[3]

Ebola overwhelmed the medical capacity of Liberia, Guinea, Sierra Leone,[4] and the international emergency health response community—ultimately prompting the United States to expend more than 2.3 billion dollars[5] and employ the military against this biological threat. By the time the outbreak slowed, EVD had infected more than 28,000 people and killed over 11,000.[6] This report examines the Department of Defense (DOD) response to the West Africa Ebola outbreak, dubbed Operation UNITED ASSISTANCE (OUA).

Study Methodology

United States Africa Command (USAFRICOM) led the US military's response to the West African EVD outbreak. A memorandum of understanding (MOU) between USAFRICOM and the Joint Staff, Directorate for Joint Force Development (J-7), dated 6 September 2014, directed the Joint and Coalition Operational Analysis (JCOA) Division to conduct a study that would:

> Focus on DOD operations to support the larger US efforts for containment of the Ebola virus. This will require that the study examine both DOD efforts as well as DOD planning and operations as they impact the wider United States Government (USG) efforts. The scope will include DOD [and] US whole-of-government efforts and the integration of DOD within the larger US effort.

JCOA researchers embedded within USAFRICOM and its US Army component, US Army Africa (USARAF), shortly after commencement of operations. The JCOA team, including a medical subject matter expert,[*] liaised with representatives of multiple USG departments and agencies. This report is based on the direct observations of the JCOA research team, interviews of more than 250 people from Monrovia, Liberia to Washington, DC and a review of more than 500 documents.

OUA provided valuable insights regarding the USG's strengths and limitations in response to a biological threat and DOD's response to a civilian infectious disease outbreak. The USG's "whole-of-government" response to contain EVD demonstrated the considerable capabilities that the United States can bring to a disaster. However, the EVD response mission presented unprecedented scenarios to national-level decision makers. Gaps in policies, undefined roles and responsibilities, and hesitancy to delegate authorities contributed to keeping much of the decision making in Washington. While Ebola is highly lethal, it is not highly contagious; therefore, the measured decision-making process did not significantly encumber the effectiveness of the response mission.

Report Overview

This report begins with a brief history of the EVD outbreak and the response. It then presents nine themes grouped into two sections. The first section—pre-crisis preparation—examines four activities and provides collective recommendations regarding those four interrelated pre-crisis themes:
- Roles and responsibilities
- Policy
- Deliberate planning
- Infectious disease response capabilities

The second section—crisis response operations—discusses the remaining five operational themes and their individual recommendations:
- Bio-surveillance
- Assessments
- Deployment
- Messaging, networks, and collaboration
- Transition and redeployment

The annexes provide vignettes with additional details, a listing of specific recommendations arranged by theme, and an index of abbreviations. While this study focused on the DOD response, a number of the areas discussed involve overarching issues involved in interagency

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[*] A medical doctor from the National Guard Bureau Surgeon General's office with significant interagency operational experience.

coordination. In those areas, DOD supports the USG's broader effort to improve infectious disease response capabilities.

The EVD Outbreak and Initial Response

The 2014-2015 West African Ebola outbreak began with a single patient in the jungles of Guinea. With symptoms mirroring other indigenous diseases,[7] EVD was not definitively diagnosed for three months, spreading into neighboring Sierra Leone and Liberia.[8] It was finally positively identified in March 2014. As the disease spread, the number of cases was underreported due, in a large part, to the limited healthcare infrastructure in the region.[9]

Within weeks of the positive diagnosis of the disease, officials from the US Centers for Disease Control and Prevention (CDC) arrived in Liberia.[10] Meanwhile, the Defense Threat Reduction Agency (DTRA) coordinated the movement of DOD medical personnel from Sierra Leone and some equipment to the Liberia Institute for Biomedical Research (LIBR) near Monrovia in order to establish the country's only EVD testing facility.[11]

In late April and early May of 2014, reports seemed to indicate that the outbreak was waning; however, EVD cases began to increase again in early June. International health professionals and relief workers warned that the disease was not following its usual trend of remaining localized. Instead, EVD in West Africa showed exponential growth through the summer and fall, as shown in figure 1.
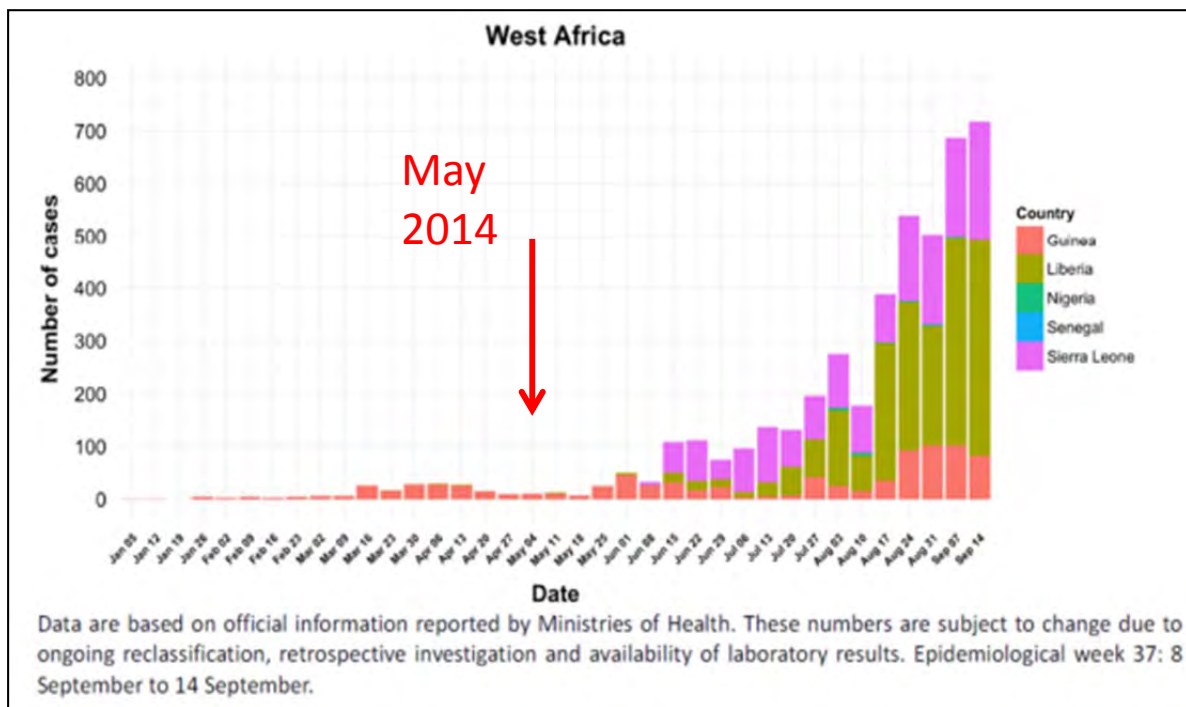
Figure 1. EVD Outbreak Briefing
DTRA, 23 September 2014

> The small team of epidemiologists here thought that the outbreak was over and went home. As it turned out, the outbreak wasn't over and we were in the soup. . . . It became apparent that the outbreak was skyrocketing out of control.[12]
>
> *Deborah Malac, US Ambassador to Liberia*

The region's already limited number of healthcare workers was particularly hard hit.[13] In late June the leading international relief organization, Médecins Sans Frontières (MSF)[*] declared, "The [Ebola] epidemic is out of control . . . there is a real risk of it spreading to other areas."[14] Demand for care overwhelmed the available capacity, and Ebola victims could not find treatment.[15] As reported EVD case tripled in July, relief organizations concentrated on the health of their own personnel or withdrew completely.[16]

As the severity of the outbreak became clear, governments and international organizations began to take the necessary actions to fight the disease. The CDC activated its emergency operations center on 9 July 2014.[17] On 24 July, the World Health Organization (WHO) regraded the EVD outbreak as a "Level 3" emergency, its highest level of health risk.[18] In an effort to stop the EVD spread, Liberia closed most of its border on 28 July, leaving only two airports and three border crossing sites as primary entry points, and instituted medical screening of all travelers.[19] Two days later, in cooperation with the WHO, Liberia closed schools, furloughed nonessential government employees, and closed the public markets in border areas.[20]

On 1 August, the director general of the WHO stated, "This outbreak is moving faster than our efforts to control it."[21] A week later, WHO declared the outbreak to be a "public health emergency of international concern."[†]

On 6 August, the President of Liberia, Ellen Johnson Sirleaf, invoked emergency powers to fight the disease.[22] In some areas, fear of the disease combined with a general distrust of the government fostered civil unrest, most notably in the Monrovian slum of West Point. In response to a government curfew and the attempt by security officials to quarantine its 50,000 residents, West Point became a battleground between the government and the people. In mid-August protesters broke into an Ebola treatment unit (ETU), forcing the majority of patients to flee, and scattered infected bedding and clothes. In a subsequent encounter between protesters and security forces, four residents were wounded and a 16-year-old boy was killed.[23] Liberia faced a dual threat of EVD and a potential for internal collapse of social order.

During the first week of August, the US chiefs of mission in Liberia, Sierra Leone, and Guinea declared foreign disasters.[24] In response to the foreign disaster declarations, the United States Agency for International Development (USAID) established a disaster assistance response team (DART) in Monrovia, Liberia to lead and coordinate USG response efforts. DARTs normally

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[*] In English, Doctors Without Borders
[†] This decision was more significant than the Level 3 categorization. MSF criticized WHO for the delayed declaration.

support natural disaster relief missions resulting from hurricanes, earthquakes, etc. and provide USG money to nongovernmental organizations (NGOs). Disease response was not a normal DART mission.

Initial DOD Response

On 5 August, DOD established the Ebola Task Force in the Pentagon.[25] DOD often supports DART-led disaster relief and humanitarian assistance missions with logistics, helicopter airlift, or medical capabilities; however, this was not a normal foreign humanitarian assistance (FHA) mission.

DOD's plans for civil infectious disease response were incomplete, since DOD's traditional medical focus was the health protection of its own military forces.[26] DOD had not

President Obama Convenes Cabinet Meeting on Ebola
Official White House Photo

developed policies and guidance for combating a disease that affected a foreign civilian population. The Chairman of the Joint Chiefs of Staff (CJCS) recommended that DOD support: 1) be limited to DOD-unique activities,[27] and 2) not include direct patient care.[28] These two CJCS redlines later became policy.

Throughout August and early September, despite the emergency declarations and the DART activation, there was no decision from Washington to commit military forces to the Ebola response. The CDC director's eyewitness accounts of conditions in West Africa in late August appeared to be the tipping point for employing the US military.[29] In September, the Government of Liberia (GOL), MSF, and others, frustrated by the slow response and limited local NGO capacity remaining, also called for US military and civilian support.[30]

In response to a Department of State request, the Joint Staff issued an execute order (EXORD)[31] on 12 September for USAFRICOM to provide a 25-bed Monrovia medical unit (MMU) to offer medical care for healthcare workers who became infected with Ebola. Then on 15 September, the JS issued an EXORD[32] broadening the mission from the previously deployed medical research lab and 25-bed hospital to a more robust operation that eventually included ETUs, 6 medical research lab labs, and almost 3,000 troops. USAFRICOM directed USARAF to ready a response.

In a 16 September speech at the CDC, President Obama stated that the USARAF commander, Major General (MG) Darryl Williams, was leading the US military force in Liberia.[33] USARAF personnel on the ground in Liberia were surprised by the announcement.[34] MG Williams was indeed in Liberia, but had only arrived within the previous 24 hours with 13 other officers for a few days of fact-finding.[35] His mission changed; he now took charge of OUA.

AMB Malac and MG Williams
US Army Africa photo by Lt Col David Doherty,
2 October 2014

Though unexpected, the decision to use the USARAF headquarters as the initial OUA command element provided an immediate command presence.[36] MG Williams and his USARAF team commenced operations as Joint Force Command-United Assistance (JFC-UA). JFC-UA assessed the operational environment, developed relationships, began operations, identified follow-on requirements, and established the infrastructure for subsequent forces.[37]

MG Williams ensured his public affairs and media events were coordinated with the DART and the embassy. JFC-UA facilitated highly visible "quick wins," which supported the GOL public campaign to defeat Ebola.[38]

To that end, USAFRICOM arranged for a 15-person Seabee (US Navy construction battalion) team to provide initial engineering support.[39] United States Transportation Command (USTRANSCOM) sent port-opening teams to Senegal and Liberia to establish air- and seaports,[40] and its Joint Enabling Capabilities Command (JECC) provided communications

Initial Focus on Quick Wins
• Institute DOD command and control
• Deploy mobile labs for EVD testing
• Acquire USMC MV-22s for mobility
• Re-mission Navy Seabees to start construction
• Establish camp infrastructure
• Provide MMU hospital for healthcare workers

support in theater and augmented planning efforts at USAFRICOM headquarters in Germany and USARAF headquarters in Italy.[41] Authorization for re-missioning allowed USAFRICOM to rapidly deploy US Marine Corps MV-22 tilt-rotor aircraft* from Spain to Liberia.[42]

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* The "Osprey" tilt-wing aircraft combines the vertical takeoff and landing of a helicopter with greater speed, typical of fixed-wing aircraft.

The presence of the US military changed the psychology of the country's inhabitants:

> The biggest impact was the announcement itself and having those boots on the ground, even if the US military hadn't done anything else. The psychological impact was transformative to the Liberians. You have to understand the environment at that point in time: by July, August, September, there were dead bodies in the street, in the ocean. People were beyond afraid; they were despairing. The change was palpable within 24 hours of the president's announcement.[43]
>
> *Deborah Malac, US Ambassador to Liberia*

The cadre of USARAF staff officers on the ground in Liberia provided a rapid initial capability to JFC-UA, but was not adequately robust to execute the entire mission. MG Williams and his skeleton staff were a bridge to a larger main response force.[44] The US Army selected the 101st Airborne Division (Air Assault) headquarters to lead the follow-on main effort, but USAFRICOM and USARAF planners struggled to build an accurate request for forces (RFF) document to identify the specific requirements that would be needed by the follow-on force.[45]

Complications with DOD's Initial Response

An incomplete assessment of the West African operational environment and the unprecedented nature of the EVD response mission complicated the RFF process. Inadequate planning time, uncertain conditions, and an ill-defined mission led planners to assume the worst case, which resulted in the movement of substantial equipment that was not needed for the eventual mission.[46]

Additionally, the US military's overreliance on classified computer networks to promulgate substantial, unclassified information complicated information sharing.[47] DOD also grappled with how to effectively network with its non-DOD partners operating on the open (non-military) internet.[48]

JFC-UA also experienced unanticipated complications establishing operations in the theater. For more than a decade, US soldiers had grown accustomed to deploying to mature operating locations in the United States Central Command (USCENTCOM) area of responsibility (AOR); this degraded some practices necessary for deployment to austere locations.[49] Interviews indicate that deploying forces were unfamiliar with operating from immature bases.[50] A USARAF doctor's description of the medical expectations mirrors those of several other functions:

> After 13 years in Iraq and Afghanistan, the US military has certain expectations. We presume that a medical support network will be there. The military medical infrastructure was built in Iraq and Afghanistan, and over time, medical units deployed there and didn't bring their own equipment. They fell in on the previous units' equipment. We got out of the expeditionary mindset. When was

the last time we bare-based for a mission? For me, it was 2001, going
into Afghanistan.[51]

USARAF Surgeon (Paraphrased)

Within the USG in general and DOD in particular, policy gaps created friction.[52] The DART
published a mission tasking matrix (MITAM) to identify tasks, the organization assigned to each
task, and pertinent information. A MITAM traditionally reflects an agreement among entities in
the field, but in OUA the JFC-UA commander did not initially[53] have the authority to accept
MITAMs.[54] Instead, DOD reviewed the MITAMs at the Pentagon,[55*] and the Joint Staff provided
specific policy via modifications to the EXORD.[56] DOD's elevated approval authority slowed the
MITAM process and generated questions among USG partners as to what DOD would or would
not do.[57]

In most disasters, what needs to be done is determined locally. For this
outbreak, even routine stuff had to go to [Washington,] DC for approval. . . .
It frustrated us here.[58]

Deborah Malac, US Ambassador to Liberia

While centralized decision making may have slowed aspects of execution for OUA, JCOA found
no lack of mission accomplishment—a tribute to USAFRICOM and JFC-UA leadership,
professionalism, and agility.

DOD's Sustained Support—Lines of Effort

In support of the DART, JFC-UA led the military response across four lines of effort:
command and control, engineering support, logistics support, and medical training assistance.[59]

Command and Control

JFC-UA provided a command and control structure for DOD forces and supported DART
leadership in managing the overall response, by providing tools including a synchronization
matrix and common operational picture.[60†]

Engineering Support

Engineering support consisted of design, site selection and preparation, and construction
management for 50-bed (originally designed for 100-beds) ETUs[61], a single 25-bed MMU,
medical laboratories, living support areas for 3000 personnel, and operational facilities.
(The ETUs turned out to be underutilized, as the patient demand later proved to have peaked

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[*] Modification 2 to the Joint Staff OUA EXORD relaxed this initial requirement
[†] The synchronization matrix and common operational picture are further explained in the Messaging, Networks, and
Collaboration section.

in September and then tapered off later in early November when the ETUs started to become operational; see appendix A for addition discussion.)

While the ETUs were designed to accept any patient, the MMU was to provide a first-rate treatment facility to caregivers who contracted EVD.[62] The US Public Health Service (USPHS) provided patient care at the MMU.[63]

Gbediah Ebola Treatment Unit
JFC-UA Public Affairs Photo, 22 December 2014

DOD also formed six medical laboratories from existing resources to support EVD testing at the ETUs, as shown in figure 2.

Figure 2: OUA Medical Effort
JFC-UA Briefing Slide, 7 October 2014

Logistics Support

Within the logistics support line of effort, JFC-UA worked with partners to leverage DOD-unique logistics capabilities in support of EVD healthcare efforts.[64]

Globally, USTRANSCOM's strategic sealift and airlift, material tracking, and cargo handling bridged the long distances.[65] In theater, JFC-UA rotary-wing aircraft sped logistics and personnel to remote locations and supported other response organizations when requested through a MITAM.[66] JFC-UA also provided materials ranging from cots and personal protective equipment (PPE) to building materials. It also contributed cargo-handling equipment and the capacity to move personnel and materiel.[67]

The combination of Liberia's poor transportation infrastructure and operations occurring during the rainy season created conditions by which many roads were nearly impassible. This increased the importance of the US military rotary-wing airlift capability to speed support to remote sites.[68] This need was identified early, and the 101st Airborne Division (Air Assault) G-3/Air was one of the first members of that division on the ground in Liberia, arriving 3 weeks before the 101st Airborne Division

CH-47 at Roberts Field
US Army photo, Combat Camera

(Air Assault) took command of JFC-UA.[69] Vertical-lift operations commenced on 14 October 2014 using USMC MV-22s that self-deployed into Liberia from Spain.[70] They were relieved by a mix of US Army CH-47 helicopters for heavy missions and UH-60 helicopters for lighter operations.[71] JFC-UA aircraft supported ETU building and operations, delivering everything from an incinerator for a German NGO to medical personnel.[72] The airlift response was quick, especially when a mission needed immediate action.

> It took our aircraft two hours to deliver material that would have taken weeks to deliver by other means.
>
> *Aviation Brigade 2-501st Battalion Commander[73]*

Medical Training Assistance

The final DOD task was to provide healthcare worker training, focused on EVD symptoms and proper use of PPE, to EVD healthcare workers staffing ETUs.[74] The EVD infection had decimated the country's marginal healthcare system,[75] so Liberia now suffered from a shortage of healthcare workers; at the same time, the fear of contracting the disease deterred greater

international medical relief response.[76] To allay these fears and attract healthcare workers, JFC-UA and USG partners developed a training program to lower the risk of infection. There were challenges since the WHO and MSF used different EVD clinical protocols with different procedures and PPE standards. JFC-UA benchmarked the best practices of both organizations—developing a feasible protocol that complied with GOL directives to train and certify new healthcare workers.[77]

**Demonstration of
PPE Donning**
JFC-UA PAO, 6 January 2015

As JFC-UA developed its program of instruction, the initial RFF for medical trainers was changed to include more clinicians to better match the needed expertise.[78] As ETU construction progressed, four JFC-UA mobile training teams were added and synchronized with the construction of the ETU and recruitment of the healthcare workers by USAID and various NGOs. The mobile training teams would spend about a week at the remote training sites.[79] Flexibility and the right expertise were keys to the mobile training teams' operations.[80] However, delays in the ETU construction schedule affected the training timeline of healthcare workers,[81] contributing to a decision to expand the training mission. JFC-UA developed an enduring "train the trainer" program that conformed to the broad DOD guidance articulated by the USAFRICOM commander to provide a sustainable capacity.[82]

> When we were able to notify the ETU unit in advance that we wanted to leave a program behind so that they could maintain themselves, we were able to work it out. A couple of places did have people who went through Monrovia training first, so that when we got there, they were prepared to be side-by-side instructors with us. In two locations, we ended up having too many students, so we ended up having to do two back-to-back courses. We were able to cherry-pick students from the first course to follow-on as instructors in the second course. We could mentor them and see how they teach. That worked out well because we were able to plan it in advance.[83]
>
> *Commander, 86th Combat Support Hospital*

OUA Transition and Redeployment

MG Darryl Williams led JFC-UA for almost 40 days until MG Gary Volesky of the 101st Airborne Division (Air Assault) assumed command. When JFC-UA personnel returned home, they were required to complete a 21-day controlled monitoring (CM) regimen to ensure they were EVD negative.[84] The CM requirement applied only to uniformed military personnel; other USG members monitored themselves in accordance with the CDC self-performed active monitoring procedure. USARAF and some other early enablers spent their CM time in Germany and Italy, which required bilateral coordination between the USG and host nations.[85] The main response

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forces performed CM in the United States, but the limited capacity of CM space necessitated a staggered redeployment schedule.[86]

By early 2015 the EVD outbreak no longer warranted a large DOD presence in the region. In March 2015, a brigade-level headquarters of 32 soldiers commanded by a colonel replaced the 101st Airborne Division (Air Assault) headquarters that had originally deployed nearly 3,000 soldiers. The WHO declared Liberia Ebola-free on 9 May, and JFC-UA concluded operations on 30 June.[87]

DOD Support in the United States

The 2014 West African Ebola outbreak was the first time Ebola reached US shores. An Ebola-infected Liberian-American traveled from Liberia, via Nigeria and Brussels, to Dallas. He eventually succumbed to the disease and infected two nurses, raising the specter of EVD spreading domestically. In addition, three American healthcare relief workers contracted EVD in Liberia and returned to the United States for treatment. The relief workers survived but the national media reported heavily on these cases, creating significant public angst regarding a potential Ebola outbreak in the United States.[88]

At the height of the Dallas incident, the Department of Health and Human Services requested that DOD provide additional support to treat people if necessary.[89] In response to this request, United States Northern Command (USNORTHCOM) quickly assembled and trained two medical support teams (MSTs) to augment existing US-based Ebola prevention and response capabilities.[90] In addition, USNORTHCOM supported interagency planning to mitigate potential outbreaks along the approaches to and within North America and supported planning for repatriation from West Africa.[91] United States Southern Command (USSOUTHCOM) also initiated planning in the event EVD spread into its AOR.[92]

Pre-Crisis Preparation Themes and Recommendations

> There is a gap in policy and planning for these types of operations. We need to use this opportunity to address the gaps and codify the policy and planning for health crises and pandemics. There is a need for interagency strategy, capability, and training against pandemic outbreaks. This is an opportunity to take that seriously.[93]
>
> *Major General Steven Shepro (Paraphrased), Vice Director Joint Staff J-5**

Operation UNITED ASSISTANCE highlighted shortfalls in planning and preparation across the USG regarding biological crisis response. JCOA's findings and analysis identified deficiencies along four interrelated pre-crisis themes:

- **Roles and responsibilities** were not well understood among USG departments and agencies.
- Insufficient established **policy** existed within DOD to inform operations.
- There was inadequate **deliberate planning.**
- There were shortfalls and a lack of knowledge of **infectious disease response capabilities**.

The USG's 2005 response to Hurricane Katrina spawned a review of domestic emergency roles, missions, terms, and authorities across all levels of government in the United States. Today, the National Response Framework (NRF) clarifies the assignment of responsibilities across municipal, state, tribal, and national government levels—including DOD. Operation UNITED ASSISTANCE provides a similar opportunity to inform the USG on biologic response measures, before a Katrina-level infectious disease disaster strikes.

Roles and Responsibilities

Foreign humanitarian assistance missions prior to Operation UNITED ASSISTANCE provided support to natural or manmade physical disasters, not to a disease response. Although there was no single NRF-like document for the international community, the UN cluster system and USAID processes provided broad definition of roles and responsibilities. Previous FHA missions were initiated by an obvious triggering event (e.g., tsunami, earthquake) that resulted in creation of a DART and subsequent requests for support. However, a disease response has no obvious triggering event. When does a disease outbreak become a US national concern? Who makes that decision? Those answers were not clear regarding Ebola in 2014.

The US ambassador in Liberia thought that EVD had become a USG concern, so she declared a disaster, which initiated the DART response.[94] DOD monitored the situation,[95] but did not anticipate the level of response eventually requested.[96] Almost six weeks passed between

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* The J-5 Directorate conducts strategic planning and is the primary Joint Staff interlocutor with interagency partners.

Ambassador Malac's disaster declaration and President Obama announcing the start of Operation UNITED ASSISTANCE.

The White House guidance stated, "The United States will leverage the unique capabilities of the US military and broader uniformed services to help bring the epidemic under control."[97] However, by most accounts, turning the president's intention into actions and assigning those actions to various USG organizations proved challenging.[98] For example, initially there was confusion among some as to who was the lead federal agency (LFA) in Liberia.[99]

The situation was also initially unclear in Washington. Without a clear framework of roles in the USG interagency process, DOD received impromptu requests directly from other agencies.[100] There was no validation or prioritization mechanism.[101] The Special Advisor to the Joint Chiefs of Staff described the situation, "I didn't feel that enough of the big questions were being litigated at the level needed."[102] The potential for ad hoc and open-ended requests for support, without an overarching USG plan became a concern for the CJCS, as did force health protection and the potential for overreliance on DOD.[103] In early September, he provided advice on the matter to the Secretary of Defense:

> In my view, DOD's role should be to help develop a comprehensive strategy and then to contribute our unique capabilities to enable others to execute it.[104]
> *General Martin Dempsey, Chairman of the Joint Chiefs of Staff*

Without clear guidance, DOD sought to define its involvement. The Pentagon developed two redlines[*] to frame its operations; these operations were conducted within four specific lines of effort: command and control, engineering support, logistics support, and medical training assistance.[105] The defined redlines and lines of effort bounded DOD's tasks.[106]

As OUA progressed, the roles of USG entities in Liberia became clearer due to leadership, initiative, and coordination, as will be discussed later. However, there is need for improvement with regards to roles and responsibilities for a biological or infectious disease response. The deputy director for operations at USNORTHCOM captured the issue:

> We've already taken some steps to improve our capability within our own authorities, but there's a larger effort required out there to identify whole-of-nation capabilities and what we [DOD] do there.[107]

Policy

Policy gives guidance regarding the conduct of operations and provides boundaries for planning.[108] As OUA commenced, there was minimal established policy that was germane to the event. Confusion existed between DOD and other interagency partners regarding DOD's

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[*] 1) No direct patient care and 2) only provide capabilities unique to DOD

redlines and lines of effort. Specific policy decisions were needed to define their precise application.

> I've been doing biologics for 18 years. We put off determining policy questions, like the transport of contaminated remains or infected patients. People said, "We'll worry about it when it happens." It finally happened.[109]
> *Office of the Secretary of Defense (OSD) Stability and Humanitarian Affairs representative (Paraphrased)*

> What change would there be in order to have a better response? Policy. Specifically, strategic guidance on "what is DOD supposed to do," and [we need to] get it earlier. We spent a month planning to do everything, then [were] just told to plan for a 25-bed MMU.[110]
>
> *USAFRICOM J-4 Member*

The nature of the operation and, at times, the bureaucracy within DOD contributed to delays in policy determination.[111] DOD senior staff had years of precedent to rely on when operational questions arose, but that experience was not directly relevant to the Ebola response. DOD actors involved in the EVD response were widely spread, ranging from Washington, DC and Germany to Italy and Liberia. Various staffs and individuals had different perspectives on DOD's role and interpreted the redlines differently.[112] Ensuring unity of effort proved difficult:

Secretary Hagel and General Dempsey Testify on Ebola
DOD Photo, 16 September 2014

> We [OSD staff] were getting different answers from different offices on the Joint Staff. I had to elevate things up to the director so that there was someone who could coordinate across the Joint Staff, so there was only one answer.[113]
> *Assistant Secretary of Defense for Special Operations/Low-Intensity Conflict Michael D. Lumpkin, (Paraphrased)*

Inconsistencies in DOD policy[114] also frustrated interagency partners:[*]

> We would hear . . . from one part of DOD that they have this capacity that
> they thought could be really useful or this function that they thought they
> could do. . . . So we would request that, thinking that this capability had DOD's
> support. Then we would get something back from another part of DOD that
> contradicted the original statement.[115]
> *Jeremy Konyndyk, Office of Foreign Disaster Assistance (OFDA) Director, USAID*

In OUA, policy guidance appeared to be in reaction to, not in anticipation of, tactical events.[116]
When a DART request fell within an ill-defined policy matter, the DOD Ebola Task Force
reviewed the DART request and disseminated guidance via a Joint Staff EXORD. In this way
DOD executed a response despite policy and guidance shortfalls.

> This was done backwards; OSD used the staffing process of the EXORD to get the
> policy discussion out. If we decided that we wanted to build ETU or not do any
> patient care, they would say let's staff the EXORD instead of setting policy. Policy
> should come out, and then the EXORD.[117]
> *Joint Staff J-35 (Paraphrased)*

DOD developed disease response policies for OUA ranging from patient transport[118] to CM.
However, policies remained in draft form and were issued via EXORDs, as seen in
figure 3. The operational need grew faster than the bureaucratic policymaking mechanism
could respond.[119] Opinions as to the efficacy of these policies varied,[120] but it is widely agreed
upon that there is the need for established pre-crisis policy:

> Would it have been better to have the policy at the front end? Sure, it would
> have been better to have the policy at the front end.[121]
> *Anne Witkowsky, Deputy Assistant Secretary of Defense*
> *for Stability and Humanitarian Affairs*

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[*] The situation within the policy-making realm could have resulted in interagency dysfunction. However, relationships
mitigated the worst of the friction. Interviewees regularly cited the work of colleagues in other agencies as critical to the
eventual success of the overall whole-of-government effort to combat Ebola in West Africa.

#	Open/ Closed/ Anticipated	MITAM Linkage	Policy Issue/Discussion	Status/Notes
	As of 15 OCT		DoD LNO to USAID Response Management Team (RMT) Policy Tracker	POC: LTC E. Lee Bryan, rmtebola_al2@ofda.gov
1	Closed	MITAM 1.3	Provision of sustainment for PHS personnel staffing the 25-bed medical facility.	Mod 2 to the EXORD authorizes AFRICOM to provide this support.
2	Closed	MITAM 15	Provision of food for trainees	Mod 2 to the EXORD authorizes AFRICOM to provide this support.
2a	Closed	MITAM 15.1	Provide food and lodging for regional training teams when deployed.	Mod 2 to the EXORD authorizes AFRICOM to provide this support.
3	Open	MITAM 16	Provision of non-medical management and re-supply for up to 19 ETUs for 9 months.	Mod 3 to the EXORD released on 14 OCT. Provides non-medical management of 10x ETUs for 60 days; BPT provide for 17 ETUs for 180 days. Provides supply chain management and re-supply for 10x ETUs for 120 days; BPT provide for 17xETUs for 180 days.
4	Closed	N/A	AFRICOM request to be delegated the authority to execute MITAMs that are "routine" to allow focus on bigger MITAMs that require policy discussions. They would like to have business rules established that outlines which types of MITAMS can be answered/executed immediately.	Mod 2 to the EXORD provides business rules for MITAMs.
5	Closed	N/A	AFRICOM request for policy on tactical MEDEVAC operations and potential use of mil medical aircraft for MEDEVAC and enroute care for trauma type casualties.	Mod 2 to the EXORD provides guidance on this subject.
6	Open	MITAM 21	Logistics Cluster's CCC and ETU supply chain operations. "Last Mile"	Discussion on DOD role for intra-theater distribution/"last mile" logistics based on SOC from the mid-September PC.
Legend	Open Closed			

Figure 3: USAID Response Management (RMT) Team Policy Issues and EXORD Implementation
Provided by DOD LNO

Deliberate Planning[*]

DOD's Joint Strategic Capabilities Plan (JSCP) directed USNORTHCOM to develop a global campaign plan to counter pandemic influenza and infectious disease (PI&ID).[122] USNORTHCOM produced DOD Global Campaign Plan (GCP) 3551 to coordinate "the DOD global PI&ID planning effort and, upon SecDef [Secretary of Defense] direction, facilitate decentralized execution of supporting GCC[†] [geographic combatant commander] plans[‡] to achieve DOD strategic end states."[123] This relationship is portrayed in figure 4.

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[*] The Joint Staff directs combatant commands to develop specific plans for potential military situations. Such deliberate planning occurs before a crisis triggers a response. When a situation develops, crisis action planning describes more detailed planning for the specific event. A deliberate plan comparable to the events of the crisis provides an invaluable "leg up" as it provides significant thought and work on a similar situation. Of particular value may be germane policies and rules of engagement, force flow plans, and potential courses of action. See Joint Publications 1-02 and 5-0 for further information. Joint Publication 5-0, Joint Operation Planning, 11 August 2011.

[†] Combatant commands (CCMDs) include geographic combatant commands (e.g., USAFRICOM) and functional commands such as USTRANSCOM. Geographic combatant commanders have authorities within their specific area of responsibility, while functional combatant commanders have global authorities. All CCMDs have planning responsibilities. Joint Publication 1-02, Department of Defense Dictionary of Military and Associated Terms, 8 November 2010 (As Amended Through 15 October 2015); Joint Publication 5-0, Joint Operation Planning, 11 August 2011.

[‡] CCMDs develop distinct PI&ID plans which nest within the overall DOD-level DOD GCP-PI&ID 3551-13. For example, USNORTHCOM developed CONPLAN 3591-09, USNORTHCOM Response to Pandemic Influenza, and began updating it during OUA as its own regional plan.

Figure 4: USNORTHCOM PI&ID
Global Campaign Plan 3551
USNORTHCOM Provided, March 2015

GCP 3551 provided a PI&ID global campaign framework, including lines of operation entitled "USG Support" and "Partner Nation Support." However, OUA highlighted some shortfalls in planning across the DOD for an actual response to a global infectious disease outbreak.[124] As a global campaign plan, GCP 3551 did not adequately address the particular circumstances of the Ebola outbreak:

- GCP 3551 and associated CCMD plans focused foremost on DOD force health protection and secondarily on providing support to the USG and partner countries.[125]
- GCP 3551 identifies diseases of operational significance—those infectious diseases "(natural, accidental, or deliberate) likely to significantly impact the ability of the DOD to maintain mission assurance or likely to result in significant increases in requests for DOD assistance."[126] Ebola, however, was not considered to meet this threshold.[127]
- GCP 3551 identifies the Joint Staff J-3 as the lead for synchronizing PI&ID execution,[128] but in OUA, the Joint Staff J-5 retained the execution coordination role.[129]

JCOA acknowledges the difficult task assigned to USNORTHCOM and other CCMDs regarding infectious disease planning. Infectious disease planning had been a low priority throughout DOD, including USAFRICOM, lagging behind other national defense planning priorities.[130]

18

There were other legitimate factors that pushed PI&ID planning, and EVD planning in particular, to a lower importance. DOD had "other national security priorities, [and] sequestration[*] was raising its head again. The military was busy."[131] All of this may have contributed to USAFRICOM's limited PI&ID pre-crisis planning.[132]

Planning provides a mechanism for military commanders to study an operational situation and consider viable options. In addition, capabilities and shortfalls in those capabilities are identified via the planning process.

Infectious Disease Response Capabilities

> I had also briefed the commander on my concerns about bio-response capability writ large in the USNORTHCOM AOR. . . . I wondered how well we could execute medical care in a bio-challenged environment. We weren't training for it. . . . So, now you get Ebola coming—a disease where there is no medical countermeasure. . . . We didn't really have any proficiency with the use of PPE, which could not only prevent infection but might save your life.[133]
>
> *USNORTHCOM Surgeon General*

The execution of OUA highlighted:
- Shortfalls in infectious disease training and experience
- Laboratory limitations
- A lack of general knowledge on existing DOD infectious disease response capabilities

Infectious Disease Training and Experience

As OUA progressed, DOD discovered shortfalls in infectious disease training and experience. For example, DOD only had two doctors with EVD clinical patient care experience.[134] When DOD was tasked to form MSTs to respond to a potential EVD outbreak in the United States,[135] the clinical experience of one of the DOD doctors proved to be very valuable.[136]

United States Army North (USARNORTH) was given the responsibility for the development of the MSTs. USARNORTH's after action review highlighted other issues with the MST development: vagueness of requirements, lack of preparation time, the lack of an existing training program, and the need to review team composition and equipment requirements if this is to be a DOD mission in the future.[137] While the MSTs were not called on to treat any patients,[138] their creation portends possible future situations in which DOD healthcare workers may be called upon to treat a civil outbreak of infectious disease. Additionally, by not allowing

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[*] Sequestration, in this context, refers to "the automatic reductions required by the BCA [Budget Control Act, which] would impose significant cuts to Department resources that would significantly increase risks both in the short- and long-term." Department of Defense, *Estimated Impacts of Sequestration-Level Funding,* April 2014, available at http://archive.defense.gov/pubs/2014_Estimated_Impacts_of_Sequstration-Level_Funding_April.pdf (accessed 3 December 2015).

direct patient care, US military caregivers missed an opportunity to gain clinical experience with the disease.[139]

DOD Laboratory Capabilities

DOD's laboratory capabilities to identify rare, infectious diseases reside within medical research and development organizations including DTRA, the Naval Medical Research Center (NMRC), and the United States Army Medical Research Institute of Infectious Diseases (USAMRIID). Two initial labs for OUA were created by marrying DTRA equipment with NMRC personnel.[140] The US Army has a single deployable area support laboratory, the 1st Area Medical Laboratory (1st AML).[141] The 1st AML had to task organize to create four additional labs for OUA.[142] USAFRICOM was also fortunate that DTRA[143] had funded USAMRIID operations in Sierra Leone for several years;[144] this provided an immediate EVD testing capability when two personnel relocated to focus on EVD in Liberia.[145] Few standard medical laboratories would have a similarly robust spectrum of infectious disease-testing capabilities.[*]

USAMRIID's Dr. Randal Schoepp at LIBR
JCOA Photo, 22 February 2015

Lack of Knowledge and Visibility on Capabilities

In addition to the those outlined above, OUA revealed a broad spectrum of infectious disease response capabilities that had not been previously identified or sourced, from patient transport systems to PPE requirements.

> One lesson is we are underinvested in the B in CBRNE [chemical, biological, radiological, nuclear, and high-yield explosives]. We need to conduct a comprehensive assessment of our requirements across the government for needed changes.[146]
>
> *Brigadier General James Taylor (Paraphrased), USNORTHCOM Deputy J-5*

Many capabilities for dealing with infectious disease, such as mobile hospitals, are inherent in normal combat operations planning and are evident to CCMD planners; however, there are other medical assets, such as the NMRC labs that are not visible in any of the DOD databases utilized by planners building RFFs. According to the Joint Staff surgeon general, DOD's medical capabilities are vast and many that are specifically applicable to PI&ID are unknown and unseen to a broader DOD audience, let alone in other parts of the USG.[147]

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[*] Standard deployable US military medical laboratories have diagnostics equipment to support normal military medical requirements. They are not normally equipped with diagnostic tests for rare, exotic diseases such as Ebola.

Each day I learn more about the medical capabilities we, DOD, have. We are so diverse that . . . I am constantly learning. . . . I do not believe our senior leadership has a full grasp on our capabilities; we all need to understand them better.[148]

Major General Nadja West (Paraphrased), Joint Staff J-4 Surgeon

A well-developed series of CCMD-level PI&ID plans nested underneath USNORTHCOM's GCP 3551 would help to better identify the infectious disease capabilities needed by the CCMDs to conduct PI&ID operations and inform CCMD planners and leadership on existing DOD infectious disease capabilities.

Pre-Crisis Preparation Recommendations

The EVD crisis provided a stark warning: a more aggressive disease outbreak would challenge the current USG decision-making cycle to respond in timely manner. Ebola's low contagiousness inhibited the disease's spread; a more virulent pathogen would move more rapidly and unpredictably, pressuring the USG's decision cycle. The military plans for its roles and responsibilities within established policies using the capabilities it is afforded. Robust planning, in turn, may identify gaps in policy or capability shortfalls that prevent achievement of roles and responsibilities.

As the pre-crisis themes (roles and responsibilities, policy, deliberate planning, and infectious disease response capabilities) are interconnected, it is difficult to make a recommendation in one area that does not have a follow-on effect with the others; therefore, the recommendations are presented in a combined form. Specific detailed recommendations for each area are included in appendix B.

- DOD should advocate for the USG to work with international organizations, NGOs, partner nations, and other stakeholders to clearly define roles and responsibilities during international infectious disease responses. With this as a base, DOD should then support USG clarification of roles and responsibilities to integrate USG efforts of PI&ID planning, execution, and authorities. Particular emphasis should be placed on identifying and addressing gaps and seams between international and domestic efforts. This examination should include applicability of concepts that have been successful in the Federal Emergency Management Agency's NRF and definition of emergency support functions, responsibilities, and required core capabilities for a contagious biological outbreak.
- DOD should advocate for a national-level framework to establish priorities, identify expected levels of performance and capability requirements, provide standards for assessing needed capabilities, ensure the exchange of critical information, define supporting and supported roles and functions, and support national-level exercises.
- DOD should support a review of interagency PI&ID decision making and the development of a structure for a cross-organizational USG team that can coordinate a scalable whole-of-community contagious biological response to provide a more timely and flexible capability for responses. To expedite decisions, DOD should examine how it

specifically works directly with partners, including the United States Public Health Service [USPHS], CDC, Department of Health and Human Services [HHS], and USAID. DOD should also review the placement of liaisons between DOD and its partner organizations.

- A national framework could inform planning across the USG and thereby support DOD policy development and planning guidance published in the Guidance for Employment of the Force (GEF) and other strategic documents directing CCMD planning. DOD should also clarify the roles and authorities for synchronizers of disease response planning and execution.

- DOD should support the continued development of USG strategic plan(s) that increase public health and bio-surveillance capacities of partner nations. DOD should support the strategic plan(s) through CCMD capacity development (conducted during steady state and phase 0 [shape] operations) and Global Health Security Agenda activities. DOD should support improved disease modeling that is based on a better understanding of social conditions and behaviors, thereby more accurately predicting likely outbreak locations and pathways.

- DOD guidance should direct increasing emphasis on deliberate CCMD planning against specific types of "diseases of operational significance" to increase the applicability of the plans to an actual crisis. DOD should encourage collaborative planning and exercising (against a prioritized set of potential diseases scenarios) among CCMDs, other USG partners, and partner nations.

- DOD should examine policies developed specific to OUA for applicability to future PI&ID operations and institutionalize them as appropriate. Policies should be prepared for the inter- and intra-theater transport of highly infectious personnel, contaminated remains and materiel, and infectious medical specimens. Policies for the redeployment of personnel need to adjust for the risk of infection by disease category in order to ensure force health protection.

- OUA demonstrated a mix of capabilities needed to respond to a global health crisis. DOD should inventory its current medical capacity and develop a database and planning primer of all DOD niche medical capabilities. Concurrently, DOD should conduct a capability based assessment to identify the gap between DOD PI&ID requirements (identified in planning) and current capabilities to respond to infectious disease outbreaks. Likely capability shortfalls may be addressed by training, better use of medical expertise, partnering with other USG entities, supply management, and improved distribution of infectious disease-related medical countermeasures and PPE.

Crisis Response Operations Themes and Recommendations

> I traveled to the region thinking we faced a healthcare crisis with a logistics challenge. In reality, we face a logistics crisis focused on a healthcare challenge. The shortage of local transportation, passible roadways, and inadequate infrastructure to facilitate the movement of essential supplies and equipment are hindering the overall global community response to contain and combat the Ebola outbreak.[149]
>
> *Assistant Secretary of Defense for Special Operations/Low-Intensity Conflict*
> *Michael D. Lumpkin*

Operation UNITED ASSISTANCE provided insights into DOD's biological response mission and deployment activities, which have not been regularly exercised over the last decade. This section examines five themes which emerged during OUA:

- **Bio-surveillance** challenges and shortfalls
- Challenges in conducting pre-crisis **assessment of the operational environment**
- **Deployment** challenges into an austere theater
- Positive and negative **messaging, networks, and collaboration** practices, and
- A successful **transition and redeployment** of forces

All geographic combatant commands, including USAFRICOM, produce a theater campaign plan that broadly outlines the combatant commander's goals and lines of effort. Phase 0 of the plan is the steady-state monitoring and security cooperation efforts that respectively inform the CCMD of ongoing issues in its area of responsibility, while shaping the security environment.

Once a triggering event occurs (although as mentioned earlier, the Ebola outbreak had no obvious triggering event), military operations move into a phased operational approach with specific actions and indications that move the operation from deployment, through employment, to redeployment and eventual return to a new Phase 0 state. The following analysis roughly follows this flow, beginning with the challenge of identifying a possible trigger event through bio-surveillance.

Bio-Surveillance*

Bio-surveillance and modeling efforts were inadequate to rapidly identify, effectively monitor, and accurately predict outbreak trends.

Bio-surveillance encompasses the monitoring function for PI&ID. As discussed in the previous section, DOD conducts active bio-surveillance with regard to force health protection, but has limited bio-surveillance assets to deploy for other purposes. DOD organizations with robust bio-surveillance capacity (e.g., DTRA, USAMRIID) concentrate their highly capable, but limited, assets in geographic areas of military significance. In Africa, DOD bio-surveillance is scarce; however, there were some limited assets on the continent. For example USAMRIID[150] was in Sierra Leone† conducting Lassa fever research; USAMRIID capabilities are shown in figure 5.
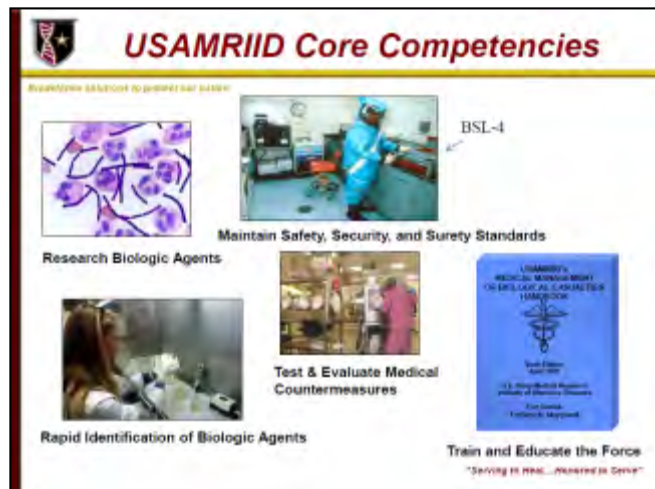
Figure 5: USAMRIID Mission
USAMRIID Overview, Undated

The preponderance of disease cueing available to DOD and others originates with foreign local, regional, and national healthcare systems, which report health statistics to the WHO and other international health organizations.[151] As we have shown previously, as the disease spread the number of cases was underreported due, in large part, to the limited healthcare infrastructure prevalent in the region.[152] These public health system limitations were evident in Liberia, making determination of the outbreak's scope in that country difficult. Remote areas were effectively isolated.[153] As a result, some potential EVD patients had their blood drawn for testing,[154] but the results were delayed until after they reached the healthcare providers.[155]

Terminology inconsistencies were another challenge to accurate reporting. According to a DTRA official, "Terms were not consistently or clearly defined. How WHO, CDC, and the affected countries classified cases as 'potential' or 'suspected' drove us crazy. The numbers were

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* Homeland Security Presidential Directive-21 defines bio-surveillance as "the process of active data-gathering with appropriate analysis and interpretation of biosphere data that might relate to disease activity and threats to human or animal health—whether infectious, toxic, metabolic, or otherwise, and regardless of intentional or natural origin—in order to achieve early warning of health threats, early detection of health events, and overall situational awareness of disease activity. For additional information see the National Strategy for Biosurveillance available at https://www.whitehouse.gov/sites/default/files/National_Strategy_for _Biosurveillance_July_2012.pdf.
† USAMRIID operated in Sierra Leone in the Kenema Government Laboratory, a medical testing facility with sponsorship provided in part by DOD's Defense Threat Reduction Agency (DTRA.)

changed and re-baselined. It wasn't clear what they'd done or why."[156] These limitations compelled the WHO to broadly define categories of what constituted an EVD case: confirmed, probable, or suspected. Only "confirmed" cases included a positive EVD lab test. A WHO report cited a discrepancy between the reporting of EVD cases in Monrovia and "credible reports obtained by responders," and advised that adding "probable and suspected cases, together with those confirmed, may be a more accurate reflection of case numbers in Liberia."[157]

In addition to poorly defined case counts, complications existed in sharing medical information. Liberian health officials were reluctant to share information, as medical data contains a mix of private and public health facts.[158] Agencies that aggregate medical statistics, such as the WHO, must follow the privacy rules established by their contributors. For example, a DTRA member stated, "CDC received information from WHO, but they couldn't share it with us [US military] because they didn't own the information. Government organizations, such as ministries of health, in partner countries are risk averse in providing information to DOD. WHO said 'no' at their upper echelons."[159] While decisions to share medical data must balance individual rights versus the public good, the lack of transparency can affect disease modeling and potentially impact decisions based on those models.[160]

Disease outbreak models can be powerful mechanisms to assess the effectiveness of disease response and inform decision makers as to where and to what degree a disease may spread. Virginia Polytechnic Institute and State University's Network Dynamics and Simulation Science Laboratory, which supported DTRA's modeling efforts, described the importance of epidemic modeling as:

> Modeling disease outbreaks can therefore be helpful by providing epidemic forecasts that explain the complex dynamics of infectious diseases. Simulation and modeling can predict the likely impact of possible interventions before they are implemented. As a result, policy makers and public healthcare workers are provided with measurable guidance and support.[161]

However, errors with a model's underlying data will skew the output and render decisions based on those results suspect.[162] In OUA the modeling of EVD did not account for social practices that increased exposure to and transmission of the disease.[163]

Although DTRA used modeling simulations that included population behavior,[164] its analysts did not fully understand the complex dynamics exacerbated by West African cultural practices such as burial rituals and social migration. For example, burial practices, which are deeply rooted in the culture, may include touching the corpse and sharing a ceremonial drink with the family and friends of the deceased.[165] The modeling also did not accurately account for the flow of people across the porous borders[166] or from rural areas to urban centers,[167] nor did it account for the potential exodus of people from West Africa via transportation networks.[168]

Bio-Surveillance Recommendations

A robust worldwide bio-surveillance capability is imperative for early detection and intervention against a disease threat. While not a primary DOD responsibility, there is a role for DOD across the bio-surveillance effort to detect diseases, accurately confirm their presence, and contribute to situational awareness of the disease path.

- DOD should advocate for a global network of laboratories with expanded sharing of medical information and standardized terms.
- Within this global network, DOD should assess its laboratory footprint and adjust assets, as appropriate.
- DOD should expand the list of "diseases of operational significance" and the assays deployed with laboratories.

Assessment of the Operational Environment

USAFRICOM faces a considerable challenge to maintain sufficient awareness of its 53-country area of responsibility from its base in Germany,[169] with scant assigned forces deployed on the African continent.

> I think we did a poor assessment. I think … [we lacked] a true understanding of what's there, and as a command we ought to have the resources, both in people and funds, to actually do some sort of survey on what's available in each country. That's a tremendous undertaking in Africa with 53 countries, but that [capability] just doesn't exist.[170]
> *Brigadier General Peter Corey, USARAF and JFC-UA Deputy Commanding General*

The lack of complete initial assessment impacted planning and operations, most notably in an RFF that was more robust than subsequently needed.[171] The initial priority intelligence requirements concentrated on security-related issues such as force protection, protection of American citizens, potential atrocities, and partner will, but did not include in-country capabilities to support the response.[172]

By 15 September, the DART taskings to DOD included the MMU and equipment, which implied the need for construction capability and material, and the logistics support to facilitate those tasks. USAFRICOM did not have an assessment of what materials and commercial-building capabilities were available locally that could be contracted out, contributing to USAFRICOM's underestimation of the indigenous capacity resident in Liberia.[173]

Though a challenging task, there were assets and programs that could have been more fully leveraged to improve the initial assessment. In addition to the defense attaché and security cooperation functions resident in the embassy, ongoing DOD security cooperation programs in Liberia were available to support an USAFRICOM assessment of the operational environment.

The US Marine Corps supported Operation ONWARD LIBERTY (OOL), an ongoing program to mentor and advise the Armed Forces of Liberia (AFL). The US Ambassador to Liberia lauded OOL as the best type of theater security cooperation.[174] A USAID official observed that the relationship between the AFL and DOD, forged before the Ebola crisis, enabled the AFL and US military to work together with logistics and building Ebola treatment units.[175] USAFRICOM leaders described OOL as "seed corn" for success in Liberia.[176] However a USAFRICOM staff member commented that they [USAFRICOM] should have been more familiar with OOL, noting that OOL had been so successful that "it had turned into a kind of a fire-and-forget event."[177]

USAFRICOM also had expertise in Liberia from the disaster preparedness program (DPP). This program was started four years before the Ebola crisis to help countries in Africa prepare disaster response plans, including those for infectious disease. Although it was focused primarily on influenza, DPP provided basic disease response training, which could be adapted to other outbreaks. A list of DPP participants is shown in figure 6.

During the Ebola crisis, the GOL asked USAFRICOM to assist in modifying its disaster preparedness plan to respond to Ebola.[178] The US defense attaché in Monrovia described Liberia outreach to USAFRICOM via DPP:

Figure 6: DPP Participants
USAFRICOM Slide, Undated

> [The] Ebola scare kicked off in March, but we had a disaster preparedness meeting already planned [for] April. It helped generate good discussion with the government of Liberia. . . . Then in September, at the height of what was going on, they literally requested [US]AFRICOM send in the disaster preparedness planners to help them, as the government was developing their Ebola strategy.[179]

The Michigan National Guard started a relationship with Liberia in 2009 through participation in the State Partnership Program[*] and will continue to be a DOD presence in the country well after Operation UNITED ASSISTANCE. The 101st Airborne Division (Air Assault) leveraged the Michigan National Guard's experience to gain insight into the operational environment before it deployed. According to a 101st Airborne Division (Air Assault) civil affairs officer:

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[*] The State Partnership Program links a state's National Guard component with the armed forces or equivalent of a partner country to conduct cooperative, mutually beneficial engagements. www.nationalguard.mil/Leadership/Joint Staff/J5/International Affairs Division/StatePartnershipProgram.aspx

One of the big wins for us during pre-deployment was the State Partnership Program that the National Guard has with Liberia. There are National Guardsmen in Liberia now. The Michigan adjutant general spoke with our commanding general which was a huge homerun. He gave us a rundown of what they were doing and things of which we needed cognizance.[180]

Assessment of the Operational Environment Recommendations

- CCMDs should examine practices in leveraging all potential resources: embassies, exercise forces, military-to-military programs, regional centers, commercial organizations, etc., to inform AOR assessments.
- CCMDs should ensure the crisis action planning process includes the capability to rapidly update assessments so that forces can be tailored to meet specific mission needs and risks.
- CCMDs should ensure assessments identify specific actions that can be taken in the initial phases of an operation to produce immediate desired effects.

Deployment

USAFRICOM overcame several challenges in the short-notice deployment of forces into an austere environment. USAFRICOM designated USARAF as the initial JFC-UA headquarters element, which provided an immediate command and control capability. USAFRICOM overcame planning deficiencies to develop a viable crisis response plan and accompanying force movement schema to establish the theater for follow-on forces.

Establishing Command and Control

USAFRICOM was tasked to respond to this crisis under a very compressed timeline. In any deployment, command and control is paramount in establishing the conditions for execution of follow-on operations. USAFRICOM made timely decisions in establishing an initial command and control element that enabled, what by most accounts, was a successful deployment of forces.

USAFRICOM leadership decided not to establish a joint task force (JTF); instead, it directed the use of a joint force command (JFC). USAFRICOM assessed the JFC model as more agile as it avoided several personnel management processes, notably a perceived sluggish mechanism to establish a joint manning document (JMD) in which each Service's equities would have to be considered.[181] USARAF was able to arrive quickly—arguably with more speed, cohesiveness,[182] and knowledge of the region than an ad hoc JTF would have.[183]

In OUA, the decision to use a SCC worked. However there are factors to consider when utilizing a component as the headquarters for an operation. USARAF is a small staff with ongoing US

Army Title 10 responsibilities[*] and limited, short-term capacity to command an operation in addition to performing its normal duties.[184] MG Williams was able to establish JFC-UA headquarters with the team he took to Africa for the initial site survey and set the conditions for follow- on elements[185]while maintaining USARAF's Title 10 duties and much of the OUA planning function at HQ USARAF in Vicenza, Italy.[186]

Initial Crisis Response Planning

By most accounts, DOD monitored the worsening situation but had not planned for and did not anticipate the level of response eventually requested.[187] The initial planning expectations were for limited DOD involvement.[188] By the time DOD was directed to engage, USAFRICOM had completed little deliberate planning for the eventual crisis action response.[189]

> We watched Ebola for some time. In July in Guinea, we saw the spikes in the outbreak and heard the rumblings. We thought then that it could spill over— that we could be asked to do something—but we didn't do anything about it. We've been watching certain crises forever, but haven't taken action.[190]
> *Major General Bryan Watson (Paraphrased), USAFRICOM J-3*

Inputs for a crisis action plan include the mission objectives, a joint intelligence preparation of the operational environment, and analysis of lessons learned from past operations of a similar nature. USAFRICOM faced a challenge in converting the strategic guidance for a unique mission, with many unanswered policy questions,[191] into concrete operational plans and actions. The USAFRICOM J-3 (who was tasked to "sort out" the specific objectives) wrestled with crafting specific objectives within the vague strategic parameters provided.[192]

Crisis action planning without specific policy guidance, existing plans, and a robust operational assessment proved challenging. Subsequent to the presidential pledge of US support, USAFRICOM referenced some general, pre-crisis PI&ID mission analysis and a draft PI&ID contingency plan that had been written in two days.[193]

As USAFRICOM postured to perform crisis action planning for an eventual EVD response mission, the USAFRICOM J-35 was designated as the lead division for planning.[194] USAFRICOM leveraged an operational planning team (OPT) to work the EVD crisis, with 20 distinct working groups under the OPT to tackle specific issues.[195] Planners at USAFRICOM and USARAF also capitalized on the exchange of liaison officers (LNOs) with other organizations[196] and USTRANSCOM JECC representatives who were at the headquarters for a previously scheduled exercise.[197] The OPT acted to synchronize the working groups and resident expertise to produce a coherent product.[198]

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[*] Title 10 of the US Code provides the legal basis for the roles, missions, and organization of each Service in DOD. In brief, the focus of the Services is on providing forces for employment by operational commanders. DOD Directive 5100.01, Functions of the Department of Defense and Its Major Components, 21 December 2010.

Initial Force Movement Planning[*] and Execution

USAFRICOM did not have an applicable PI&ID plan with a recommended RFF and time-phased force and deployment data (TPFDD) that could be tailored to fit the specifics of OUA; this required the staff to build them from scratch on short notice.[199] As stated earlier, USAFRICOM had to draft the RFF before it had developed a full assessment of the mission requirements in order to meet the necessary deployment time requirements.

> Political pressures existed to get into country, so they started writing requests for forces before the entire mission planning was complete. We saw the impact of that when we were preparing to send about 500 pieces of equipment home without them ever being used.[200]
>
> *USAFRICOM GFM/JOPES Planners*

USAFRICOM initially produced a large RFF due to unclear requirements, urgency, and incomplete assessment that necessitated the use of conservative planning assumptions. This was prudent, but led to the deployment of considerable excess equipment.[201] A USARAF-developed RFF arrived at USAFRICOM on 17 September 2014. In total it requested 6,653 personnel[202] for multiple potential scenarios, including exponential EVD patient growth, civil unrest, and regional operations. The announcement of 3,000 troops somewhat shaped OUA's mission according to a USARAF source:

USMC Special Purpose Marine Air-Ground Task Force-Crisis Response Africa
USAFRICOM Photo, 9 October 2014

> We [USARAF] got it pushed [to us] before any mission analysis was complete. Got told "3000 folks," but still didn't know what to do. We were told to get the [personnel requirements], and yet we didn't have a mission statement.[203]

The shortage of JOPES-qualified personnel at USAFRICOM, USARAF, the JFC, and deploying units also impacted the efficiency and effectiveness of deployment planning and execution. Interviews conclude that even if USAFRICOM and USARAF had a clearer definition of the mission and sufficient time for an accurate assessment, they would still have been challenged

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[*] Force movement planning is an important component of the overall plan as it directs the movement of people and materiel. A well-crafted plan includes an accurate list of the necessary military force to execute that plan. Force movement planners help develop a request for forces that, in turn, informs a detailed time-phased force and deployment data. The Joint Operation Planning Execution System (JOPES) is a "system of systems" used by DOD to request and validate forces. Joint Publication 3-35, Deployment and Redeployment Operations, 31 January 2013.

to build an accurate RFF, as both commands and JFC-UA lacked sufficient JOPES and movement planning qualified personnel for the crisis response.[204] Due to this lack of capability and limited expertise, a prioritized and sequenced listing of forces requiring deployment into the joint operational area (JOA) was never created, which ultimately resulted in sending cargo that was not utilized nor needed to support this type of mission.

OUA planners were hampered because some key enabling capabilities, necessary for this type of response, were not visible in the global force management (GFM) system. For example, some unique functions (specifically the laboratory capacity needed for EVD diagnosis) do not appear on any list of potentially deployable forces.[205] Without personal knowledge that these capabilities were available, planners would not have known of the existence of much of DOD's specialized medical diagnostic expertise.

USAFRICOM owns very few assigned forces for which it had the authority to move rapidly into the theater. Despite this, USAFRICOM was able to quickly deploy its assigned forces and those it shared with other commands, rapidly building capability as a bridging solution until the RFF process could catch up. For example, USTRANSCOM somewhat mitigated the deficit by sending temporary enabling forces, such as joint task force-port opening (JTF-PO) and the JECC, into theater under its global force deployment authority.[206]

Given the time constraints, unknown nature of the mission, and potential for unforeseen circumstances, USAFRICOM had to be conservative and request force modules more robust than were ultimately required.[207] As the operational picture clarified, USAFRICOM had difficulty adjusting the flow once it began, as processes could not rapidly adjust.[208] USTRANSCOM tried to accommodate changes,[209] but the initial RFF set in motion actions difficult to alter[210] and monitor.[211]

> The lack of flexibility in getting resources on the ground was frustrating. . . .
> We were fighting the plan, not the set of conditions. There were a lot of holes in our [initial] assumptions off of which that that plan was based. As we progressed and started filling in those assumptions with facts, I was very frustrated with either the slowness or just downright unwillingness to just accept the fact and change the plan…. There was just a general reluctance to change the TPFDD and flow forces without the equipment.[212]
>
> *USARAF G-3 (Paraphrased)*

Early enablers, like JTF-PO, were critical to success. For example, the Defense Logistics Agency (DLA) provided key logistics and contracting enablers. Informal relationships enabled the inclusion of the commander of DLA in Europe as part of the initial USARAF assessment team. An operational contracting support subject matter expert followed shortly. In addition, JTF-PO provided initial contracting capability.[213] DLA also used working capital funds to support initial contracting actions prior to the subsequent approval of OHDACA (Overseas Humanitarian, Disaster, and Civic Aid) funding.[214] Including logistics and contracting experts in the original USARAF force package also "paid huge dividends from the beginning, and the benefits

continued throughout the operation."[215] A robust contracting capacity helped JFC-UA mitigate problems by maximizing local capacity, thereby minimizing the DOD footprint.[216]

Enabling capabilities accelerated deployment and theater opening, but several enablers were unavailable when required. For example, the Joint Public Affairs Support Element was delayed for about ten days at a time when there was large media interest; once it arrived, it proved very a valuable part of the effort.[217]

Theater Opening

As stated above, USAFRICOM has few assigned forces that it can readily move to a crisis location within its own area of responsibility. When a crisis calls for an immediate response, USAFRICOM has to work through its USEUCOM and USTRANSCOM partners.

Remissioning[*] of allocated USAFRICOM forces permitted the Marines and Seabees to deploy rapidly to establish an initial capability and set conditions for a larger main force that follows via the RFF process. A force sharing agreement between USAFRICOM and USEUCOM also provided early engineering support.[218]

> The basic problem is lack of forces in USAFRICOM. They did take some forces out of hide—Seabees from JTF Horn of Africa and a special purpose Marine air-ground task force. . . . There is a force sharing agreement with USEUCOM— a requirement for support. It generally is for short-term support of 30 days or less, but it is a way to get things out the door quickly. It is beyond valuable because there is no red tape in front of it.[219]
>
> *USAFRICOM GFM/JOPES Planner J-354 (Paraphrased)*

USTRANSCOM's worldwide mission and global authorities to perform specific missions proved valuable. As previously mentioned, USTRANSCOM's JECC planners provided planning support at HQ USAFRICOM and USARAF. In theater, lead elements of USTRANSCOM's JTF-PO,[†] and a joint assessment team (JAT) arrived in Liberia on 20 September.[220]The JAT's logistical and engineering expertise initiated USTRANSCOM actions that resulted in the establishment of Dakar, Senegal as an intermediate

US Air Force C-17 Loads in Senegal
US Air National Guard Photo,
19 October 2014

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[*] While the force sharing agreement and reassignment of missions allowed quicker movement than the normal RFF process, they still required authorities that were provided via Modification 1 to the Joint Staff EXORD.

[†] Joint task force-port opening provides a joint, rapid response capability to operate and clear a [port of debarkation and] move cargo through a forward node to increase throughput. JTF-PO is OPCON [operational control] to USTRANSCOM as a temporary force that facilitates movement until RFF forces arrive, help with handoff, and then forward deploy/redeploy. USTRANSCOM JTF-PO briefing, 15 November 2013.

staging base, Roberts International Airport in Monrovia as an aerial point of debarkation, and the port of Buchanan, Liberia as a seaport of debarkation (SPOD).[221] Engineers further assessed the condition of those facilities and established the requirements for sustaining the larger follow-on force:[222]

> By 28 September, JTF-PO (JTF Port Opening) Liberia was fully operationally capable in Monrovia with a working maximum on ground (MOG) of two airplanes. Forces then flowed to Senegal, where 101[st Airborne Division (Air Assault)] personnel arrived on 4 October on three C-17 missions to establish JTF-PO Senegal.[223]
>
> *USAFRICOM Press Release*

However, other enablers required a formal RFF and did not arrive as quickly.[224] For example, USAFRICOM put the contingency response unit of the 416th Theater Engineering Command on the RFF and then found out they would not be ready to deploy for 120 to 180 days.[225]

In general, several OUA participants noted an overall degradation of individual and unit-level experience deploying into an immature theater.

> [Over] the last 12 or 13 years we have become accustomed to arriving in a theater and there is a FOB [forward operating base] all set up for you with a Starbucks™ and a Kentucky Fried Chicken.™[226]
> *Brigadier General Peter Corey, USARAF and JFC-UA Deputy Commanding General*

As an experienced logistics officer described the expectations of deployed troops:

> We literally had [joint] units roll in there . . . that [on] day two they were asking for "hot chow" because their expectation was they were going to fall into a forward operating base and all that stuff was already there. I said, "Hey, welcome to an immature theater. Welcome to being expeditionary. You are going to eat MREs [meals, ready to eat] and [drink] water for the first 30 days-plus."[227]

Deployment Recommendations

- DOD should examine the construct of the joint force command used by USAFRICOM during OUA, to include employment conditions and criteria, and incorporate appropriate portions into joint doctrine as an option for time-sensitive operations.
- DOD should develop generic crisis response force packages, to include a base set of HQ (with JMDs) and key enablers to form a draft initial TPFDD for any emerging response, and add these packages to the joint capabilities requirement management system as required. As part of this, they should identify staff augmentation and liaison officers to fill the crisis JMDs (for themselves and the response HQ).
- DOD should increase JOPES and GFM training. Expand JOPES capacity and ensure the JOPES cells at all levels are capable of 24-hour operations during times of crisis.

- DOD should improve visibility, management, and synchronization of force flow by taking operational and tactical actions including:
    - Developing better force flow visualization tools to align capabilities in the joint capabilities requirement management system with force training numbers in JOPES. GFM tools should be updated to improve visibility of unique capabilities, such as those from DTRA and Defense Logistics Agency (DLA). Tools should allow the integration of USTRANSCOM and other early enabler packages with CCMDs' early deployers to enable a review of timelines, which would ensure critical early entry enablers are available when required.
    - Improving the interface of Services' existing movement planning tools and policies with the joint systems, with an ultimate goal of replacing the current segregated Service systems with a single common joint application.
    - Increasing individual preparations and unit-level planning, training, and exercises that replicate the conditions of rapid deployment and operations in an austere theater environment.
    - Developing a database and planning primer of all DOD niche medical capabilities, to include non-deployable assets, for quick access by senior leaders and planners.

Messaging, Networks, and Collaboration

OUA presented a number of challenges to successfully aligning DOD response efforts. DOD was not the lead federal agency and OUA was a new type of military response involving a variety of participating organizations, to include a new UN organization (UN Mission for Ebola Emergency Response). As identified in previous foreign humanitarian assistance (FHA) operations, information technology continued to be a problem. There was also a large need to synchronize activities and communications to allay fears, manage expectations, and avoid confusion.

AMB Malac and MG Volesky in Joint Site Visit
Combat Camera Photo, 22 January 2015

MG Williams and MG Volesky established a culture and reinforced practices within the military that supported and enabled success for the USAID-led whole-of-government efforts to contain EVD. Emphasis on personal engagement and adaptive mechanisms mitigated persistent difficulties coordinating and collaborating in a complex interorganizational environment. Both leaders stressed that DOD was in support of the Government of Liberia and USAID. As MG Volesky would say, "We aren't the lead sled dog."[228]

Messaging

Influencing perception was an important element in the counter-EVD strategy. There was a pervasive sense of despair. The Liberian government suffered a public affairs setback when riots broke out in mid-August. In addition, while the US military's arrival brought hope for most, the arrival also brought about rumors that the United States would establish a permanent presence or take over the government.[229]

The USG leaders established the importance of a unified overall message and held joint DART-embassy-DOD public affairs events.[230] MG Williams recognized the importance of positive messaging and provided guidance to his public affairs officer accordingly.[231] USARAF relied on the embassy staff in evaluating local media conditions,[232] which provided leadership on messaging efforts focusing on a Liberian audience.[233] USARAF public affairs collocated with the US embassy's public diplomacy section to ensure close coordination.[234]

**AMB Malac and MG Williams
Hold a Joint Press Event**
US Army photo, Combat Camera

Communications synchronization was not without challenges. The increased media attention surrounding the creation of JFC-UA resulted in multiple USG agency public affair offices, in and outside of the theater, fielding a broad spectrum of media inquiries.[235] Public affairs guidance, video teleconferencing, and email exchanges were used to align these efforts.[236] Another challenge was the lack of JFC-UA public affairs capability; this situation improved with the deployment and support of the Joint Public Affairs Support Element.[237]

JFC-UA sought to replicate the interagency messaging coordination success throughout OUA by enabling computer networking and information management tools. However, those efforts met mixed success due to the lack of common networks, overuse of classified systems, and the lack of a common collaboration tool with other partners.

Networks

The DOD response included units that normally operated on different computer networks—[238] not the USAFRICOM network—which complicated the establishment of a common network as shown in figure 7.[239] Intra-DOD collaboration and communication suffered from the requirement to reimage computer components from an assortment of administrative domains to a single platform.[240] To complicate matters further, there was no architecture to support DOD bandwidth requirements in West Africa, causing DOD to make use of the local, commercial internet service provider to augment its limited bandwidth.[241]
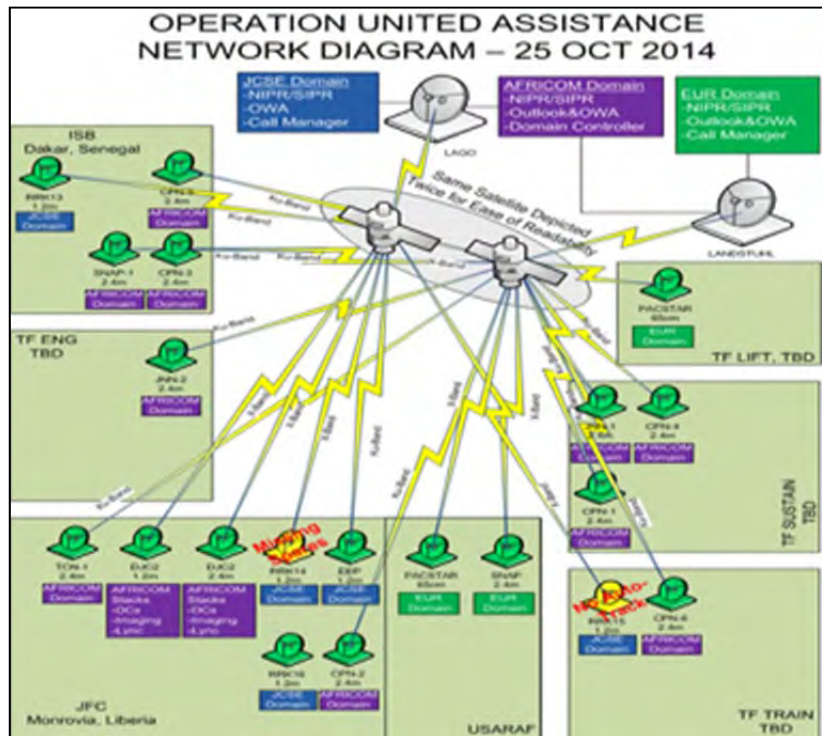
Figure 7: OUA Network
USARAF Slide

The DOD propensity to default to the SECRET Internet Protocol Router Network (SIPRNET) imposed a hurdle to communication and collaboration internal and external to DOD.[242] Routine information concerning operational orders, TPFDDs, status reports, and similar data was generally relayed via SIPRNET, regardless of whether or not the actual data was classified.[243] Additionally, JFC-UA SIPRNET access (and bandwidth) was extremely limited impacting communications for DOD units.[244] A USAFRICOM officer described the desire to use SIPRNET:

"The use of classified systems is absurd. Everything is on SIPRNET, even if it is unclassified information. It's a mindset, and the resultant amount of time spent on SIPRNET is ridiculous. It's an 80/20 SIPRNET/NIPRNET [Non-secure Internet Protocol Router Network] ratio. . . . We need to get out of the mindset [of defaulting to the classified system] and force ourselves to exercise in an unclassified environment."[245]

JFC-UA Communications Equipment
JCOA Photo, February 2015

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However, the exclusive use of NIPRNET alone would not have solved collaboration problems in an environment that included a mix of DOD, other USG agencies, and NGOs. NIPRNET provides DOD access to the internet, but many DOD NIPRNET applications require use of a common access card (CAC) that enables user authentication and encryption, thus effectively denying non-CAC users access to DOD online tools.[246]

Information management and effective collaboration were difficult in OUA as online collaboration tools were not standardized across participating agencies.[247] The lead for JFC-UA communications preferred to use APAN[*] as the primary interorganizational collaboration tool,[248] but others internal and external[249] to DOD differed on APAN's usefulness.

Although information was shared through other means (discussed below), MG Williams noted, it is important to "develop a common communication network within the USG that will facilitate unclassified data sharing between interagency and external entities (e.g., UN, NGOs)."[250]

Collaboration

> When MG Williams came, he had lunch with the DART, MSF, and embassy staff. We went over the specifics for planning response activities such as the building of ETUs. It was extraordinary.[251]
>
> *Deborah Malac, US Ambassador to Liberia*

JFC-UA worked alongside partners to bridge coordination and communication gaps through relationship building and providing support to other organizations. The robust use of LNOs[252] established relationships, improved cross-organizational communications, and fostered cooperation. LNOs helped improve unity of effort and establish trust among diverse organizations with different cultures.[253] The placement of liaison officers established relationships across organizations, which proved important as responders struggled to capture each organization's correct roles and missions.

Although DOD routinely supported DARTs, DOD LNOs had not previously embedded within a DART.[254] After some initial hesitancy,[255] this initiative provided additional planning expertise in the DART that proved valuable to the common effort across USG departments and agencies.[256]

As JFC-UA military members remained in theater longer than many interagency partners, DOD often served as continuity for the broader USG and international response effort.[257] The resulting relationships enhanced some operations. For example, UN Mission in Liberia (UNMIL) workers helped JFC-UA teams get contacts for coordinating ground movement; they also

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[*] The All Partners Access Network (APAN) is an unclassified, restricted access, web-based planning, collaboration, crisis response and knowledge information portal that supports Department of Defense, Department of State, other government organizations, coalition partners, non-traditional and emerging partners in the mission of unclassified information sharing. www.apan.org/pages/about.

provided information on landing zones.[258] Another example was US support to the World Food Programme (WFP) forward logistics bases.[259] WFP established 4-5 logistics bases in the countryside to improved supply distribution, but its partners were hesitant to move their supplies forward due to considerable mistrust and fear of losing control of the supplies. DOD's use of these forward distribution points alleviated these fears. This had an additional benefit because WFP agreed to take over the last tactical mile distribution of supplies to the ETUs.[260]

DOD also shared some of its techniques and procedures with partners. DOD brought in the use of tools such as the synchronization matrix and a common operational picture (COP) to assist in the operation and reduce confusion. A synchronization matrix is a powerful tool that, in a single view, conveys the status of each element of an activity with respect to other elements and the overall goal; an example is shown in figure 8.[261] It is a tool that can help to reduce confusion as unforeseen challenges arise.
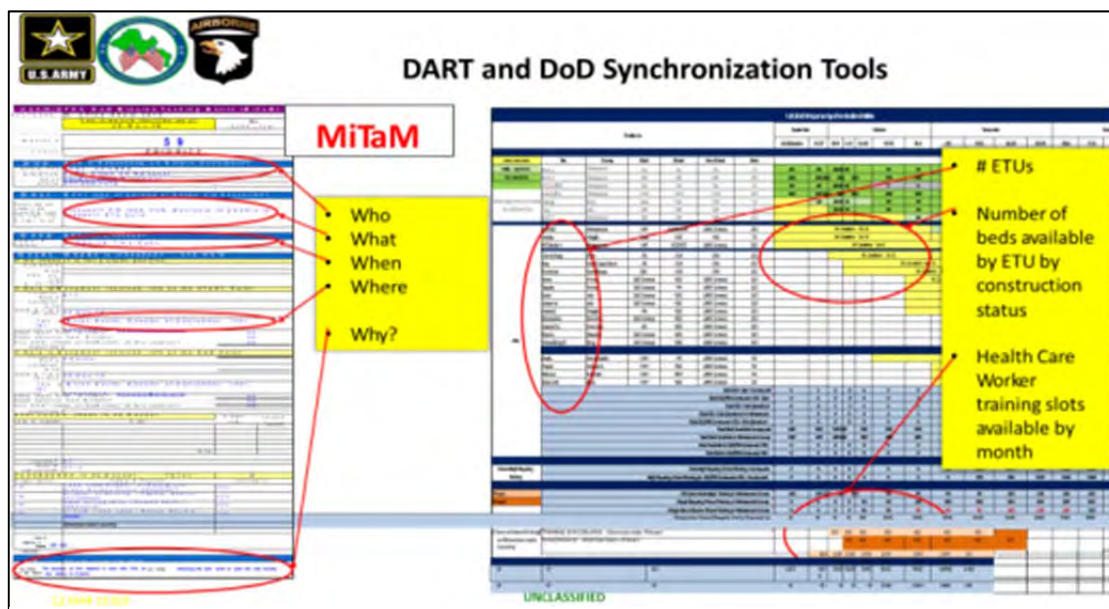
Figure 8: JFC-UA Synchronization Tool
JFC-UA Slide

Many aspects of the USG EVD response, such as ETU design construction and staffing, presented interconnected issues.[262] Use of the synchronization matrix contributed to transparency across the USG effort, facilitated teamwork, and provided a pathway to the desired end states.[263] After the DART adopted the synchronization matrix, "they quickly started using it [for themselves and] as a common basis to be able to talk to nongovernmental organizations."[264]

An established synchronization matrix also facilitated the development of a map-based COP, another common tool that provides a visual depiction of units and activities on a geographic display.[265] The COP, as shown in figure 9, facilitated information sharing across organizations. JFC-UA soldiers put aside their normal reliance on digitized products and created something

that worked better for the specific operational environment.[266] Later on, JFC-UA produced a digitized and interactive COP that was available on APAN.[267]

As the mission proceeded, the DOD-designed COP kept up with changes.[268] DOD's efforts to coordinate and collaborate were not ends to themselves; they were means to DOD's mission to build EVD healthcare capacity.

Transparency and getting information to partners is an important aspect in any operation.[269] The unsettled debate as to which collaborative tool was best suited for the USG mission in West Africa (analog or digital) should not detract from the innovative methods used in this case of synchronization matrices and a common operational picture to facilitate the overall mission.[270]

Figure 9: JFC-UA Common Operational Picture
JFC-UA Slide

Messaging, Networks, and Collaboration Recommendations

Communications can be difficult within DOD, with different domains and levels of classification. In the EVD response, there was the added dimension of working across USG departments and agencies and with other NGO and international partners. JFC-UA highlighted several communications and information management areas for improvement.

- DOD should maximize partners' ability to communicate with one another; DOD should fully implement the joint information environment (JIE)[*] and mission partner environment across DOD and interorganizational partners. Until JIE is fully implemented, CCMDs should identify and implement a single information domain for all elements prior to deployment into the JOA. Furthermore, until the JIE is fully implemented, DOD should also dedicate deployable information technology architecture specifically for collaborative interagency operations in unclassified, non-CAC enabled environments.

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[*] JIE is DOD's plan to create a single secure information sharing environment. For additional information see Dempsey, Martin E., *Joint Information Environment White Paper,* 22 January 2013, http://www.jcs.mil/Portals/36/ Documents/Publications/environmentalwhitepaper.pdf.

- DOD should codify practices that promote operating in unclassified or degraded environments and incorporate these ideas into appropriate DOD guidance, policy, and doctrine. As part of this effort, CCMDs should identify, plan, and exercise communication methods that are not reliant on advanced technology and network operations, such as increased human interaction (e.g., face-to-face, telephonic meetings), to communicate and share information in a complex FHA environment with non-DOD partners. DOD should capture as a best practice the use of synchronization matrices and a common operational picture that can be hosted and shared in an unclassified environment to support the lead federal agency's coordination of DOD and partner efforts. DOD should use information management tools and procedures as established by the lead federal agency from pre-crisis preparations forward.
- CCMDs should coordinate with the lead federal agency, host nation, and country team to develop collaborative relationships and a deliberate communication synchronization plan that reinforces key leader engagements.

Transition and Redeployment Discussion and Recommendations

The operational template for Operation UNITED ASSISTANCE was clear from the beginning: deploy to theater, support the DART/USAID using lines of effort, hand off tasks to the Liberians or NGOs when able, and then return.[271] The US military mission provided a rapid increase in capability, which was incrementally withdrawn later as other entities filled that capability. Mission exit was considered from the beginning, and mechanisms were put in place to accomplish that objective appropriately.

> Let's plan the transition near simultaneously with [the] ground tactical plan and then establish milestones. One of the things from a DOD perspective that I think we offer is clear [the] ability to say, "Here is the mark on the wall," when most people won't want to put marks on the wall.[272]
>
> *Major General Gary Volesky, JFC-UA, Commanding General*

As the lead federal agency, USAID began transition planning and coordination early.[273] In its supporting task planning, JFC-UA considered mission transition and the coordination actions to enable the right entity to eventually take over the mission.[274] The US military did not figuratively "hand over the keys" to a facility and immediately walk away. USAID identified potential partners within the GOL or an NGO,[275] and JFC-UA established specific handover criteria for the eventual reassignment of each specific task to the partner. For example, as described previously, JFC-UA partnered with the WFP[276] for ETU sustainment. JFC-UA established specific, phased criteria to identify progress toward an eventual final handover, as illustrated in figure 10.[277]
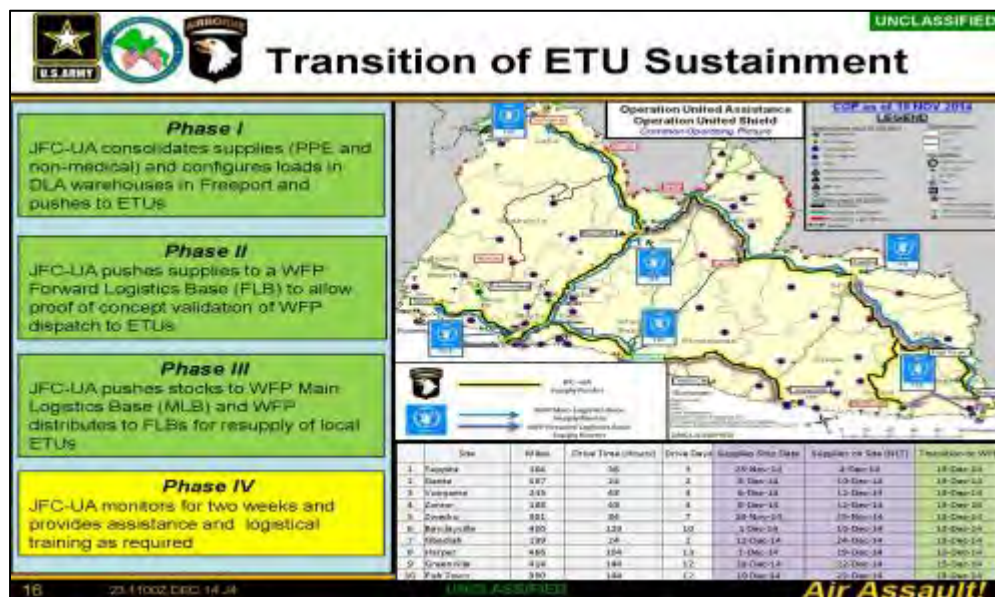
Figure 10: JFC-UA 23 December 2014 ETU Transition Plan

After handover, JFC-UA monitored the function for a sufficient amount of time (approximately two weeks)[278] to "to make sure the system that you [the gaining organization] are bringing in is reliable, sustainable, and to the standard that we expect that if we were providing it, it would achieve."[279] The concept of building sustainable capacity was an intentional item of emphasis for the JFC-UA leadership.[280] MG Volesky recounted specific guidance from the USAFRICOM commander regarding sustainability:

> General Rodriguez told me when I was coming over here, "You are going to bring speed, flexibility, and confidence. That's what you are going to bring to Liberia from the DOD perspective and the joint force. But what I want to make sure you don't do is put in a capacity or capability that can't be sustained."[281]
>
> *Major General Gary Volesky, JFC-UA, Commanding General*

JFC-UA's strict adherence to sustainable solutions served two purposes. First, it provided a demonstrated, viable capacity that was operational when the US military withdrew (e.g., healthcare worker training, ETUs, the MMU). Secondly, JFC-UA's disciplined regard to sustainability prevented an unintentional expansion of tasks and responsibilities (mission creep).[282]

JFC-UA brought significant logistical and engineering expertise into a country lacking sufficient basic public infrastructure. It would have been easy to accept tasks beyond the prescribed mandate, but JFC-UA maintained discipline over its actions.[283] By the combination of transitioning tasks to mature partners and rejecting ad hoc requests to expand its mission outside its authority, JFC-UA created conditions that allowed a well-ordered process to return forces to their home station.

Soldiers redeployed from OUA into a CM-designated facility for 21 days. This sequestration meant the next set of personnel could not redeploy until the previous group completed CM, as shown in figure 11. At times, this process necessitated a staggered "waterfall" redeployment schedule[284] as JFC-UA responsibly rightsized its force.[285]

Initial emphasis on transition, with the use of a decision support matrix and continual refinement of handover criteria and tasks, facilitated a timely and successful transition. Early in the operation, JFC-UA and the DART refined tasks and milestones to lay the foundation for mission transition. As the mission progressed, JFC-UA coordinated with DART leadership and gaining organizations to develop handover criteria and ensure incoming support could sustain the required functions and activities. As tasks were completed, JFC-UA proactively redeployed excess capability.[286]

The success of JFC-UA's concentrated efforts to hand over capabilities to appropriate partners, resist mission creep, and conduct the controlled monitoring redeployment program in a disciplined manner is described best by the commander: "Because of the progress we made, we replaced 2,500 servicemen and women with 32."[287]

Figure 11: JFC-UA Redeployment Plan
JFC-UA Slide

DOD was called on to provide unique capabilities for the EVD crisis which would enable transition to other agencies better prepared to provide long-term support; therefore, it was important to think about these transitions early.

Transition and Redeployment Recommendations

- DOD should conduct early transition planning and robust coordination with the lead federal agency to bound operational tasks.
- DOD should develop milestones with defined criteria for the transfer of tasks and conduct monitoring to ensure sustainment of transitioned functions.
- DOD should capture the best practice of rightsizing the outgoing force and consider examining current practices of early force-sourcing decisions.

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Conclusion

The president approved the termination of Operation UNITED ASSISTANCE, effective 30 June 2015.[288] The Department of Defense demonstrated an inherent capacity to respond to a unique operational situation in support of a broader USG and global operation.

While the decision to respond may have been delayed while policymakers debated, once ordered to engage, the military responded promptly through the use of USAFRICOM's Army Service component headquarters as an initial theater opening force. USTRANSCOM's and DLA's early enabling functions were fundamental to setting conditions and bridging critical capabilities until the main force arrived.

Operation UNITED ASSISTANCE required use of some dormant skills, specifically the need to deploy and operate in austere conditions. More than a decade of deployments to USCENTCOM operations in developed theaters diminished some basic military expeditionary skills and practices. The operation also brought to light practices that have become entrenched: over-classification, reliance on robust digital communications, and misperceptions about Reserve Component (RC) activation (discussed further in appendix A). It also revealed gaps regarding roles and policies for PI&ID response that slowed decision making.

Leadership, always a critical element in any operation, proved vital in enabling success in OUA. The initial decision to execute demonstrative "quick wins" influenced the Liberian social tide away from potential breakdown to one with hope that it would prevail against Ebola. The senior leaders demonstrated strong discipline to accomplish their specified mission and prevented any unintentional expansion of tasks and responsibilities.

**JFC-UA Commanding General
with ETU Build Team**
US Army photo, Combat Camera

In conclusion, the US military performed well in support of the USG EVD response. DOD's operational and tactical agility helped overcome the initial friction of a cumbersome strategic policy mechanism that slowed decision making. While the lack of authority granted to the operational commander did not significantly hamper JFC-UA effectiveness, DOD should examine current policies and authorities associated with FHA and adjust accordingly. While highly lethal, EVD is not highly contagious. Another, more virulent disease may not allow the same lead time to resolve roles, responsibilities, and policy issues.

Appendix A: Vignettes

This series of vignettes provides additional information to readers interested in a specific topic. They also provide supplementary details on finding areas previously introduced in this paper.

Ebola in West Africa's Socio-cultural Milieu

Ebola causes an acute, serious viral illness in humans and other primates, which is often fatal if left untreated. It spreads by direct contact with bodily fluids, such as blood, from infected humans or animals. Ebola virus disease (EVD) first appeared in 1976 in two simultaneous outbreaks, one in Sudan and the other along the Ebola River in the Democratic Republic of Congo. Between 1976 and 2013, known EVD outbreaks have predominately occurred in Central Africa. Prior to 2014, the deadliest outbreak was in Zaire (1976-1979) when 280 died from 318 reported cases. Excluding the West African EVD outbreak addressed in this study, the global total of all confirmed EVD cases is 2,427 with 1,597 total deaths (a 66 percent mortality rate).[289]

According to the US Centers for Disease Control and Prevention (CDC), "The natural reservoir host of Ebola virus remains unknown. However, on the basis of evidence and the nature of similar viruses, researchers believe that the virus is animal-borne and that bats are the most likely reservoir."[290]

The initial December 2013 Ebola case in Guinea followed the socio-tribal paths of the people living in the porous Guinea-Liberia-Sierra Leone border region. Multiple factors sustained the spread of EVD, in contrast to Central African outbreaks which normally remained localized. West African social healing practices and burial customs facilitated the spread of bodily fluid from the sick or deceased to caregivers and family members, enabling the disease to be passed from victim to caregiver or family member. Infected patients can travel for days or weeks before becoming symptomatic (2 to 21 days to manifest after exposure), further spreading the disease.[291]

Accurate disease identification was complicated by its lack of unique symptoms or characteristics. Early Ebola symptoms, including fever, headache, muscle pain, fatigue, and diarrhea, are consistent with other diseases indigenous to West Africa such as cholera and influenza. This complicated obtaining an accurate diagnosis until more severe medical conditions such as unexplained hemorrhaging developed.[292]

By March of 2014, international healthcare workers in West Africa, in particular Médecins Sans Frontières (MSF), became increasingly aware of reports of several fatal cases that could not be adequately diagnosed as common diseases.[293] MSF reported its observations to its disease diagnostic experts in Geneva in mid-March. Lacking adequate medical testing capacity in country, the Guinean Ministry of Health sent blood samples to the Institut Pasteur in Paris, which confirmed that Guinea had an Ebola outbreak. Liberia soon followed with its first recorded EVD case,[294] while Sierra Leone reported its first case in late May.[295]

Following the initial reporting of EVD cases in Liberia the disease seemed to be under control. According a World Health Organization (WHO) report:[296]

> On 7 April, the country [Liberia] reported 21 confirmed, probable, and suspected cases and 10 deaths. . . . The situation in Liberia then stabilized throughout the rest of April and most of May... For weeks on end, WHO's Disease Outbreak News [announcements concerning infectious diseases] about the Ebola situation in West Africa reported "no new confirmed cases in Liberia" or described the situation as "stable." By the end of May, Liberia had reported no new cases since 9 April. Further cases were detected in early June, mainly in Lofa County, but the trend still looked calm, especially when compared with the situation elsewhere.

Liberia reported a total of 13 EVD cases as of 30 April and 5 June 2014, but then the count began to rise: 18 June (33 cases), 24 June (51 cases), 2 July (107 cases).[297] Some of the rise in cases was likely due to the increase in EVD laboratory testing and improvements in EVD monitoring and reporting. It was now obvious to healthcare experts that bio-surveillance had failed to accurately track the outbreak; EVD had not been dormant through the perceived lull in new cases. EVD was spreading exponentially, as shown earlier in figure 1.[298] By the end of July, cases in Liberia tripled to 329 (156 deaths). A month later it was 1,378 EVD cases (694 deaths).[299]

The potential existed for an uncontrolled EVD pandemic disaster. A high proportion of doctors, nurses, and other healthcare workers in West Africa became infected with the Ebola virus disease. This had a direct impact on the number of organizations and individuals willing to provide direct healthcare in the region.[300] MSF reached its capacity to treat patients; it could not send teams to new outbreak sites.[301] Issues with evacuation of infected foreign healthcare workers further discouraged participation in the EVD outbreak response.[302] On 23 June, the MSF director of operations stated, "The epidemic is out of control. . . . There is a real risk of it spreading to other areas."[303]

Ebola Treatment Units and the Monrovia Medical Unit

Isolating EVD patients, by removing confirmed, suspected, and probable cases from the general population of Liberia, and providing treatment, was a key element in the strategy to contain the Ebola outbreak.[304] Liberia needed functioning Ebola treatment units (ETUs) as quickly as possible; the disaster assistance response team (DART) presented the task to DOD via military tasking matrix (MITAM) item #9 (on 25 September 2014) which directed DOD to build up to 17 ETUs.[305] A number of obstacles impacted the effort including: determining an appropriate design, site selection, dealing with the rainy season and infrastructure, adjusting the construction requirements as the disease pattern changed, and staffing healthcare workers. Establishing effective coordination among the wide variety of stakeholders was essential in solving these challenges.

Ebola Treatment Units

> Building an ETU was not just erecting a tent. It was an education for everyone. If it isn't done correctly, it could be bad for the patients and the healthcare workers.[306]
>
> *Deborah Malac, US Ambassador to Liberia*

There was no standard ETU design to start the effort. US Army Captain Andrew Hill was one of the three DOD planners embedded into the DART as part of the initial USG response. He designed what would eventually become the ETU standard for Operation UNITED ASSISTANCE (OUA), as shown in figure 12.

The process to design and build ETUs demonstrated the robust cooperation among WHO, MSF, USAID/DART, the Liberian Ministry of Health (MOH), and DOD. WHO shared their ETU requirements,[307] and MSF invited US military engineers to visit its ETUs where it explained their setup and offered their expertise.[308] The MOH represented the concerns of the GOL. Finally the US Army Corps of Engineers (USACE) and USAID/DART representatives developed ETU building plans specifically designed to be functional and feasible in the West African environment. The design met the MOH clinical requirements, and the elasticity of the design allowed ETUs to be adapted to various locales and conditions.[309]

Site selection was also a challenge. The original Liberian Ministry of Health plan was to put an ETU in each county, but actual site selection was influenced by the need for community buy-in, local infrastructure, access to water, type of terrain, and available construction skills.[310] Potential sites ranged from private industrial locations to mid-jungle clearings. The need for early on-site reconnaissance and input from all ETU stakeholders was an important lesson.[311] Some sites were too small for the standard design and were modified to increase the ETU's distance between confirmed and unconfirmed cases.[312] In addition, water wells remained a limiting factor throughout the operation, even though DOD hired every available well drilling company.[313]

"On the ground in Liberia, one of the first tasks by [Captain] Andrew [Hill] and the U.S. military engineers was to conceptualize and design an ETU. Working hand-in-hand with members of the Armed Forces of Liberia (AFL), they consulted the experts with a gold standard ETU model: Médecins Sans Frontières (MSF) and the World Health Organization (WHO). Building off of their expertise, they tailored the designs to create Department of Defense- and AFL-specific versions, which could be built and implemented with their resources. . . . The plans started with a hand-drawn sketch that Andrew created while [riding] in a car on his way to various sites. That sketch formed the basis for what would become a full concept and material list needed to begin ETU construction." *(USAID Blog Post)*
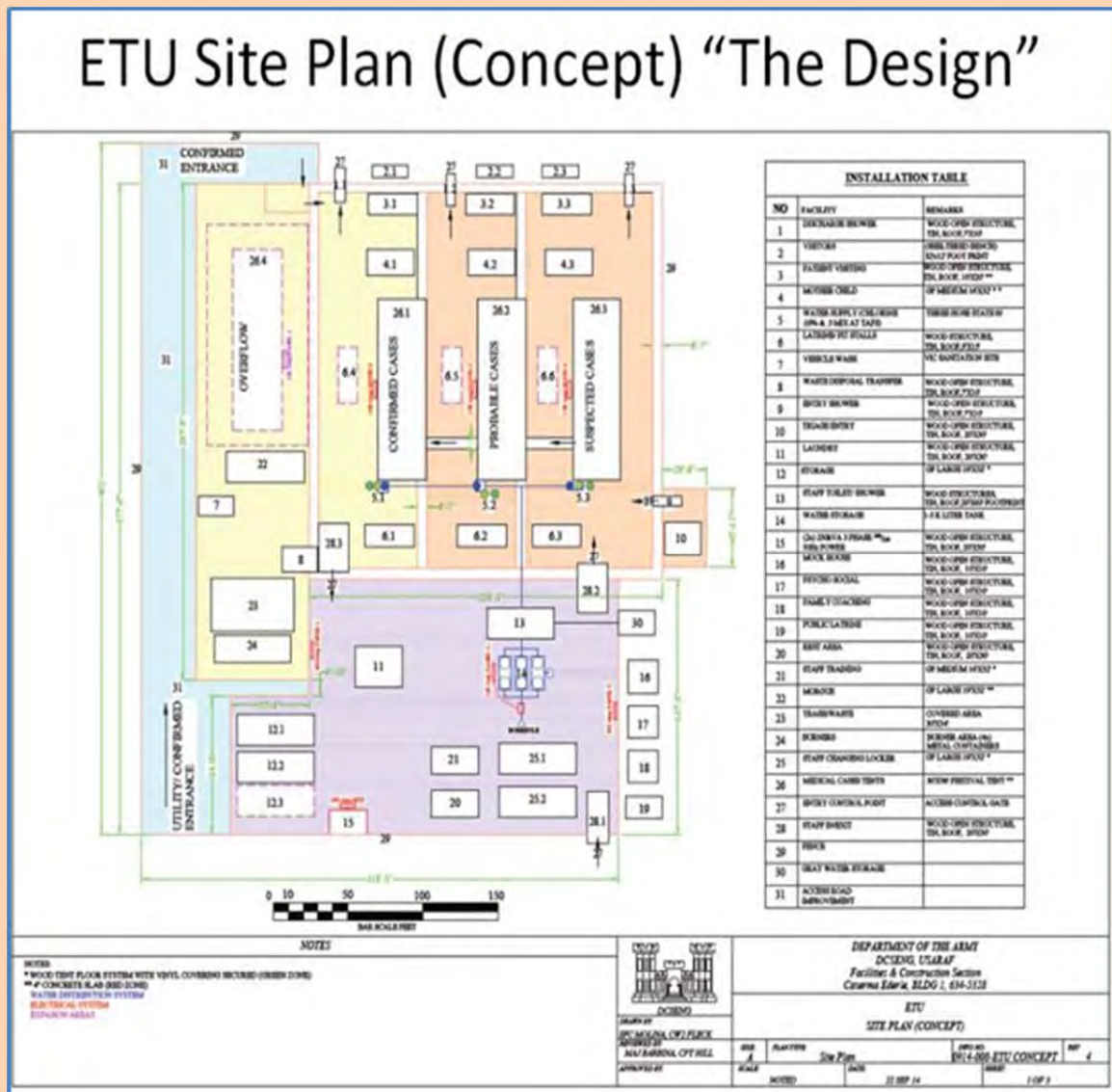

Figure 12: ETU Site Design Plan
United States Army Corps of Engineers

Weather, terrain, and building supply challenges delayed ETU construction; as a result, the optimistic construction schedules could not be met. BG Corey, JFC-UA Deputy Commander, remarked how the rainy season was a major planning factor for mobility and ETU construction:

> It was not just a little bit of rain; it dramatically changed the landscape and everything that you could do in terms of transportation.[314]

The rain, combined with the lack of gravel in some parts of the country, made the "incredibly horrible" dirt roads even more impassable. Although the planners estimated that construction of each ETU would take approximately five weeks, the deplorable conditions stretched the timeline to nearly two months at some locations.[315]

Operation UNITED SHIELD Meeting,
USARAF photo, 7 October 2014

Close interorganizational coordination and partnerships were keys to the ETU success. USAID coordinated the overall strategy and plan with the host nation. Persistent communication occurred through twice weekly USAID chaired meetings, the presence of a USAID liaison in the joint operations center, informal communications via email and voice communications, and face-to-face engagements. In addition, partnerships were used to leverage logistics civil augmentation program (LOGCAP) contracting and AFL construction capacities.[316] DOD mitigated factors that delayed construction by aggressively utilizing locally contracted building capabilities and partnering with both the AFL[317] and a German NGO[318] to allow simultaneous ETU construction. JFC-UA and the AFL created Operation UNITED SHIELD, a combined campaign, to partner on ETU building.[319]

Over the course of construction, the requested number of ETUs and the bed capacity for DOD-constructed ETUs was adjusted in response to changing circumstances on the ground.[*] The original 17 ETUs were reduced to 10 and the number of beds per ETU fell from 100 to 50;[320] since the original plans were for larger 100-bed ETUs, this made such adjustments more difficult. USAID concluded that building varying models, such as a two-module 25-bed facility to meet basic needs would provide more flexibility, and might allow some to be built closer to EVD outbreak areas.[321]

DOD completed its final ETU in January 2015.[322] New cases had peaked around the time that JFC-UA stood up, so by the time the ETUs were built (six to eight weeks later), the number of available ETU spaces greatly exceeded the number of Ebola patients.

The ambiguity of the EVD trends in the autumn of 2014, and the potential for a runaway pandemic, dictated the number of ETUs requested. The actual decline in the cases was not

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[*] The disease outbreak began to ease due to some of the other elements of the response strategy such as more sanitary burial practices and changes in cultural habits, so the ETU plans needed to change accordingly.

predicted when the construction plans were developed. ETU construction was adjusted as trends became apparent. However, the additional ETUs would presumably have proven valuable if the cases had not declined so precipitously or to respond to micro-outbreaks.[323]

Monrovia Medical Unit

Recruiting health care workers was an important component of the response strategy. The keys were to provide adequate training to lower the risk of infection and access to high quality healthcare. Training for healthcare workers was discussed previously in the report. The MMU was established specifically to provide medical treatment for infected healthcare workers.

**US Navy Engineers
Surveying MMU Site**
Jerome Delay, AP, 27 September 2014

> The purpose of this MMU is to provide care to healthcare professionals in this country who get Ebola. We've heard that healthcare worker recruitment efforts were struggling until the [United States] said that we would do the MMU and provide care to US medical standards for infected healthcare workers. It helped get healthcare workers to come here to man the ETUs. From that point of view, the MMU has been a raging success, because it has made it easier on the international partners to recruit healthcare professionals to come to the country.[324]
>
> *US Public Health Service LNO to JFC-UA*

The DART's first MITAM on 4 September 2014, was a request for DOD support to provide the MMU* by 3 October 2014. According to the Joint Staff Surgeon's office, the requirements were unclear at first and ranged from two 75-bed ETUs to a 1000-bed DOD hospital capability[325] but it eventually resolved into the smaller capability. The Joint Staff Surgeon General's representative described this:

> They [USAID] originally wanted two full hospitals, but it was too expensive. So, we settled on the EMEDS [US Air Force Expeditionary Medical Support]. For the EMEDS, they wanted it to treat everything, then it was just for Ebola, then it was for something else, and then finally it went back to just Ebola treatment."[326]

With the EMEDS 25-bed model (EMEDS+25) providing a backbone structure,[327] MMU construction began on 4 October 2014, and was completed approximately 17 days later

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* The initial MITAM MMU description was, "A 25 Bed Hospital Unit with the ability to complete basic care as well as electrolyte management, complete blood count, intravenous fluids, blood transfusions, pressor drugs, and kidney dialysis."

on 21 October 2014, at Roberts Airfield. Due to delays in staffing, the MMU actually opened two weeks later on 5 November 2014, about a month after the original MITAM requested date.

> The MMU was a capability we could provide, but there was a staffing challenge that delayed deployment and the ability to make it operational. It took a while to get the staffing with uniformed public health (Commissioned United States Public Health Service) worked out.[328]
>
> *Ambassador Phillip Carter III (Paraphrased),*
> *Deputy Commander for Civil-Military Engagement*

The US Public Health Service's (USPHS) task of staffing the MMU necessitated determining requirements, developing a treatment course, building a training site, recruiting personnel, arranging travel, etc. As with many functions, the uniqueness of operating in an EVD environment complicated a seemingly straightforward mission. The following anecdote provides a tangible example of the "fog and friction" of this operation:

USPHS member in the MMU
JFC-UA PAO Photo

> One of the interesting things was a broken air conditioner in the hot zone of the MMU. DOD and DOD contractors couldn't go into the hot zone to repair it, based on the DOD policy restrictions. A USAID contractor could go into the hot zone to repair it, but wasn't allowed to work on DOD equipment. We finally found a workable solution: USPHS personnel removed the equipment from the hot zone, decontaminated it, got DOD to repair it, and then USPHS reinstalled it in the MMU.[329]
>
> *USPHS LNO to JFC-UA (Paraphrased)*

Accountability of the equipment associated with the MMU became another challenge in an operation. The commander of the 86th Combat Support Hospital described the issue:

> I don't think there is clear guidance on how to take DOD property and have accountability transferred to another federal agency. The military is still accounting for that equipment, even though we are not using it or seeing it on a daily basis.[330]

The EMEDS+25 package was augmented by specific diagnostic equipment, materials and medicines. Interviews indicate that property accountability was problematic at times, particularly since in the beginning of the operation, there was no entity to take possession of goods.[331] Some things went to the MMU, but otherwise the "rest got put at the DLA warehouse. There was a period of time while it was at the DLA warehouse that it was

unaccounted for. People could grab what they wanted and walk away with it."[332] The 86th Combat Support Hospital logisticians corrected the lack of accountability: they collected the excess equipment, inventoried it, and presented it to the MMU for accountability.[333] DOD's equipment custody practices are not mirrored across the USG, creating some friction as DOD sought to sign over the MMU account to the USPHS:

> [Equipment] transition was not thought out in advance. Who's in charge of the inventory? That's been a bone of contention for DOD; other agencies said that they wouldn't pick it up and sign for the property. . . . When DOD talked about the inventory list, I asked, "Why do you care?" My department [USPHS] handles billions of dollars and hands money out, but we don't have inventory assets.

> NIH and CDC are probably the only two agencies who have "things." The rest of us are bureaucrats who don't have things. Why do you care about how many bandages we have? I had to learn that in the DOD world, inventory accountability is very important. If it's important to you, we'll make it important to us. It was a cultural difference between the two organizations.[334]
>
> *USPHS LNO to JFC-UA (Paraphrased)*

DOD and US Public Health Service overcame challenges to establish quality treatment for Ebola-infected healthcare workers in the MMU. Before the MMU was turned over to the GOL on 30 April 2015, it treated 42 patients from 9 countries. Eighteen patients were diagnosed with EVD, of which nine died.[335]

Deployment of Reserve Component

As Operation UNITED ASSISTANCE commenced, United States Army Forces Command (FORSCOM) selected the 101st Airborne Division (Air Assault) and attached US Army units to rapidly deploy to Liberia under six-month orders. The consensus within DOD and USAID was that the US EVD response would be a six-month problem, "so the Army decided to make it a six-month rotation, which had the reserves coming in about April."[336]

The 34th Infantry Division (34th ID) of the Minnesota Army National Guard received orders that it would replace the 101st Airborne Division (Air Assault).[337] Sourcing a Reserve Component (RC) division headquarters to lead Operation UNITED ASSISTANCE made sense, as the active duty force is numerically limited[338] and the RC is fully capable to perform foreign humanitarian assistance missions.[339]

Long-term, steady-state operations in Iraq and Afghanistan permitted DOD to accurately forecast force flows into those areas of operation. The consequence of more than a decade of active duty and RC rotations was that RC units were provided, and expected, a 180-day deployment notification window. These predictable rotations created the perception that the 180-day window for RC activation was DOD policy;[340] this expectation is reflected in figure 13.

US law, however, allows for a much tighter notification window.[341] An RC member may be deployed to a contingency with as little as 30 days, with a goal of 90 days notification.[342]
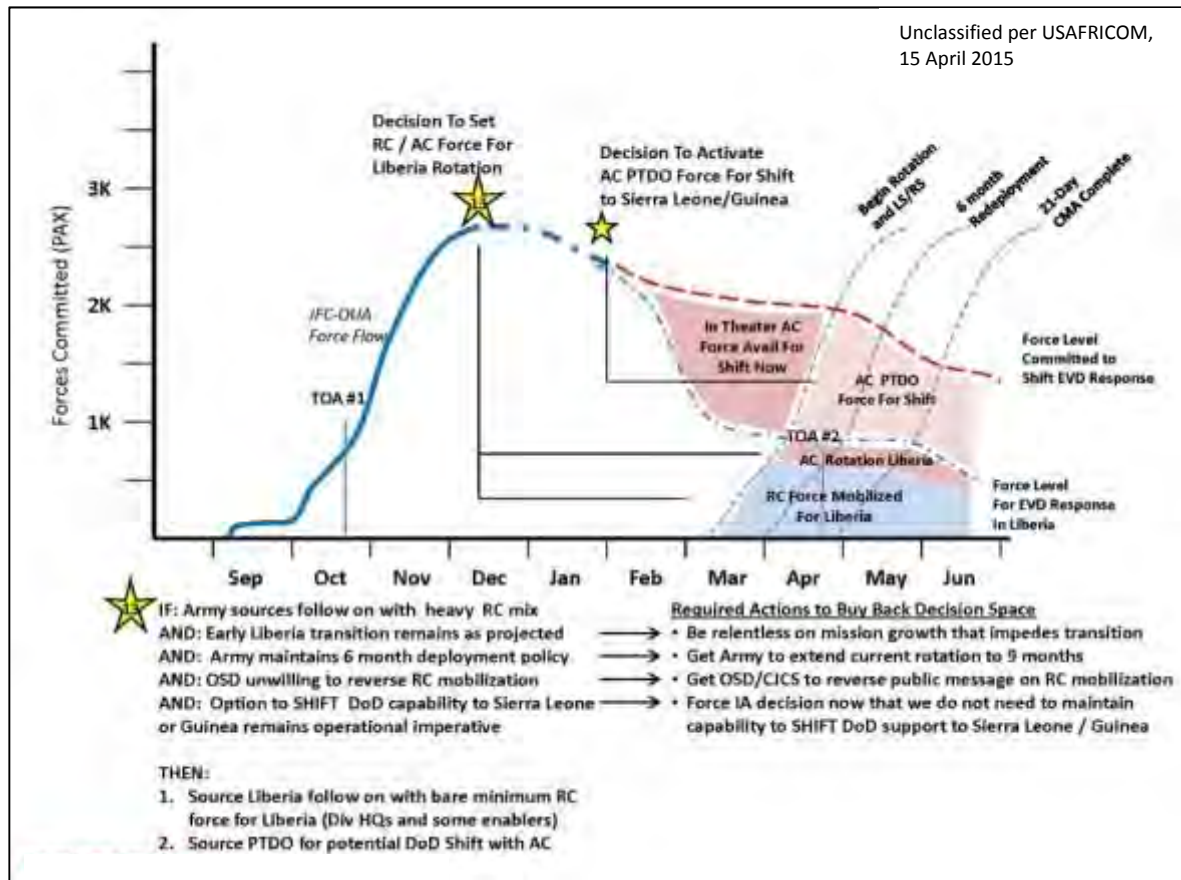
Figure 13: OUA Force Flow Slide
USAFRICOM Slide

While the decision to use a RC unit fit the operational requirement, the 34th ID's notification window combined with the 101st Airborne Division (Air Assault)'s six-month deployment created a DOD self-imposed conundrum: the division was tasked to design an RFF for their relief force *before* it had established its own operational footprint on the ground in Liberia.[343]

> The Army decided that the 101st [Airborne Division (Air Assault)] would have a six-month deployment, but their follow-on force would be a Reserve Component. The 101st [Airborne Division (Air Assault)] forces turn into pumpkins at six months. You would have to make the decision about the 101st [Airborne Division (Air Assault)]'s follow-on before they were even fully on the ground in Liberia.[344]
>
> *MG Bryan Watson (Paraphrased), USAFRICOM J-3*

MG Volesky's staff received the task to develop a request for forces (RFF) for their replacement arriving six months later. At the time, there was insufficient data for an accurate assessment of

the future situation in Liberia.[345] In addition, the potential remained for a "lift and shift"[*] operation into Sierra Leone or Guinea.[346]

Even as the 34th ID conducted its mobilization and training activities, conditions on the ground—containment of the disease in West Africa—significantly reduced the requirements for the JFC-UA follow-on force. In the 101st Airborne Division (Air Assault) commander's words, "Because of the progress we made, we replaced 2,500 Servicemen and women with 32."[347] Thirty-two soldiers meant a division-size force was no longer needed; therefore, the 34th ID did not deploy, despite prepping for the operation.[†]

The EVD response in West Africa was a unique operation that presented unforeseen challenges by its unpredictable nature. The eventual follow-on requirement for 32 soldiers instead of 2,500, denotes success for the overall response. However, as shown above, the interplay of the decision on the 101st Airborne Division (Air Assault) deployment length (six months) and confusion about the Reserve Component mobilization "policy" (six-month notification) led decision makers to believe they had less time to initially determine the requirements for the follow-on force.

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[*] "Lift and shift" describes potential operations that would remove forces from operating location, in this case Liberia, and move them to another operating location, likely either Sierra Leone or Guinea.
[†] The US Army's 48th Chemical Brigade, an active duty unit commanded by a colonel, replaced the 101st Airborne Division (Air Assault).

Controlled Monitoring

No US Service member contracted Ebola and, therefore, the US military was not a vector agent that carried Ebola into the United States. The implementation of the controlled monitoring (CM) regimen contributed to, by most accounts, ad hoc and challenging in execution. Despite this, it may still provide lessons useful for future pandemic operations.

Force healthcare protection is considered in every military operation, but it was a paramount concern in OUA. USAFRICOM's OUA basic order of 5 October 2014 identified detailed force healthcare protection training requirements.[348] On 10 October, the Under Secretary of Defense for Personnel and Readiness signed a memo which provided force healthcare protection guidance based upon risk of exposure and symptoms.[349] It specified that returning Service members with no known EVD exposure would:

- "Conduct a face-to-face interview to review clinical symptoms and perform a temperature check twice daily during the 21-day monitoring period. As long as individuals remain asymptomatic, they may return to work and routine daily activities with family members."
- In addition, "DoD personnel moved out of theater due to elevated exposure risk will be quarantined for 21 days at a DoD facility (reference DODI 6200.03) designated to monitor for signs and symptoms and/or care for EVD patients."

The 30 September 2014 diagnosis and subsequent death of a Liberian-American in Dallas and the spread of Ebola to two nurses who treated him attained national media attention.[350] It also gained the attention of the Pentagon and contributed to a reassessment of the previous post-deployment monitoring policy. According to a 22 October 2014 Pentagon "Tank" briefing,[*] "Current events and public concern [require] additional scrutiny on redeployment policy."

The decision that resulted from that briefing changed the "21-day unit monitoring at home station to 21-day 'controlled monitoring.'"[351]

Controlled monitoring sequestered returning military members in cohorts for 21 days. Service members received twice daily temperature checks by medical personnel during this time. This policy was formally captured in CJCS instruction (CJCSI) 4220.01, "Post-Deployment Policy for 21-Day Controlled Monitoring of DOD Service Members and Civilian Employees Returning from Ebola Virus Disease Outbreak Areas in West Africa" (14 November 2014). CJCSI 4220.01 provided

DOD Controlled Monitoring Site
DOD Combat Camera Photo

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[*] A briefing to the Joint Chiefs of Staff and selected invitees—in this case USNORTHCOM and USAFRICOM.

comprehensive CM guidance to include CM locations and standards, procedures for emergency leave from EVD outbreak areas, and rules for transient Service members (e.g., aircrews) and DOD civilians.[352] An updated CJCSI 4220.01 (dated 17 December 2014) provided further specifics, including guidance for embassy-assigned DOD personnel resident in EVD-infected countries.

The revised CJCSI also defined CM command relationships, authorities, and responsibilities with regard to the Services versus the combatant commands. The Services retained administrative control to perform CM within the US, while the geographic combatant commander retained operational control of forces entering CM outside of the United States. This policy was expedient as it divided CM responsibilities between the Services and combatant commands. However, it left the potential future question as to what is USNORTHCOM's authority for force healthcare responsibility within its area of responsibility versus the Services' Title 10 responsibility.[353] The Services are responsible for redeployment and consequently controlled monitoring, but personnel returning to the continental United States would be in the USNORTHCOM's area of responsibility.[354]

According to several interviews, the implementation of CM (including the speed at which it was instituted) caused some confusion, lacked complete coordination with key agencies, and required addressing concerns of other countries.[355] When the CM policy was announced, several of the necessary functions had not been synchronized[356] and the detailed procedures had not been finalized.[357] When controlled monitoring was announced, DOD still had not worked with state governors[358] or congressional staff members[359] to resolve their questions.

Other US agencies outside of DOD did not apply the same CM procedures for their personnel prompting questions, like this one from a CDC representative asking why DOD was taking a more conservative approach than the CDC's recommended procedure for returning personnel:

> DOD took an approach for people returning from Africa—that they had to be self-isolated and under controlled monitoring for 21 days regardless of their level of exposure in the country where widespread transmission was occurring. That was in contrast to what our recommendations for civilian persons would have been. . . . I don't think we ever faced a communications problem over that, but we were worried that it might create one: "Why is the military being more protective when you aren't?"[360]
>
> *CDC Representative (Paraphrased)*

The importance of synchronizing communications was summarized by one congressional staff member: Initially, the policy was poorly articulated which spun members out of control. Once it was fully explained, the members felt differently.[361]

Concerns of our European allies regarding the return of US forces and equipment to bases there also had to be addressed. The CM policy concentrated on personnel, but questions arose over the proper procedures for returning equipment as well.[362] For example, Spain would not accept

the SPMAGTF-CR (Special Purpose Marine Air-Ground Task Force–Contingency Response) personnel until after they completed the 21-day CM period, so the Marines were sent back to CONUS. USEUCOM then worked with Spain on how to get the MV-22 aircraft back.[363] Likewise, USEUCOM also had to coordinate with Italy and Germany to secure CM areas in those countries.[364]

Despite these identified issues, the EVD response may provide a baseline to inform DOD and the rest of the USG on travel policies and monitoring procedures in the event of a future pandemic event.[365] For example, the USNORTHCOM surgeon general noted that the controlled monitoring experience provided several pandemic-related lessons to USNORTHCOM, including monitoring protocols and public affairs activities.[366] OUA provided an initial template for terms, procedures, and policies to protect both US civilians and Service members in future disease response operations. However, the decision to implement it in the future must be appropriate to the situation and with awareness of the associated issues learned from OUA.

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Appendix B: Detailed Recommendations

This appendix contains the detailed recommendations from the study, binned by the previous theme areas. While this study focused on the DOD response in OUA, a number of the recommendations require USG-wide action. In these cases, DOD will be in support of the larger efforts.

Roles and Responsibilities

General PI&ID Roles and Responsibilities

DOD should:
- Support USG efforts to work with international organizations, NGOs, partner nations, and other stakeholders to clearly define roles and responsibilities during international crisis response, to include infectious disease outbreaks
- Support interagency clarification of roles and responsibilities integrating USG efforts for PI&ID planning, execution, and authorities.
    - Identify and address gaps and seams between international and domestic PI&ID planning, execution, and authorities
    - Support further development of integrated interagency PI&ID planning begun by HHS
- Advocate for a USG examination of disaster response procedures to determine what changes need to be made to support a health-related crisis. Examination should include:
    - The Federal Emergency Management Agency's National Response Framework (NRF). As applicable, incorporate elements of the NRF in planning for, responding to, and recovering from a global health crisis
    - Domestic and international USG responders' interaction during a global health crisis. Where possible, standardize procedures to mitigate potential disconnects
    - A definition of emergency support functions and the core capabilities necessary for an effective response
    - An outline of emergency support function roles and responsibilities for whole-of-community response (government, private sector, and academia) during a contagious biological outbreak
- Participate with strategic partners to establish a set of core capabilities needed for all phases of contagious biological outbreaks
- Participate in or facilitate interagency meetings to synchronize Global Health Security Agenda plans and activities. Support Global Health Security Agenda initiatives in partner countries
- Reevaluate the priorities for PI&ID planning and preparedness

Strategic Decision-Making Roles and Responsibilities

DOD should:
- Examine the interagency decision-making process to expedite the whole-of-government response
- Expand virtual and physical collaboration among supporting commands and agencies to allow for shared situational understanding and for the collective capacity of organizations to quickly coordinate and plan
- Develop a process to identify significant disease outbreaks and conditions that may result in DOD crisis response
- Support the development of a structure for a cross-organizational USG team that can coordinate a scalable whole-of-community contagious biological response.
    - Identify positions within organizations that can activate the cross-organizational team in order to elevate a local level of response prior to an official disaster declaration
    - Develop and exercise a decision support matrix in PI&ID plans that support a graduated response
- Review procedures for operating with USPHS, CDC, HHS, USAID, and other key partners during a contagious biological response
- Examine the placement of liaisons between DOD and partner organizations, both enduring and temporary, and their required training and experience

Policy

DOD should:
- Examine policies developed specific to OUA for applicability to future PI&ID operations; institutionalize as appropriate
- Develop enduring policy for DOD transport of highly infectious personnel, contaminated remains and materials, and infectious medical specimens
- Develop and institutionalize reintegration procedures for redeploying personnel, adjusted for the risk of infection by disease category, to ensure force health protection
- Develop policy and procedures for intra-theater transport of response personnel and infectious medical specimens
- Review and revise DOD policies with regards to authorities and processes while in support of other USG agencies
    - The review should include, at a minimum, requirements validation, transfer of equipment, and transport of infectious personnel and contaminated remains and materials
    - Incorporate changes into CCMD theater strategy, campaign planning, and exercise programs

Deliberate Planning

DOD should:
- Participate with USG and key partners to develop a national-level, contagious biological outbreak plan for domestic and international responses that, at a minimum:
  - Establish priorities
  - Identify expected levels of performance and capability requirements
  - Provide standards for assessing needed capabilities
  - Ensure the exchange of critical information
- In accordance with CJCS Ebola Red Cell Report (10 December 2014):
  - Develop language for DOD's GEF that highlights the importance of CCMD steady-state and phase 0 global health security and global health engagement activities and programs
  - Reassess the definition of a "disease of operational significance" to account for regional variations
- Revise the GEF and JSCP to provide more specific strategic objectives and end states to the combatant commands and the Services for PI&ID missions
  - "In future reviews of the UCP [Unified Command Plan], the Guidance for Employment of the Force, the Joint Strategic Capabilities Plan, and other guidance documents, DOD should specifically address disaster response efforts in . . . chemical, biological, radiological, and nuclear as well as PI&ID environments. The role and responsibilities of the global campaign plan synchronizer (currently USNORTHCOM) should be clarified."[367] [OSD recommendation]
  - Direct CCMDs to conduct deliberate planning in coordination with interorganizational partners for prioritized sets of potential disease-related scenarios, with greater emphasis on the more likely scenarios
- Participate in or facilitate interagency meetings to synchronize Global Health Security Agenda plans and activities. Support Global Health Security Agenda initiatives in partner countries
- Assess current DOD and other USG PI&ID exercise programs; advocate for integrated national-level exercises
  - War game the DOD global campaign plan, CCMD plans, etc.
- Regularly exercise the plan with participants from the whole-of-community (government, private sector, and academia)
- Ensure infectious disease response crisis-action planning guidance (orders and directives) clearly provides acceptable risk in task execution (e.g., unique DOD capabilities), response expectations (timelines), and force allocation of niche capabilities
- Reevaluate the priorities for DOD PI&ID planning and preparedness
- Increase PI&ID planning emphasis on the GCP lines of effort that address:
  - Support to the USG
  - Support to partner nations

- Clarify the roles and authorities for the global synchronization of PI&ID planning and execution
- Define CCMD and Service force health protection authorities and responsibilities
- In support of PI&ID planning and response, investigate creating a limited number of categories for biologically contagious diseases based on factors such as mechanisms of disease transmission, morbidity, and mortality; incorporate these categories into PI&ID plans
- Incorporate capabilities of logistics enablers such as operational contract support (OCS), LOGCAP, and DLA into FHA plans, training, and exercises
- Incorporate joint force enablers, such as the JECC, throughout planning and execution
- Sustain joint force enabler capabilities, such as USTRANSCOM's JTF-PO and JECC (including subordinate commands), DLA's Mission Support Team (MST), DTRA's cooperative biological engagement program (CBEP) and the USACE's contingency real estate support team

CCMDs should:
- In PI&ID planning, incorporate assessments to identify specific actions that can be taken in the initial phases of an operation to produce immediate desired effects
- Continue to exchange planners and other experts between other CCMDs to share PI&ID planning insights
- Sustain, and expand if possible:
  - Public health-related capacity building for the full range of infectious diseases with partner countries as conditions allow
  - Collaborative disaster preparedness planning program, to include all hazard events, with partner nations in coordination with USAID
- Develop, rehearse, and continually evaluate the PI&ID response concept plan (CONPLAN) for the AOR
- Continue to integrate working groups, multinational coordination processes, and LNOs into the planning process for operations and exercises
- Incorporate USAID in all phases of planning and execution for operations and exercises

Infectious Disease Response Capabilities

DOD should:
- Conduct a capability based assessment to identify gaps in DOD's ability to respond to infectious disease outbreaks, both domestically and internationally
  - Formulate a DOTMLPF change recommendation (DCR) to address gaps
- In PI&ID planning, clearly identify the training requirements for DOD force healthcare and healthcare workers
  - Expand the requirements for epidemiological and public health courses for DOD healthcare providers
  - Expand the specialized training to include support personnel working in close proximity to contaminated environments

- Review training programs developed for DOD healthcare providers, Service members, and civilian responders in support of OUA and, as appropriate, institutionalize
- Increase awareness of health-related DOD expertise and capabilities within the department, as well as with applicable partners
    - Leverage clinical and research expertise and capabilities in planning and decision making
    - Develop a database and planning primer of all DOD niche medical capabilities, to include non-deployable assets, for quick access by senior leaders and planners
- Develop PI&ID plans and policy that increase participation of DOD public health and medical experts in environments with highly infectious diseases to gain training and experience
- Require greater joint professional military education (JPME) emphasis on the coordination and efforts used in international response to infectious disease outbreaks
- In senior-leader JPME (e.g., senior Service colleges, CAPSTONE, PINNACLE), emphasize senior-leader personal engagement with key leaders from non-DOD organizations during all phases of an operation
- Promote, as a best practice, the incorporation of senior-leader personal engagement early into the operational battle rhythm
- Increase participation by DOD planners in the USAID Joint Humanitarian Operations Course; track and utilize graduates in emergent crisis planning
- Improve understanding of Overseas Humanitarian, Disaster, and Civic Aid funding through development of a short guide, PME, and training
- Develop and codify pre-deployment training and PPE standards, adjusted for the risk of infection by disease category and the individual's work environment
- Sustain, and continue the development of, capabilities to transport highly infectious personnel, contaminated remains and materials, and infectious medical specimens
- Review the prioritization of supply management and distribution of infectious disease-related medical countermeasures and PPE; coordinate with USG partners and industry to ensure supply availability in time of crisis
- Establish a Joint Lessons Learned Information System (JLLIS) community of practice for PI&ID to capture the plans, documents, lessons, observations, and best practices from the OUA EVD response (expandable to other disease events) and integrate into PI&ID global synchronization planning conferences
- Develop a database and planning primer of all DOD niche medical capabilities, to include mobile laboratories and non-deployable assets, for quick access by senior leaders and planners

Bio-Surveillance

DOD should:
- Work with CDC and other stakeholders to develop a strategic plan for a global laboratory network and improved information sharing
    - Assess DOD laboratory footprint in context of broader global network of capabilities and adjust DOD assets, as appropriate
- Review and expand list of "diseases of operational significance"
    - As required, expand assays deployed with laboratories
- Identify and leverage opportunities to expand sampling programs to enhance OCONUS (outside the continental United States) disease surveillance and gain an improved understanding of disease prevalence in different geographic areas
    - Work with CDC and other stakeholders to prioritize efforts where diseases are more likely to overwhelm local public health capabilities
- Support the continued development of USG strategic plans that increase the public health and bio-surveillance capacities of partner nations
- Participate with other USG agencies and international public health organizations to improve laboratory integration with host-nation public health systems
- When and where possible, review and examine specimen collection and reporting procedures used by partner nations to inform capacity building and PI&ID plans
- Sustain the resourcing of biological hazard and force health protection/public health-related capabilities (e.g., DTRA, USAMRIID, AML, OCONUS labs)
- Sustain DOD labs and enhance their ability to rapidly respond with the capabilities to operate in a biological hazardous environment
- Review the prepositioning of biological response equipment and supplies
- Work with partners to:
    - Standardize terms, increase transparency, and improve sharing of public health data
    - Improve disease modeling to better account for variables in changing behavioral patterns, local cultural practices, and regional migration
    - Study regional migration patterns in areas of concern to improve understanding of population movement and monitor for changes
- Use existing OCONUS DOD labs to help international partners confirm the conditions of an outbreak

Assessment of the Operational Environment

CCMDs should:
- Continue to develop and update assessments, to include leveraging personnel currently operating in the AOR
    - Leverage embassy-based personnel to improve access and increase understanding of partner-nation capabilities and capacities
    - Coordinate with the National Guard Bureau to expand the number of nations in the State Partnership Program and leverage the US Army's Regionally Aligned Force to enhance forward presence
    - Leverage expertise from DOD regional centers, such as the USAFRICOM's African Center for Strategic Studies, to improve staff training and cultural awareness
    - Ensure crisis action planning process includes the capability to rapidly update assessments so that forces can be tailored to meet specific mission needs and risks
- In PI&ID planning, incorporate assessments to identify specific actions that can be taken in the initial phases of an operation to produce immediate desired effects

Deployment

Forming Joint Headquarters
- DOD should examine the construct of joint force command as used by USAFRICOM during OUA and, as appropriate, incorporate into joint doctrine.
- The Joint Staff should validate the use of CCMD Service component commands as a rapidly deployable joint force headquarters to provide command and control of all DOD forces in the joint operations area (JOA), execute time-sensitive operations, and set the conditions for follow-on DOD response.
- CCMDs should examine the use of the contingency command post as the core of a rapid response joint headquarters, including its manning, command and control authorities, interorganizational relationships, and its utility as a short duration, bridging solution to more robust follow-on HQ.
- CCMDs should evaluate the potential use of a Service component command as the core of a rapid response joint HQ for short-duration requirements; establish a set of conditions and employment criteria for its use.

Force Flow

DOD should:
- Review, and as necessary expand, GFM and JOPES training and capacity across the Services and CCMDs
    - Specifically, expand the JOPES capacity of USAFRICOM, USARAF, and the JECC; ensure the cells are capable of 24-hour JOPES operations during times of crisis
- Improve the interface of Services' existing movement planning tools and policies (e.g., TC-AIMS [USA], DCAPES [AF], JFRG [USMC]) with the joint systems (JOPES), with an ultimate aim of replacing the current segregated Service systems with a single common joint application
- Improve the ability to conduct in-stride force tailoring and deployment sequencing. Specifically:
    - Develop a force flow visualization tool that aligns the capabilities in the joint capabilities requirement management system with the force tracking numbers (FTNs) in JOPES, helps decision makers manage multi-modal deployment, and depicts capability formation in theater
    - Document in doctrine, standard operating procedures, etc., the best practice of the Virtual Force Flow Working Group and Conference
- Update the current GFM management tools to improve visibility of unique capabilities, such as those from DTRA and DLA
- Review the response timelines of critical early entry enablers to ensure they are available when required
    - Improve force flow integration of USTRANSCOM's early enabler packages (e.g., JTF-PO) with the CCMD's early deployers
- Incorporate capabilities of logistics enablers such as operational contract support (OCS), LOGCAP, and DLA into FHA plans, training, and exercises
    - Document in doctrine, standard operating procedures, etc., the best practice of establishing a geographic CCMD and JFC operational contract support integration cell
- Increase individual preparations and unit-level planning, training, and exercises that replicate the conditions of rapid deployment and operations in an austere environment in an immature theater
- Review training, required equipment, and preparations (e.g., PPE and shots) specific to operations in a bio-threat environment
- Increase training and exercises centered on theater opening and the associated actions of early entry forces and capabilities

CCMDs should:
- Develop generic crisis response force packages, to include a base set of HQ (with JMDs) and key enablers (e.g., JECC, contingency real estate support team, DLA deployable depot, FP-150,[*] JTF-PO), and a draft initial force flow plan (TPFDL) for any emerging response
  - Add these force packages to the joint capabilities requirement management system as required
- Identify staff augmentation and liaisons to fill the crisis JMDs for themselves and the response HQ; include response timelines in internal staff readiness plans and existing force sharing agreements
- Review the USAFRICOM/USEUCOM force sharing agreements and address capability gaps and response timeline shortfalls as identified during OUA

Messaging, Networks, and Collaboration

DOD should:
- Fully implement the joint information environment and mission partner environment across the DOD and interorganizational partners
  - Until implementation of the JIE, identify and implement in CCMD planning and operations orders a single IT architecture for all JOA and CCMD elements prior to deployment into the JOA
- Consider identifying deployable IT equipment that can be utilized for operations in unclassified, non-CAC enabled environments
- Utilize existing procedures, policies, and tools to ensure accurate and timely communication throughout DOD in unclassified operations
  - Reduce the amount of unclassified information originating on SIPRNET
  - Increase the capacity of and access to foreign disclosure officers to reduce time to enable sharing
- Plan to execute FHA operations in an unclassified environment; codify in appropriate DOD guidance, policy, and doctrine
- Develop procedures and policies to improve information sharing with non-DOD partners
  - Ensure orders and documents are written "for release" to partners
- Capture as a best practice the use of synchronization matrices and a COP that can be hosted and shared in an unclassified environment to support LFA coordination of DOD and partner efforts
- Use information management tools and procedures (i.e., portals, collaboration tools, etc.) as established by the LFA
  - Exercise the use of the tools and procedures with the LFA during steady state and phase 0 operations

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[*] Force Provider-150—a United States Army deployable expeditionary base camp module for 150 soldiers

CCMDs should:
- Identify, plan, and exercise communication methods that are not reliant on advanced technology and network operations, such as programmed increased human interaction, to communicate and share information in a complex FHA environment with non-DOD partners; revisit during crisis planning
- Plan and exercise information architecture as established by and coordinated with the LFA, to include IT systems, networks and TTP
- Identify in operation orders (i.e., OPORD para. 5, Annex K) the information system architecture capabilities, share with LFA during crisis action planning, and work in rehearsal of concept (ROC) drills, as feasible
- Include the exchange of liaisons with internal and external partners in PI&ID Phase 0 planning and rehearsal activities
- Develop a deliberate communication synchronization plan in coordination with the LFA, host nation, and country team

Transition and Redeployment

DOD should:
- Revise Overseas Humanitarian, Disaster, and Civic Aid policy and authorities to permit more agile funding for RC pay and entitlements, if required
- In emergent operations, balance the desire for early force-sourcing decisions with the time required to determine follow-on force requirements
  - Review and revise mobilization policy to clarify rotation for emergent operations.
  - Allow time for an assessment prior to determining the rotation schedule
- Emphasize Reserve Component mobilization laws, policies, and timelines as they apply to emergent and contingency requirements in JPME
- Develop and institutionalize reintegration procedures for redeploying personnel, adjusted for the risk of infection by disease category, to ensure force health protection

CCMDs should:
- Continue the practice of:
  - Early coordination with the LFA to bound operational tasks and develop milestones toward transition
  - Defining criteria for the transfer of tasks to gaining organizations (e.g., WFP, host nation, etc.) and monitoring their ability to sustain the function
  - Proactively rightsizing the force for the mission as efforts are completed or transitioned

Appendix C: Abbreviations

AAR	after action review
ACJCS	Assistant to the Chairman of the Joint Chiefs of Staff
AFL	Armed Forces of Liberia
AML	area medical laboratory
AOR	area of responsibility
APAN	All Partners Access Network
ASCC	Army Service component command
ASD	Assistant Secretary of Defense
BCA	Budget Control Act
BG	brigadier general (1-star)
CAC	common access card
CBEP	cooperative biological engagement program
CBRNE	chemical, biological, radiological, nuclear, and high-yield explosives
CCMD	combatant command
CCP	contingency command post
CDC	Centers for Disease Control and Prevention
CG	commanding general
CJCS	Chairman of the Joint Chiefs of Staff
CJCSI	Chairman of the Joint Chiefs of Staff instruction
CONPLAN	concept plan
CONUS	continental United States
COP	common operational picture
DART	disaster assistance response team
DASD	Deputy Assistant Secretary of Defense
DCAPES	Deliberate and Crisis Action Planning and Execution Segments
DHS	Department of Homeland Security
DLA	Defense Logistics Agency
DOD	Department of Defense
DODI	Department of Defense instruction
DOS	Department of State
DOTMLPF	doctrine, organization, training, materiel, leadership and education, personnel, and facilities
DPP	disaster planning program
DTRA	Defense Threat Reduction Agency
ELWA	Eternal Love Winning Africa
EMEDS	expeditionary medical support
ETU	Ebola treatment unit
EVD	Ebola virus disease

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EXORD	execute order
FEST	forward engineer support team
FHA	foreign humanitarian assistance
FORSCOM	United States Army Forces Command
FTN	force tracking number
GCC	geographic combatant commander
GCP	global campaign plan
GEF	Guidance for Employment of the Force
GFM	global force management
GO/FO	general officer/flag officer
GOL	Government of Liberia
HHS	Department of Health and Human Services
HQ	headquarters
ID	infantry division
JAT	joint assessment team
JCOA	Joint and Coalition Operational Analysis
JCSE	Joint Communications Support Element
JECC	Joint Enabling Capabilities Command
JFC	joint force command
JFC-UA	Joint Force Command-UNITED ASSISTANCE
JFRG	joint force requirements generator
JIE	joint information environment
JIPOE	joint intelligence preparation of the operational environment
JLLIS	Joint Lessons Learned Information System
JMD	joint manning document
JOA	joint operations area
JOPES	Joint Operation Planning and Execution System
JPME	joint professional military education
JS	Joint Staff
JSCP	Joint Strategic Capabilities Plan
JTF	joint task force
JTF-PO	joint task force-port opening
KM	knowledge manager
LFA	lead federal agency
LIBR	Liberia Institute for Biomedical Research
LNO	liaison officer

LOGCAP	logistics civil augmentation program (Army)
MG	major general (2-star)
MITAM	mission tasking matrix
MMU	Monrovia medical unit
MSF	Médecins Sans Frontières (known in English as Doctors without Borders)
MOH	Ministry of Health
MOU	memorandum of understanding
NGO	nongovernmental organization
NIPRNET	Nonsecure Internet Protocol Router Network
NMRC	Naval Medical Research Center
NRF	National Response Framework
OCS	operational contract support
OCONUS	outside the continental United States
-OFDA	Office of United States Foreign Disaster Assistance
OHDACA	Overseas Humanitarian, Disaster, and Civic Aid
OOL	Operation ONWARD LIBERTY
OSD (P)	Office of the Undersecretary of Defense for Policy
OUA	Operation UNITED ASSISTANCE
OPT	operational planning team
PAO	public affairs officer
PI&ID	pandemic influenza and infectious disease
PPE	personal protective equipment
RC	Reserve Component
RFF	request for forces
SCC	Service component command
SIPRNET	SECRET Internet Protocol Router Network
SPMAGTF-CR	special purpose Marine air-ground task force–contingency response
SPOD	seaport of debarkation
TC-AIMS	Transportation Coordinator's Automated Information for Movements System
TPFDD	time-phased force and deployment data
UCP	Unified Command Plan
UN	United Nations
UNMIL	United Nations Mission in Liberia
USACE	United States Army Corps of Engineers
USAFRICOM	United States Africa Command
USAID	United States Agency for International Development

USAMRIID   United States Army Medical Research Institute of Infectious Diseases
USARAF   United States Army Africa
USARNORTH   Unites States Army North
USCENTCOM   United States Central Command
USEUCOM   United States European Command
USG   United States Government
USNORTHCOM   United States Northern Command
USPHS   United States Public Health Service
USSOUTHCOM   United States Southern Command
USTRANSCOM   United States Transportation Command

WHO   World Health Organization

Military Office Designations

Staff offices, denoting responsibility, include a letter and a numeral; if there is more than one digit, that position is subordinate. The letter and the numeral are separated by a hyphen. G-3, for example, would refer to the operations staff of an Army or Marine Corps command.

Letter	Organization		Numeral	Responsibility Area
J	Joint Staff		-1	manpower and personnel
A	Air Force		-2	intelligence
G	Army or Marine Corps		-3	operations
N	Navy		-31	joint force coordination (component of -3/operations)
			-35	future operations (component of -3/operations)
			-4	logistics
			-5	plans
			-6	command, control, communications, and computer systems
			-7	information operations

Notes

[1] The World Health Organization (WHO) published the Institut Pasteur confirmation of Ebola in Guinea on 23 March 2014. WHO, "Ebola Ground Zero in Guinea: The Outbreak Smoulders – Undetected – For More Than Three Months, World Health Organization Global Alert and Response," http://www.who.int/csr/disease/ebola/ebola-6-months/guinea/en/.

[2] "In West Africa . . . infectious disease is part of everyday life. The cause of disease is often unknown or incompletely understood because of nonspecific clinical features, lack of diagnostic laboratory support, or little or no knowledge about disease prevalence in a region." Randal Schoepp, et al., "Undiagnosed Acute Viral Febrile Illnesses, Sierra Leone, July 2014," DOI:10.3201/eid2007.131265..

[3] Unlike doing 35 years of outbreak investigation for Ebola in Africa where we might have had an occasional traveler to a capital city, we had lots of people making it from rural areas (where there is Ebola) to large urban slum areas, with no water or sanitation. It was a bad combination of poor health, infrastructure, porous borders, and the ability to get from forested deep rural areas to a large urban slum very easily. Centers for Disease Control and Prevention (CDC) Global Health Protection Representative (paraphrased), Joint Staff J7 Joint and Coalition Operational Analysis Division (JCOA) Interview, 31 March 2015.

[4] "The health system in Liberia has collapsed. Pregnant women experiencing complications have nowhere to turn. Malaria and diarrhea, which are easily preventable and treatable, are killing people." United Nations Special Briefing on Ebola: Statement by Dr. Joanne Liu, Médecins Sans Frontières (MSF) President, 2 September 2014, http://www.doctorswithoutborders.org/news-stories/speechopen-letters/united-nations-special-briefing-ebola; "This outbreak is moving faster than our efforts to control it.", WHO Director General Dr. Margaret Chan Speech on the Ebola Virus Disease (EVD) Outbreak Delivered to Presidents of Guinea, Liberia, Sierra Leone, and Cote d'Ivoire, 1 August 2014; "The outbreak of Ebola virus disease in West Africa is unprecedented in many ways, including the high proportion of doctors, nurses, and other health care workers who have been infected.", "Unprecedented Number of Medical Staff Infected with Ebola: WHO Situation Assessment," 25 August 2014; "We had the feeling people didn't understand what we were talking about. . . . But Ebola has completely killed the infrastructure of these countries. It is attacking the state and the health structures. We cannot afford to let that continue." Sophie Arie, "Only the Military Can Get the Ebola Epidemic Under Control", BMJ 2014; 349:(2014).

[5] US Agency for International Development (USAID), "West Africa – Ebola Outbreak Fact Sheet #3, Fiscal Year 2016", 6 November 2015, http://www.usaid.gov/sites/default/files/documents/1866/west_africa_fs03_11-06-2015.pdf.

[6] Ibid.

[7] Early Ebola symptoms (e.g., fever, headache, muscle pain, fatigue, and diarrhea) are consistent with other diseases indigenous to West Africa such as cholera and influenza; therefore, masking the severity of the patient's condition until more severe medical conditions (e.g., unexplained hemorrhaging) develop. Details of EVD symptoms, including specific signs and timeframes are available from the CDC at http://www.cdc.gov/vhf/ebola/symptoms/index.html.

[8] "Since March, we have faced a terrible tragedy in our country. Along with our sister Republics of Guinea and Sierra Leone, we continue to battle an unprecedented outbreak of the Ebola virus disease. The virus was first noticed in December 2013 in a small village in Guinea. It was not confirmed as Ebola for three and a half months as no one—not even the world's experts—knew that this was Ebola. By the time it was confirmed the virus had already spread and was in Sierra Leone and on its way to Liberia." Statement by President Ellen Johnson Sirleaf on the Update of the Ebola Crisis, 17 September 2014.

[9] "WHO and the Guinean health ministry documented in March that a handful of people had recently died or been sick with Ebola-like symptoms across the border in Sierra Leone. But information about two of those possible infections never reached senior health officials . . . it was not until late May, after more than two months of unchecked contagion, that Sierra Leone recorded its first confirmed cases." Kevin Sack, Sheri Fink, Pam Belluck, and Adam Nossiter, "How Ebola Roared Back," *New York Times*, 29 December 2014.

[10] "Centers for Disease Control and Prevention was here in Liberia within a couple weeks of knowing of cases. The [United States] Government (USG) responded early. Defense Threat Reduction Agency (DTRA) came from Sierra Leone, where they had been working, to establish lab capacity here. We asked for and got [United States] Government help in the spring of 2014, and we felt good about it." Deborah Malac, US Ambassador to Liberia, US Embassy Monrovia, JCOA Interview, 18 February 2015.

[11] The Department of Defense (DOD)-led laboratory at Liberia Institute for Biomedical Research (LIBR) remained the only EVD testing capacity in the country until the CDC and US National Institutes of Health (NIH) established a mobile lab in August 2014: "We were [in Sierra Leone] until we were . . . asked to come focus on Liberia exclusively. We were the only lab here [in Liberia] until August of 2014 when the first mobile . . . CDC/NIH lab at ELWA [Eternal Love Winning Africa] came on. So we were the only testing facility for the country [until August 2014]." Dr. Randal Schoepp, US Army Medical Research Institute of Infectious Diseases (USAMRIID), JCOA Interview, 22 February 2015.

[12] AMB Malac, JCOA Interview, 18 February 2015.

[13] "Exposure of health-care workers to EVD continues to be an alarming feature of this outbreak. As of 1 October [2014], 382 healthcare workers are known to have developed EVD (69 in Guinea, 188 in Liberia, 11 in Nigeria and 114 in Sierra Leone). [A total of] 216 healthcare workers have died as a result of EVD infection (35 in Guinea, 94 in Liberia, five in Nigeria, 82 in Sierra Leone)." WHO Ebola Response Roadmap Update, 3 October 2014; "The outbreak of Ebola virus disease in West Africa is unprecedented in many ways, including the high proportion of doctors, nurses, and other healthcare workers who have been infected." World Health Organization, "Unprecedented Number of Medical Staff Infected with Ebola: WHO Situation Assessment," 25 August 2014.

[14] Geoffrey York, "Only a Few Aid Agencies Willing to Help Fight Ebola in Africa," *Globe and Mail,* 3 October 2014, http://www.thegolbeabdmain.com/news/world/aid-agencies-fail-to-mobilize-ebola-resources/article 20930983/; "Just to be clear and give a reality check, the number of organizations that are acting in the field right now can be counted on the fingers of my hands. So there's not that many. It's not like Haiti after the earthquake, where you had 12,000 NGOs (nongovernmental organizations) trying to bustle around and find a way to justify their presence. The reality is there are very few organizations that are deploying right now." Dr. Joanne Liu, MSF President, as quoted by Jena McGregor, "Looking for Leadership in the Ebola Epidemic," *Washington Post*, 25 August 2014, http://www. washingtonpost.com/news/on-leadership/wp/ 2014/08/25/looking-for-leadership-in-the-ebola-epidemic/.

[15] "We have learned the importance of capacity. We can mount a highly effective response to small and medium-sized outbreaks, but when faced with an emergency of this scale, our current capacities and systems—national and international—simply have not coped." World Health Organization, "WHO Leadership Statement on the Ebola Response and WHO Reforms," 16 April 2015, http://www.who.int/csr/disease/ebola/joint-statement-ebola/en/.

[16] "Christian ministries are no longer letting American physicians get so close to Ebola patients . . . . In Liberia, the Christian relief organization had its expatriate staff switch their focus to Ebola in June, but soon pulled about 60 people back to the US after Brantly and Writebol contracted the virus in July . . . . Samaritan's Purse returned American workers to Liberia in September. But their focus is now not on Ebola patients themselves, but on managing the health of nearly 400 Liberian staff running 15 community care centers on the front lines." Deann Alford, "Medical Missionaries' Ebola Pullback: No More Kent Brantlys?" *Christianity Today*, 21 November 2014; Case numbers from CDC website available at http://www.cdc.gov/vhf/ebola/outbreaks/2014-west-africa/previous-case-counts.html.

[17] For a graphical representation of the CDC Ebola response timeline, including the activation of the emergency operations center see http://www.cdc.gov/about/pdf/ebola/ebola-timeline-070815.pdf.

[18] "On 24 July 2014, the Director-General took the decision, based on the ongoing severity of the outbreak and a report of a case travelling from Liberia to Nigeria, to regrade the event as a Level 3." World Health Organization, "Ebola Virus Disease Outbreak Response Plan in West Africa, WHO and the Governments of Guinea, Liberia, and Sierra Leone, July-December 2014," 31 July 2014, http://www.who.int/csr/disease/ebola/evd-outbreak-response-plan-west-africa-2014.pdf.

[19] Moyer, Justin Wm., "Liberia Closed its Borders to Contain Ebola. Can that work?" *Washington Post,* 31 July 2014, http://www.washingtonpost.com/news/morning-mix/wp/2014/07/31/liberia-closed-its-borders-to-contain-ebola-can-that-work/.

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[20] "Special Statement by President Ellen Johnson Sirleaf on Additional Measures in the Fight Against the Ebola Viral Disease," 30 July 2014, http://www.mofa.gov.lr/public/doc/Special_State_Delivered_July%2030.pdf.

[21] WHO Director General Dr. Margaret Chan Speech on the Ebola Virus Disease Outbreak Delivered to Presidents of Guinea, Liberia, Sierra Leone, and Cote d'Ivoire, 1 August 2014.

[22] "Therefore, and by the virtue of the powers vested in me as President of the Republic of Liberia, I, Ellen Johnson Sirleaf, President of the Republic of Liberia, and in keeping with Article 86(a) (b) of the Constitution of the Republic of Liberia, hereby declare a state of emergency throughout the Republic of Liberia effective as of August 6, 2014 for a period of 90 days. Under this state of emergency, the government will institute extraordinary measures, including, if need be, the suspensions of certain rights and privileges." Ellen Johnson Sirleaf, President of the Republic of Liberia, "Statement on the Declaration of a State of Emergency," 6 August 2014, http://www.emansion.gov.lr/doc/sdseg.pdf.

[23] For a concise overview see Alexandra Zavis and Christine Mai-Due, "Clashes erupt as Liberia seals off slum to prevent spread of Ebola," *Los Angeles Times*, 20 August 2104, http://touch.latimes.com/#section/-1/article/p2p-81132473.

[24] "On August 4, the U.S. Ambassador to Liberia declared a disaster due to the effects of the Ebola outbreak. In response, USAID has activated a Disaster Assistance Response Team (DART). The DART, comprising team members in Monrovia, Liberia, and Conakry, Guinea, will coordinate planning, operations, logistics, administrative issues, and other critical areas of the interagency response." Ariel Pablos-Mendez, USAID Assistant Administrator for Global Health, "Hearings Before the House Subcommittee on Africa, Global Health, Global Human Rights, and International Organizations," 7 August 2014.

[25] Roulo, Claudette, "DOD Establishes Ebola Task Force," *DOD News*, 5 August 2014, http://www.defense.gov/News-Article-View/Article/603003.

[26] "The *USNORTHCOM (US Northern Command) Concept of Operations Plan for Pandemic Influenza and Infectious Diseases 3591*, synchronizing planning for regional execution by combatant commands, was not activated for OUA (Operation United Assistance). It is primarily concerned with force health protection, and is not entirely a good fit for global health security crisis." Threat Reduction Advisory Committee, "DOD Role in Global Health Security (Briefing)," 22 April 2015. Specific guidance on public requests regarding Threat Reduction Advisory Committee information available at http://www.dtra.mil/Home/TRAC.aspx.

[27] "In my view, DOD's role should be to help develop a comprehensive strategy and then to contribute our unique capabilities to enable others to execute it." GEN Martin Dempsey, Chairman of the Joint Chiefs of Staff (CJCS), "US Africa Command Response to the Ebola Threat," CJCS Memorandum for SecDef, CM-0259-14, 4 September 2014.

[28] The Chairman's redline was that there would be no direct contact with Ebola patients by Service members. We were able to argue that successfully in interagency discussions once we knew that was a redline. Maj Gen Steven Shepro (paraphrased), Vice Director Joint Staff J-5, JCOA Interview, 12 January 2015.

[29] "In August, we talked about DOD support. Dr. Frieden visited in late August, so in September, the US Government discussions started to ramp up and people began to socialize the concept of supporting the response with DOD." AMB Malac, JCOA Interview, 18 February 2015; The CDC assessment is what tipped the scale. Joint Staff J-5 NW Africa Representative (paraphrased), JCOA Interview, 15 January 2015.

[30] "Without more direct help from your government, we will lose this battle against Ebola . . . . Mr. President at the current rate of infections, only governments like yours have the resources and assets to deploy at the pace required to arrest the spread. Branches of your military and civilian institutions already have the expertise in dealing with biohazard, infectious disease and chemical agents. They already understand appropriate infection control protocols." "Letter from President Sirleaf to President Obama," *Front Page Africa*, 9 September 2014, http://frontpageafricaonline.com/index.php/news/2997-in-letter-to-obama-liberia-s-sirleaf-pleads-for-direct-ebola-aid; "In early September, MSF sat in my office and stated, 'We need you to get the US military here.'" AMB Malac, JCOA Interview, 18 February 2015; Caelainn Hogan, "Calls Intensify for International Military Response to Ebola", *Washington Post,* 4 September 2014, https://www.washingtonpost.com/news/morning-mix/wp/2014/09/04/calls-intensify-for-international-military-response-to-ebola/.

[31] Joint Staff, "DOD Support to Provide a 25-Bed Medical Facility in Liberia," JS EXORD (Execution Order), 121716Z Sep 14.

[32] Joint Staff, "Operation UNITED ASSISTANCE - DOD Support to the USG Response to the Ebola Outbreak in West Africa," JS EXORD, 151228Z Sep 14.

[33] President Barack Obama, "Remarks by the President on the Ebola Outbreak," White House Press Secretary, 16 September 2014, https://www.whitehouse.gov/the-press-office/2014/09/16/remarks-president-ebola-outbreak.

[34] We had no idea that the President was going to announce our role in OUA and name MG Williams as his commander on the ground. We had only come down for a quick recon visit. The announcement caused a media storm for us. As soon as we stepped off the plane we were caught off guard. USARAF (U.S. Army Africa) PAO (Public Affairs Officer) (paraphrased), JCOA Interview, 17 November 2014.

[35] MG Darryl Williams, USARAF and JFC-UA Commanding General, JCOA Interview, 19 November 2014.

[36] "What really mattered was speed. What the ASCC [Army Service component command] provided was the ability for a 2 star senior leader heavy command element to come forward, get on the ground and start setting the theater for the follow on forces . . . . What the mission required at the time was speed and flexibility." Defense Attaché US Embassy Monrovia, JCOA Interview, 17 November 2014.

[37] "When MG Williams came, he had lunch with the DART, MSF and embassy staff. We went over the specifics for planning response activities such as the building of ETUs (Ebola treatment units). It was extraordinary." AMB Malac, JCOA Interview, 18 February 2015.

[38] MG Williams laid out the goals for a 30-day quick win for the USARAF part of the operation. We needed to have command and control in place, the force provider camp built, things up and running for the 101st [Airborne Division (Air Assault)]. USARAF G-9 Officer (paraphrased), JCOA Interview, 13 November 2014.

[39] "The USAFRICOM Commander broke bread and moved 15 pipe-swinging Seabees over to Liberia. That was huge. They got off the plane with their tool belts on and stuff started to go up. They were like beavers, putting things up." MG Darryl Williams, JCOA Interview, 19 November 2014.

[40] "The logistical concept of support for the operation [established] an intermediate staging base (ISB) at Dakar, Senegal and a major Air/Surface Port of Debarkation in Liberia. These critical nodes set the theater for success from a mobility perspective. The ISB gave USAFRICOM operational flexibility in the event of greater spread of Ebola requiring a more regional response and provided redundant capability in the event the airfield in Liberia became unusable. Two organizations that were critical to this effort were USTRANSCOM (US Transportation Command) and the Defense Logistics Agency." *Operation UNITED ASSISTANCE: Logistics Partnership Success*, 12 January 2015, 3. http://www.africom.mil/ newsroom/article/25102/operation-united-assistance-logistics-partnership-success.

[41] We were doing Exercise Lion Focus with the JECC (Joint Enabling Capabilities Command) here when we received the mission, the JECC did the operational design for us. It was solid so we used it as the framework for the operation. . . . It was great to have the JECC planning experience and their canned work that gave a starting point. JFC-UA J-5 Transition Planning (paraphrased), JCOA Interview, 18 November 2014.

[42] The US Marine Corps V-22s were brought in fairly quickly and were a visible sign to the people of Liberia that the United States had come to help. US Defense Attaché (paraphrased) US Embassy Monrovia, JCOA Interview, 18 February 2015; There is a force sharing agreement with USEUCOM (US European Command)—a requirement for support. It generally is for short term support of 30 days or less, but it is a way to get things out the door quickly. It is beyond valuable because there is no red tape in front of it. USAFRICOM GFM/JOPES (global force management /Joint Operation Planning and Execution System) Planner J-354 (paraphrased), JCOA Interview, 21 November 2014.

[43] AMB Malac, JCOA Interview, 18 February 2015.

[44] "So, I think that the Army's got it about right from an Army service component. They [USARAF] come in, they start to set the theater, but then you bring a division in that is either a JTF or a joint force command." MG Gary Volesky, JFC-UA, Commanding General 101st Airborne Division (Air Assault) and JFC-UA, JCOA Interview, 23 February 2015.

[45] "There was pressure for an RFF (Request for Forces) before the order was even complete. We didn't complete the order until about two weeks into it. Literally as I was in Liberia, having not finished my order, my boss's staff was pushing us for an RFF. We didn't have the order completed yet . . . [there] was a constant demand signal very early to get the right forces there." MG Williams, JCOA Interview, 19 November 2014.

[46] We planned initially for an all-[military] solution; we planned big, as it is easier to taper back. The problem was that the desired force capability level turned out to be less than planned for. We didn't know what was available. USAFRICOM J-43 (paraphrased), JCOA Interview, 11 December 2014; "A lot of equipment that people were trying to bring into theater, you know heavy weapons, armored vehicles, [and] facial recognition software. A lot of that stuff had no place and no role. We were spending gobs of time, energy, effort and funds to enter a theater much like we would any other combat theater. One that was completely unnecessary in this environment." BG Peter Corey, JFC-UA Deputy Commanding General, JCOA Interview, 18 November 2014; The first problem was that political pressures existed to get into country . . . . We saw the impact of that when we were preparing to send about 500 pieces of equipment home without them ever being used. USAFRICOM GFM/JOPES Planners J-354 (paraphrased), JCOA Interview, 21 November 2014.

[47] Knowledge management (KM) was difficult for us because we initially used SIPRNET (SECRET Internet Protocol Router Network) and worked with DOS (Department of State) and USAID who use NIPRNET (Nonsecure Internet Protocol Router Network). Most of the stuff for the operation was unclassified, so why do we use SIPRNET? USARAF G-3 (paraphrased), JCOA Interview, 14 November 2014; The use of classified systems is absurd. Everything is on SIPR[NET], even if it is unclassified information. . . . How do you shove stuff from SIPR[NET] to NIPR[NET]? I was wasting time retyping information on NIPR[NET]. We need to get out of the mindset and force ourselves to exercise in an unclassified environment. USAFRICOM J-4 (paraphrased), JCOA Interview, 11 December 2014.

[48] Everybody that we were working with down there was operating off of what we came to affectionately refer to as the dirty internet and so there was not a lot of utility in using SIPR[NET]. . . . Still USAFRICOM, USARAF rear, the Joint Staff, everybody else was pushing documents on the SIPR[NET] side. USAFRICOM J-3 (paraphrased), JCOA Interview, 06 January 2015.

[49] "What delayed things the most was, as a joint force, we have forgotten how to deploy the force. Army movement officers resorted to employing what they learned in Afghanistan where they deploy and fall-in on equipment sets. In this operation, they had to start from scratch." MG Bryan Watson, USAFRICOM Director, J-3 Operations and Cyber, JCOA Interview, 10 December 2014.

[50] "I think we [DOD] have lost a lot of our ability to be truly expeditionary. We have become . . . reliant upon contractors to do a lot of the early entry stuff that needs to happen in order for people to sustain themselves. . . . [Over] the last 12 or 13 years we have become accustomed to arriving in a theater and there is a [forward operating base] all set up for you with a Starbucks and a Kentucky Fried Chicken . . . . I think we delayed—or our arrival of troops was delayed—because we simply did not have the means to sustain them early on until such a time as we could get the contract in place [for] force provider and that sort of thing." BG Corey, JCOA Interview, 18 November 2014; "We all have this image of the US military popping in, standing up, and engaging. Not the case. At the embassy here, we provided a lot of support to DOD for a long time. For example, one of the earliest military guys to arrive showed up with a credit card and no cash, so we had to front some money to him. We were happy to help, but they should have known better about some things. They should have talked to USAFRICOM." AMB Malac, JCOA Interview, 18 February 2015; "We literally had units roll in there . . . that [on] day two they were asking for hot chow because their expectation was they were going to fall into a forward operating base and all that stuff was already there. I said, 'Hey, welcome to an immature theater. Welcome to being expeditionary. You are going to eat MREs (Meals Ready to Eat) and water for the first 30 days-plus.'" USARAF G-4, JCOA Interview, 5 December 2014.

[51] USARAF Surgeon (paraphrased), JCOA Interview, 14 November 2014.

[52] "Some policy issues regarding the parameters of what DOD elements would be allowed to do should have been determined earlier. In the end, the answer from DOD was no. We lost weeks waiting for the policy debate to play out. We had to look for other partners and probably paid more to contract those tasks out." AMB Malac, JCOA Interview, 18 February 2015.

[53] Modification two to the Joint Staff EXORD, 14 October 2014, provided more flexibility and criteria on determining when MITAMs (mission tasking matrices) needed to be elevated for approval.

[54] This lack of tactical approval authority is not inconsistent with joint doctrine. JP 3-29, *Foreign Humanitarian Assistance*, 3 January 2014, states, "Members of the joint force must have a clear understanding of the nature and amount of support they will be authorized to provide. When the JFC has been delegated the authority to fill certain types of requests from these organizations, the granting of that authority, and guidance on its use, are reflected in

appropriate orders." Nonetheless, numerous military and non-military interviewees told JCOA that the approval authority has traditionally been at the tactical level.

[55] The MITAM is designed as a disaster assistance response team-joint force command mechanism for normal disaster response. The Ebola outbreak was an unusual event. The response management team and OSD (Office of the Secretary of Defense)—Policy were essentially doing that function. That was very unusual. It made it more difficult. OSD Stability and Humanitarian Affairs Representative (paraphrased), JCOA Interview, 15 January 2015.

[56] Every requirement went from USAID to the DOD task force in the Pentagon and came out as modifications to the EXORD for USAFRICOM. MG Watson (paraphrased), JCOA Interview, 10 December 2014.

[57] "The White House [was] really pressing us to make use of DOD and DOD, on the other hand, making it really hard to get clear, definitive answers on what DOD would and wouldn't do in this response beyond the MMU and construction." USAID senior leader, JCOA Interview, January 2015.

[58] AMB Malac, JCOA Interview, 18 February 2015.

[59] RDML John Kirby, Department of Defense Press Briefing, 3 October 2014.

[60] There was a synchronization meeting that gave situational awareness understanding and fed into the development of a [common operational picture] to provide a good picture. There was a daily operations meeting where the J-3 met with USAID and the engineers to facilitate understanding. USARAF G-5 (paraphrased), JCOA Interview, 13 November 2015.

[61] USAFRICOM J-35 (paraphrased), JCOA Interview, 9 December 2014; "Working hand-in-hand with members of the Armed Forces of Liberia, they [USAID and US military engineers] consulted the experts with a gold standard ETU model: Médecins Sans Frontières and the World Health Organization. Building off of their expertise, they tailored the designs to create Department of Defense and AFL (Armed Forces of Liberia)-specific versions, which could be built and implemented with their resources." Andrew Hill, "There's No Standard Blueprint for an Ebola Treatment Unit," 1 October 2014, https://blog.usaid.gov.

[62] CDC representative (paraphrased), JCOA Interview, 31 March 2015.

[63] "The severe shortage of health staff trained in Ebola response techniques in affected countries has resulted in Ebola infections among health workers and patients unable to receive care. The United States Government plans to support a range of efforts to address infections among healthcare workers and ensure a sufficient number of trained healthcare workers to staff ETUs and CCCs (Community Care Centers). This request will support the deployment of Commissioned Corps Officers from the US Public Health Service, who will staff a specialized treatment center for healthcare workers who contract Ebola. Assistance will also support healthcare worker training. Department of State, Foreign Operations, and Related Programs, "Emergency Request Justification," Fiscal Year 2015.

[64] "We came prepared to do it all ourselves if chaos was being [en]countered. We should have come that way; that's part of the unique DOD capability. USAID cannot do that. USAID gives grants, contracts with NGOs (nongovernment organizations), etc. But if you arrive with 1.2 million cases and dead bodies in the streets, etc., there is nobody for [US]AID to give a contract to. So, we had to come prepared for that." BG Frank Tate, JFC-UA, 101st Airborne Division (Air Assault) Deputy Commanding General-Support, JCOA Interview, 23 February 2015.

[65] For a detailed account of the theater logistics see *Operation United Assistance: Logistics Partnership Success*, 12 January 2015, available at http://www.africom.mil/newsroom/article/25102/operation-united-assistance-logistics-partnership-success.

[66] We tied 88% of the flight hours directly to MITAMs. JFC-UA J-3 Air Operations (paraphrased), JCOA Interview, 20 February 2015.

[67] *Operation United Assistance: Logistics Partnership Success.*

[68] Aviation Brigade 2-501st Battalion Commander (paraphrased), JCOA Interview, 22 February 2015.

[69] "I got here on 4 October and stayed." JFC-UA J-3 Air Operations, JCOA Interview, 20 February 2015.

[70] "Around 14 October, we flew the first mission with the MV-22s." Ibid.

[71] "We had 18 helicopters we were bringing. We sent six in the initial entry package, arriving 2 November on C-17s. Within 48 hours, they were turning missions. Once they were here, we could send multiple site reconnaissance teams out simultaneously. It increased our capacity to recon sites for the ETUs and labs. It was the perfect mix: the V-22s did the long haul missions and the Black Hawks did the inner ring mission. It also gave us the capacity to do

MEDEVAC. The boat brought the remainder of our helicopters. There were no gaps in capability since 2 November. The Chinooks on the boat gave us the long haul capability and allowed the V-22s to redeploy." Ibid.

[72] Aviation Brigade 2-501st Battalion Commander, JCOA Interview, 22 February 2015.

[73] Ibid.

[74] The [commanding general] was good about thinking about the transitions from the start. For example, how to make the healthcare worker training sustainable for Liberia was a question from the beginning. JFC-UA Chief of Staff (paraphrased), JCOA Interview, 23 February 2015.

[75] "WHO Ebola Response Roadmap Update," 3 October 2014.

[76] "Leaders of United Nations agencies such as UNICEF (United Nations Children's Fund) are trying to persuade more relief agencies to overcome their fears and prejudices about Ebola. Too many nongovernmental organizations are sitting on the fence, said . . . the UNICEF country representative in Liberia." Geoffrey York, "Only a Few Aid Agencies Willing to Help Fight Ebola in Africa," *Globe and Mail*, 3 October 2014.

[77] The base order stated that we needed to train healthcare workers to the WHO/MSF approved training. It didn't exist. And the two organizations differed on their PPE (personal protective equipment) standards and how to use the PPE. CDC is also working on their own program of instruction, which is different from WHO and MSF. So we took the first couple of weeks to hammer out a program of instruction (POI) we could use for training these healthcare workers. We then sat down with the Government of Liberia leads for the Ebola outbreak to get their approval of our POI. COL (Dr.) James Czarnik, USARAF Command Surgeon (paraphrased), JCOA Interview, 14 November 2014.

[78] "I met with the WHO, and I sat through part of their [training] program. When we were at their program, that's when we saw what the full POI was going to be. The way the WHO was teaching it, they were using clinicians, medical personnel, and nurses to teach the program. We were planning of bringing about 10 officers and 60 enlisted over. At that point, we requested professional support to teach the course because it was a clinical-heavy course as opposed to how to put on and take off PPE (personal protective equipment)." Commander, 86th Combat Support Hospital (CSH) (paraphrased), JCOA Interview, 21 February 2014.

[79] JFC-UA J-3 (paraphrased), JCOA Interview, 20 February 2015.

[80] "I had the right mix of leadership to be able to do the mobile training. I got an infectious disease physician, and I had some very experienced officers that did reconnaissance missions. We were able to put together some very strong teams to do the training. . . . The key was having the right people who could be flexible in handling issues on the spot." Commander, 86th CSH, JCOA Interview, 21 February 2014.

[81] "The training is tied to the ETU completion dates. People were coming over to be trained so that they could work in the ETUs. When the ETUs were not finished on schedule, it caused some logistics issues. Some of the ETUs were not being finished until January, but the training mission did not go into January. So, we had to hand off some of the training requirements to others." Commander, 86th CSH, JCOA Interview, 21 February 2014.

[82] "General Rodriguez told me when I was coming over here . . . you are going to bring speed, flexibility, and confidence. That's what you are going to bring to Liberia from the DOD perspective and the joint force. But what I want to make sure you don't do is put in a capacity or capability that can't be sustained." MG Volesky, JCOA Interview, 23 February 2015.

[83] Commander, 86th CSH, JCOA Interview, 21 February 2014.

[84] DOD took an approach for people returning from Africa, that they had to be self-isolated and under controlled monitoring for 21 days regardless of their level of exposure in the country where widespread transmission was occurring. CDC Representative (paraphrased), JCOA Interview, 30 March 2015.

[85] The J-5 spent political capital in getting the [controlled monitoring areas] in Italy and Germany. I don't think we have a lot of political capital left with Italy after jerking them around in Sigonella. USEUCOM representative (paraphrased), "USAFRICOM J-4 Enterprise Senior Leader After Action Review," JCOA Notes, 12 December 2014.

[86] For the redeployment and CM [controlled monitoring], the limitation is available barracks space. It drove the flow of the retrograde. The elements we sent home in February will come out of controlled monitoring today. That drives the timeline [scheduling] for the next flights at the end of this week. JFC-UA Chief of Staff (paraphrased), JCOA Interview, 23 February 2015.

[87] Robert O. Work, Deputy Secretary of Defense, "Termination of Operation United Assistance and Maintaining Certain DoD Ebola Virus Disease-related Guidance and Authorities," Memorandum, 10 August 2015.

[88] "And the American people are reasonably concerned—Ebola is a terrible disease, and the fact that, in an interconnected world, infectious disease can be transported across borders is one of the reasons we have to take it seriously." President Barack Obama, "Remarks by the President in a Conference Call with State and Local Officials on Ebola," The White House Office of the Press Secretary, 8 October 2014, https://www.whitehouse.gov/the-press-office/2014/10/8/remarks-president-conference-call-state-and- local-officials-ebola.

[89] On 18 October 2014, the Department of Health and Human Services requested, "[DOD] place on standby five infectious disease doctors, 20 registered nurses, 10 of which are ICU nurses, and five trainers in infection control and personal protective equipment to augment existing Ebola prevention and response capabilities for initial deployment in the [United States] within 72 hours of notification for a period not to exceed 30 days." US Army North, "DOD Medical Support Team and Augmentation Training for Ebola Response: Summary Report, *US Army North G-3/7 Lessons Learned*," 29 December 2014.

[90] DOD Medical Support Team and Augmentation Training for Ebola Response, Summary Report, US Army North, 29 December 2014; "To my understanding, the offer to create a medical support team and the acceptance of that offer happened at the NSC (National Security Council) level . . . it came up at the height of the Dallas incident. Two nurses contracted Ebola and the President and the Secretary [of Defense] were looking for a [medical care] capability that could be brought to bear quickly . . . things ramped down faster than anybody expected, so it never really got put to the test." RDML Michael McAllister, USNORTHCOM J-3 Deputy Director for Operations, JCOA Interview, 22 March 2015; We realized that we could have a situation of an outbreak in Dallas. In the worst case, could we handle it? The Chairman decided to stage a mobile medical unit in Dallas and establish and train the Medical Support Team (MST). We were postured to treat people in Dallas, if necessary. Dr. Christopher Kirchhoff (paraphrased), Special Advisor to the Chairman of the Joint Chiefs of Staff, JCOA Interview, 15 January 2015.

[91] USNORTHCOM Future PI&ID Plans (paraphrased), JCOA Interview, 4 March 2015.

[92] "Concern over the spread of the EVD in the Western Hemisphere requires increased DOD planning and preparation necessary to inform senior leadership and prepare for a potential crisis." Joint Staff, "DOD Response to the Ebola Virus Disease Outbreak in USSOUTHCOM AOR," PLANORD, 171747Z Oct 14. [Complete document not released].

[93] Maj Gen Shepro, JCOA Interview, 12 January 2015.

[94] "On August 4, the US Ambassador to Liberia declared a disaster due to the effects of the Ebola outbreak. In response, USAID (US Agency for International Development) has activated a Disaster Assistance Response Team (DART). The DART, comprising team members in Monrovia, Liberia, and Conakry, Guinea, will coordinate planning, operations, logistics, administrative issues, and other critical areas of the interagency response." *Hearings Before the House Subcommittee on Africa, Global Health, Global Human Rights, and International Organizations*, 113th Cong. (7 August 2014) (testimony of Ariel Pablos-Mendez, Assistant Administrator for Global Health, USAID).

[95] We'd watched Ebola for some time. In July in Guinea, we saw the spikes in the outbreak and heard the rumblings. We thought then that it could spill over—but we didn't do anything about it. We've been watching certain crises forever, but haven't taken action. MG Watson (paraphrased), JCOA Interview, 10 December 2014; In late spring/early summer we began watching the outbreak. Assistant Secretary of Defense Lumpkin was concerned early on that this could turn into something so we started to monitor things. It doesn't have to be USAID asking for help. It was when the CDC sounded the alarm of the inadequacy of the civilian response that we got more engaged. OSD Stability and Humanitarian Affairs Representative (paraphrased), JCOA Interview, 15 January 2015; We were monitoring but not responding. MG Nadja West (paraphrased), Joint Staff J-4 Surgeon, JCOA Interview, 11 February 2015

[96] The policy answer was that we weren't going to do anything about it. It's hard to lock down the national security policy and demand signals. We didn't do enough to get a gauge on the temperature. The Office of the Secretary of Defense and the Joint Staff aren't able to judge when DOD will be asked to engage in crises. MG Watson (paraphrased), JCOA Interview, 10 December 2014; We saw trends with the outbreak but kept getting told we would not be involved. At first we were told this was not going to be a DOD problem and then it was and we had to go broader. USAFRICOM J-35 Representative (paraphrased), JCOA Interview, 9 December 2014; There was an overwhelming reluctance to be involved and therefore we did not prepare for it earlier. We needed more support to plan ahead of time. USAFRICOM J-4 Surgeon's Office Representative (paraphrased), JCOA Interview, 19 February 2015.

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[97] White House, "FACT SHEET: U.S. Response to the Ebola Epidemic in West Africa," The White House Office of the Press Secretary, 16 September 2014, https://www.whitehouse.gov/the-press-office/2014/09/16/fact-sheet-us-response-ebola-epidemic-west-africa.

[98] It is important for the reader to appreciate the significant ambiguity of the EVD crisis in September 2014. The USAFRICOM J-3 succinctly described the situation, "What were the strategic objectives?" At what point did someone say, "This is what we will achieve in Africa?" Fighting the disease is an operational or tactical objective, not strategic. Who owns that strategic objective when USAID is the lead federal agency? Who owns the crafting of the strategic objectives? It's not DOD. MG Watson (paraphrased), JCOA Interview, 10 December 2014; "The mission was not well-defined despite the President's statement; besides that, the Disaster Assistance Response Team would tell the military what to do. The specifics had to be sorted out." AMB Malac, JCOA Interview, 18 February 2015; "At the outset, there was no real clear path for what you do, no template. That's really unusual. Most of the time, when we're doing a major response, particularly when it involves DOD, we're doing something that we've done before . . . Everyone is different; everyone is particular, but for most responses, the basic tools and tactics that you use are pretty clear . . . but on Ebola, no one in that August-September timeframe knew what was going to work." Jeremy Konyndyk, OFDA (Office of Foreign Disaster Assistance) Director, USAID, JCOA Interview, 21 January 2015.

[99] It was not clear initially who was leading the USG effort. Initially, CDC was identified as the lead and then it was USAID OFDA. AMB Phillip Carter III (paraphrased), USAFRICOM Deputy to the Commander for Civil-Military Engagements, JCOA Interview, 9 December 2014; The White House was clear that the USG would operate under the normal crisis response mechanisms with DOD and CDC in support of USAID. Dr. Dennis Carroll (paraphrased), USAID Bureau for Global Health, JCOA Interview, 21 January 2015.

[100] US Agency for International Development, the Centers for Disease Control and Prevention, and Health and Human Services were going to various generals with requests for support. There was no plan. The Chairman said DOD couldn't do "one-offs." We needed a plan from our partners. Joint Staff J-4 Surgeon's Office Representative (paraphrased), JCOA Interview, 14 January 2015.

[101] The entry of the requirements into the process was clumsy and ad hoc. No one was thinking through the strategy to tackle the outbreak. What is really needed? I didn't feel that enough of the big questions were being litigated at the level needed. Dr. Kirchhoff (paraphrased), JCOA Interview, 15 January 2015.

[102] Ibid.

[103] "We cannot allow convenience to drive demand up for those capabilities similarly available from other organizations—especially our medical assets. I further recommend that DOD avoid deploying assets piecemeal in the absence of a mature interagency or international plan." GEN Dempsey, "US Africa Command Response to the Ebola Threat," CJCS Memorandum for SecDef, CM-0259-14, 4 September 2014; "While our mission in West Africa will not include direct patient care, the safety and health of the men and women on our Joint Force—and our families—remains of the utmost importance to me and the Joint Chiefs." GEN Dempsey, "Gen. Dempsey Discusses Military Action in the Ebola Crisis," 21 October 2014; The Chairman realized, "DOD is only one part of the response. How we respond will affect others' response." It needed to be an interagency discussion, not just using what DOD could provide. He was already thinking through the consequences. Dr. Kirchhoff (paraphrased), JCOA Interview, 15 January 2015.

[104] GEN Martin Dempsey, "US Africa Command Response to the Ebola Threat," CJCS Memorandum for SecDef, CM-0259-14, 4 September 2014.

[105] Joint Staff J-5 Deputy Director for Strategic Initiatives (paraphrased), JCOA Interview, 13 January 2015.

[106] "The Department of State requests the support of the Department of Defense and US military forces to render direct patient care to people who are suspected or confirmed to be infected with Ebola in Liberia following the worst outbreak of Ebola virus disease in history. . . USAID/OFDA has validated this request for DOD assistance." Department of State Memorandum for Michael L. Bruhn, DOD Executive Secretary, "Request for DOD Medical Support to Respond to the Ebola Infectious Disease Outbreak in Liberia," 25 August 2014; The chairman's redline was that there would be no direct contact with Ebola patients by Service members. We were able to argue that successfully in interagency discussions once we knew that was a redline. Maj Gen Shepro (paraphrased), JCOA Interview, 12 January 2015; USAID said they needed DOD to build and staff a hospital in Monrovia. This was tricky for the Chairman. DOD's doctors were not experienced at treating Ebola patients. He brilliantly used the

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articulation of redlines with the Secretary of Defense. Dr. Kirchhoff (paraphrased), JCOA Interview, 15 January 2015; For example, in a 13 September 2014 Principles Committee meeting, DOD agreed to provide the following capabilities: 1 - A joint force command [command and control], 2 - An intermediate staging base for receipt, processing, and distribution of material [logistics support], 3 - A training base capable of executing a one-week program of instruction for multi-national healthcare professionals [medical training assistance]. 4 - Engineer assets for site preparation of 17 ETU sites [engineering support]. USAFRICOM Operation UNITED ASSISTANCE Concept of Operations Briefing, 14 September 2014.

[107] RDML McAllister, JCOA Interview, 22 March 2015.

[108] "The NSC prepares national security guidance that, with presidential approval, becomes national security policy, and when implemented, these policy decisions provide the guidance for military planning and programming." Joint Publication 5-0, *Joint Operation Planning*, 11 August 2011, xi; Presidential and interagency policy and guidance impact mission statements, implied tasks, and plans. The joint forces command develops a mission statement with clearly identified and achievable objectives. Key considerations in developing the mission statement include the military role in the specific [foreign humanitarian assistance] mission and how DOD is to assist other USG departments and agencies, multinational partners, nongovernmental organizations (NGOs), and intergovernmental organizations (IGOs)." JP 3-29, *Foreign Humanitarian Assistance*, 3 January 2014.

[109] OSD Stability and Humanitarian Affairs Representative (paraphrased), JCOA Interview, 15 January 2015.

[110] USAFRICOM J-4 Plans Team, JCOA Interview, 12 December 2014.

[111] Policy discussion went on a long time. Questions weren't easily resolved in that people had not thought about [how] it delayed responses. So at the operational and tactical level they were waiting to get issues resolved. Beth Cole (paraphrased), USAID Office of Civilian-Military Cooperation Director, JCOA Interview, 20 January 2015; "The Joint Force Command out in the field certainly indicated the capacity and inclination to do that. But . . . that would then have to go up the chain through USAFRICOM, back to DOD, get tussled between the Joint Staff and OSD as to whether or not they would actually do it. So it was hard to know what we could actually count on and what we really should be asking for." Jeremy Konyndyk, JCOA Interview, 21 January 2015; The Ebola response was a very visible effort and the policy had to be worked out. There was a high level of White House interest. Maj Gen Shepro (paraphrased), JCOA Interview, 12 January 2015; "We [ultimately] realized the degree to which just about everything we were tasking was sparking into bigger policy issues and legal issues within DOD." Jeremy Konyndyk, JCOA Interview, 21 January 2015.

[112] "The first few months, while we were working together to try to figure out what DOD's role would entail and what some of DOD's redlines were for what they would and wouldn't do, was really messy. . . . There were a lot more equities that needed to be engaged in DOD's internal conversation than I think we're used to." Jeremy Konyndyk, JCOA Interview, 21 January 2015. The Ebola outbreak was an unusual event. The Response Management Team and OSD-Policy was essentially doing that function. That was very unusual. It made it more difficult. OSD Stability and Humanitarian Affairs Representative (paraphrased), JCOA Interview, 15 January 2015; There was a lack of national guidance so it was hard to determine policy. USAFRICOM was, rightly, asking for guidance, but Joint Staff didn't have answers right away because of the lack of national guidance and definitions. The process was not quick enough for crisis action. JS J-4 (paraphrased), JCOA Interview, 14 January 2015.

[113] Michael Lumpkin, Assistant Secretary of Defense for Special Operations/Low-Intensity Conflict, (paraphrased), JCOA Interview, 3 March 2015.

[114] "We [USAID] were kind of caught . . . between, on the one hand, [the] White House really pressing us to make use of DOD and DOD, on the other hand, making it really hard to get clear, definitive answers on what DOD would and wouldn't do in this response beyond the [Monrovia Medical Unit]." USAID Senior Leader, JCOA Interview, January 2015.

[115] Jeremy Konyndyk, JCOA Interview (paraphrased), 21 January 2015.

[116] "Basically tactical level drove policy. Policy was then defined through the EXORDs. The operational/tactical level was moving fast but the policy/strategic level moved slower. The pace of the operations did not allow for clear guidance to the [CCMDs] due to the policy lag (i.e., strategy lag). Multiple EXORD changes were required for clarification." OSD (P) Stability Operations Representative, JCOA Interview, 12 January 2015.

[117] Joint Staff J-35 Officer (paraphrased), JCOA Interview, 14 January 2015.

[118] The lack of policy and guidance required the JFC commander to interpret the DOD policymaker's intent. For example, the JFC-UA commander interpreted the transportation of blood samples as an aspect of direct patient care. He would allow US military helicopters to transport healthcare workers into EVD "hot zones" but would not transport healthcare workers out of them. "DOD helicopters will take us to remote locations, but will not transport us out of "hot zones." We had people that had to walk out of the jungle, which took days and risked injury. It didn't make medical sense. The people who walked out could turn around and get back on a DOD helicopter to fly somewhere else the next day. Even if we had been exposed to the disease, we wouldn't be symptomatic at that point, so there wasn't any risk to the crew of the helicopter. We wrote protocols for situations where there might be enhanced risk of exposure to the disease and tried to get the military to change the policy, but the policy hasn't been changed. It would have been much better for the response if DOD would have provided transportation for CDC personnel to and from remote areas." CDC Representative (portions paraphrased), JCOA Interview, 20 February 2015.

[119] Normally, the policy is set and then the J-3 writes the EXORD using execution language. Administratively, [OSD] was reluctant to set a policy. We expected a memo but they thought a meeting sufficed. For OSD, they would discuss policy at a meeting but not write out a formal policy on paper. Joint Staff J-35 Officer (paraphrased), JCOA Interview, 14 January 2015.

[120] Some of the policies were generated by hysteria and should not be carried forward. I hope that when people are more clear-eyed, they will reconsider the policy of controlled monitoring. The MEDEVAC was a good policy. DTRA LNO (Liaison Officer) to OSD (paraphrased), JCOA Interview, 15 January 2015; The problem is most OUA developed policies are not enduring and only Ebola specific. JS J-4 Surgeon's Office (paraphrased), JCOA Interview, 11 February 2015; The transport policy was really good. It would take only a slight modification of the policy write-up to make it broader than just Ebola. OSD (P) Ebola Response Team Representative (paraphrased), JCOA Interview, 15 January 2015.

[121] Anne Witkowsky, Deputy Assistant Secretary of Defense for Stability and Humanitarian Affairs, JCOA Interview, 16 January 2015.

[122] "The JSCP is the primary vehicle through which the CJCS exercises responsibility for directing the preparation of joint plans. The JSCP provides military strategic and operational guidance to CCDRs (Combatant Commands), Service Chiefs, CSAs (combat support agencies), and applicable DOD agencies for preparation of campaign plans and contingency plans based on current military capabilities." Joint Publication 5-0, *Joint Operational Planning*, 11 August 2011, xiii.

[123] DOD Global Campaign Plan (GCP)-PI&ID 3551-13 (FINAL), USNORTHCOM, 15 October 2013.

[124] We need to move to more deliberate planning for capacity in both the public and private sectors. USNORTHCOM Surgeon (paraphrased), JCOA Interview, 18 March 2015. "From a domestic perspective we do need to have a whole of government plan for responding to a highly contagious bio threat. We have a pandemic influenza plan, but it doesn't apply well to other infectious diseases. And as part of that we need to have a Western Hemisphere plan for migration and border security issues in the event there is a very significant outbreak of a contagious disease." RDML McAllister, JCOA Interview, 22 March 2015.

[125] "Additionally, the USSOUTHCOM PI&ID (pandemic influenza and infectious disease) Plan, plans for the sustainment of DOD's top priority: protection of U.S. forces assigned or attached to USSOUTHCOM and associated resources necessary to maintain readiness and the conduct of assigned missions in a PI&ID environment." CDR USSOUTHCOM PI&ID CONPLAN 6160-14, 28 April 2014, 5; "[USAFRICOM] command priority is to implement comprehensive [force health protection] FHP measures to protect the workforce." CDR USAFRICOM PI&ID CONPLAN 2302-14; "[The Global Campaign Plan] focuses on DOD mission assurance and secondarily on providing support to USG and partner countries efforts related to PI&ID" DOD GCP-PI&ID 3551-13, USNORTHCOM Briefing, undated; "The USNORTHCOM *Concept of Operations Plan for Pandemic Influenza and Infectious Diseases 3591*, synchronizing planning for regional execution by Combatant Commands, was not activated for OUA. It is primarily concerned with force health protection, and is not entirely a good fit for global health security crisis." Threat Reduction Advisory Committee, *DOD Role in Global Health Security* (Briefing), 22 April 2015; Specific guidance on public requests regarding Threat Reduction Advisory Committee information available at http://www.dtra.mil/Home/TRAC.aspx.

[126] "The disease must be operationally significant: it threatens DOD mission assurance, has a high likelihood of impact on force health protection . . . and/or causes significant requests for DOD assistance from domestic civil authorities or international partners." DOD GCP-PI&ID 3551-13 (FINAL), USNORTHCOM, 15 October 2013.

[127] "Now by definition EVD didn't really fit into that definition [AOR operationally significant disease]. It kind of had one foot in, one foot out, but it affected multiple GCCs, including our AOR (area of responsibility) even though it wasn't endemic here. So it's causing us to take a look at those definitions again, how would we want to go forward, grouping disease if you will so that we could develop kind of response strategies against." USNORTHCOM Future PI&ID Plans, JCOA Interview, 4 March 2015.

[128] "Joint Staff J3 . . . is the lead for synchronizing DOD PI&ID execution." DOD GCP-PI&ID 3551-13 (FINAL), USNORTHCOM, 15 October 2013.

[129] Who is the Joint Staff lead for OUA? The Joint Staff J-5 is the Joint Staff lead for OUA. That caused problems, MG Watson, JCOA Interview (paraphrased), 10 December 2014; "We [JS J-5] were in support to USAID." Joint Staff J-5, JCOA Interview, 15 January 2015.

[130] "Of note, [OSD participants] . . . said the current GEF [Guidance for the Employment of the Forces] was signed and would be released soon and that it was light with regard to PI & ID (only one paragraph), however, they were working with the [Joint Staff] to include added fidelity for the [geographic combatant commands and Services] in the DRAFT JSCP (Joint Strategic Capabilities Plan)." USNORTHCOM Notes from Pandemic Influenza and Infectious Disease Synchronization Work Group, 5 March 2015; USNORTHCOM vets GCC plans. There hasn't been a lot of pushback – possibly because the GCCs have thought this doesn't matter. USNORTHCOM Future PI&ID Plans (paraphrased), JCOA Interview, 18 March 2015.

[131] Dr. Kirchhoff, JCOA Interview, 15 January 2015.

[132] The joint [USAFRICOM] planning team worked through the mission analysis for PI&ID (pandemic influenza and infectious disease) plan and then was told to stop. When the EVD crisis occurred, we wrote a draft plan in two days. Prioritization is a problem—the threat is huge, with lots of different diseases and migration. As a result, we will likely always be surprised. USAFRICOM J-5 planner (paraphrased), JCOA Interview, 8 May 2015; "Recommendation: Make permanent, and expand to operations, the authority granted in the Joint Staff PLANORD to USNORTHCOM . . . to synchronize FHP (force health protection) for planning . . . . Assign USNORTHCOM the responsibility and authority to synchronize [continental United States] DOD operations, including for PI&ID, including force health protection authority." USNORTHCOM Ebola Virus Disease Response GO/FO Hotwash, 25 February 2015; Northern Command (USNORTHCOM) had a pandemic concept plan (CONPLAN) that we looked at, but it was last updated in 2009. There was no standard USAFRICOM CONPLAN we could use; we gathered what info we could. USAFRICOM J-35 Representative (paraphrased), JCOA Interview 9 December 2014.

[133] USNORTHCOM Surgeon, JCOA Interview (paraphrased), 18 March 2015.

[134] "There is a military doctor by the name of James Lawler. He's one of two DOD doctors who have actually treated Ebola patients, so he is a definitive source of information." Dr. Kirchhoff, JCOA Interview, 15 January 2015.

[135] "The Defense Department's unprecedented mission of establishing a thirty-member team to rapidly and effectively respond to any potential Ebola virus outbreak in the [United States] has brought some of the US military health system's best medical professionals together." Tyrone C. Marshall Jr., "Navy Physician Provides Ebola Treatment Expertise to DOD Team," *DOD News*, 27 October 2014.

[136] "[To help train the MST,] we brought in CDR / Dr. [James] Lawler who had actually taken care of patients in Guinea. He was outstanding. I could have done the textbook [training], but I hadn't taken care of [Ebola patients]. It added a lot of credibility." USNORTHCOM Surgeon, JCOA Interview, 18 March 2015; "One member of the joint team brings real-world experience treating Ebola patients to the DoD training course that will assist in advancing the group's proficiency." Tyrone C. Marshall Jr., "Navy Physician Provides Ebola Treatment Expertise to DOD Team," *DOD News*, 27 October 2014.

[137] DOD Medical support Team and Augmentation Training for Ebola Response, Summary Report, US Army North, 29 December 2014.

[138] "Two nurses contracted Ebola and the President and the Secretary [of Defense] were looking for a [medical care] capability that could be brought to bear quickly . . . things ramped down faster than anybody expected, so it never really got put to the test." RDML McAllister, JCOA Interview, 22 March 2015.

[139] The strength of the redline strategically got others engaged. The downside was that for our infectious disease guys, this was their Afghanistan. Office of Deputy Assistant Secretary of Defense for Force Health Protection and Readiness (paraphrased), JCOA Interview, 11 February 2015.

[140] The Navy labs are ad hoc labs. They grabbed them out of the Naval Medical Research Center, gave them some equipment, and said, "Go do this mission." . . . You can't grab them on an RFF. DTRA bought a bunch of equipment and put it in a box, the Navy got the people with the expertise, and they married them up. 1st AML (Area Medical Laboratory) Member (paraphrased), JCOA Interview, 19 February 2015; The two Navy labs came through a MITAM, but it was incredibly difficult to get them out. DTRA and NMRC (Navy Medical Research Center) are traditional partners, but DOD was not aware of their capability. DTRA-RCT-Ebola (paraphrased), JCOA Interview, 22 January 2015.

[141] "We (1st AML) are the only deployable area support lab in Army Forces Command and in the Army inventory. There used to be two, but one was deactivated a couple of years ago." 1st AML Representative, JCOA Interview, 19 February 2015.

[142] For this mission, they explicitly said they needed four labs. So I had to task organize within my unit and put people together with the appropriate equipment, pack it up, and bring it over so that we could do the four labs. 1st AML Representative (paraphrased), JCOA Interview, 19 February 2015.

[143] "Since 2006, Dr. Schoepp has been working in Sierra Leone on the detection and identification of Lassa fever that is hyper-endemic to the region….Dr. Schoepp's research has been funded through the Division of GEIS Operations at the Armed Forces Health Surveillance Center, the Defense Threat Reduction Agency." http://media.news.health.ufl.edu/misc/egh/Other/CVs/Schoepp%20Bio%20FEB%202012.pdf (Accessed 19 November 2015); DTRA awarded a contract on 1 February 2012 to Global Viral Forecasting Inc. for "Remote Surveillance of Lassa Fever in Sierra Leone." https://www.fbo.gov/index?s=opportunity&mode=form&id= ecb8365b1a9a288b6e54 a59c4cd25eee&tab+core&_cview=1 (accessed 19 November 2015).

[144] "[USAMRIID] had been working the past 8—9 years in Sierra Leone. . . . We built lab capacity there at the Kenema Government Hospital, and had done, among other things, Ebola diagnostics there." Dr. Schoepp, JCOA Interview, 22 February 2015.

[145] "An ongoing effort to help the West African nation of Sierra Leone improve its diagnostic laboratory capability is paying off—thanks to a diverse group of organizations that includes the US Army Medical Research Institute of Infectious Diseases . . . in addition to the Lassa virus diagnostic assays currently in use at the [Kenema Government Hospital] diagnostic laboratory, USAMRIID has supplied reagents for the detection and identification of yellow fever, Chikungunya, Rift Valley fever, and West Nile viruses." Caree Vander Linden, "USAMRIID: Supporting Improved Diagnostics in Sierra Leone," 30 April 2009; Dr. Schoepp, JCOA Interview, 22 February 2015.

[146] BG James Taylor (paraphrased), USNORTHCOM Deputy J-5, JCOA Interview, 17 March 2015.

[147] Jeff Lee, DTRA LNO, was fantastic and connected us with modeling and vaccine study. Lack of awareness of assets in USAFRICOM became very evident. USAFRICOM Assistant Command Surgeon General (paraphrased), JCOA Interview, 19 February 2015; Previously they (USAFRICOM) didn't [understand DTRA's Cooperative Biological Engagement Program (CBEP)] and the surgeon's office was our point of entry and was not aware. After the time we spent there, they are now aware. DTRA/J-3 CTB (paraphrased), JCOA Interview, 22 January 2015; Leadership at USNORTHCOM is not well informed on CBRNE (Chemical, Biological, Radiological, Nuclear response enterprise) capabilities. USNORTHCOM Future PI&ID Plans (paraphrased), JCOA Interview, 4 March 2015; So, DOD needs to have a planning exercise with the other agencies to go through this; so the request / requirements can have understanding of mil to civ operations and predetermine what DOD can bring to the table. DTRA/J-3 CTB (paraphrased), JCOA Interview, 22 January 2015.

[148] MG Nadja West (paraphrased), JCOA Interview, 11 February 2015.

[149] *Statement for the Record Before the United States House of Representatives Committee on Oversight and Government Reform,* 113th Cong. (24 October 2014) (statement of Michael Lumpkin, Assistant Secretary of Defense for Special Operations/Low-Intensity Conflict).

[150] USAMRIID protects warfighters from biological threats by developing biosurveillance and medical countermeasures expertise. "[For] 12 years, my job was to work with overseas laboratories to make sure they had the type of surveillance assets needed for things that may pop up: fever, Ebola, Marburg, Yellow Fever, anything." Dr. Schoepp, JCOA Interview, 22 February 2015.

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[151] We don't have enough warnings and indicators around the world. We're relying on host nations and nongovernment organizations (NGOs) to do that. Most won't report outbreaks because of potential repercussions. There is a low capacity, ad hoc capability out there, at best, worldwide. DTRA CBEP Program Representative (paraphrased), JCOA Interview, 22 January 2015.

[152] "WHO and the Guinean health ministry documented in March that a handful of people had recently died or been sick with Ebola-like symptoms across the border in Sierra Leone. But information about two of those possible infections never reached senior health officials . . . it was not until late May, after more than two months of unchecked contagion, that Sierra Leone recorded its first confirmed cases." Kevin Sack, Sheri Fink, Pam Belluck, and Adam Nossiter, "How Ebola Roared Back," *New York Times*, 29 December 2014.

[153] "It was difficult to understand what was happening in remote areas where there is not extensive infrastructure. I don't think that there was a full understanding during the early phase of Ebola about the extent of infections from the virus." Alan Latimer, USARAF POLAD, JCOA Interview, 21 November 2014.

[154] "The country (Liberia) has become so overwhelmed that only 31 percent of Ebola cases in Liberia have been lab-confirmed through blood tests, the WHO said." Elahe Izadi, "Ebola Death Toll Rises to 2,296 as Liberia Struggles to Keep up" *Washington Post,* 9 September 2014, https://www.washingtonpost,com/news/to-your-health/wp/2014/09/09/ebola-death-toll-rises-to-2296-as-liberia-struggles-to-keep-up/.

[155] "We had to report our results verbally over the phone to the director of the national public health lab, and it was his responsibility to contact the medical providers. The problem was that we would do the tests and have an answer in 10-12 hours, but it would take five to seven days for that information to get down to the provider." Dr. Schoepp, JCOA Interview, 22 February 2015; "Although systems of data collection, reporting, and sharing have improved, we know that not all cases, and especially not all deaths, are being detected and reported." WHO Director General Dr. Margaret Chan, "Report by the Director-General to the Special Session of the Executive Board on Ebola," 25 January 2015; "The only reason I think the hospitals knew that we were here was because . . . the Liberian laboratory consultant picked up the phone and just called all the hospitals and said, 'LIBR has a lab and if you get your samples here we can test them.'" US Naval Medical Research Unit No. Three Representative, JCOA Interview, 22 February 2015.

[156] DTRA Technical Reachback Branch Representative (paraphrased), JCOA Interview, 22 January, 2014.

[157] "There were no new reported confirmed cases from the capital, Monrovia, which in previous weeks has reported a surge in cases. These data differ from credible reports obtained from responders in Liberia, who indicate a deterioration of the situation in the country and Monrovia in particular. . . . It is very likely that a substantial portion of these suspected cases are genuine cases of EVD, and that the reported fall in confirmed cases reflects delays in matching laboratory results with clinical surveillance data. Efforts are being made to urgently address this problem, and it is likely that the figures will be revised upwards in due course. At the present time, the numbers of probable and suspected cases, together with those confirmed, may be a more accurate reflection of case numbers in Liberia." World Health Organization, "WHO: Ebola Response Roadmap Situation Report," (24 September 2014) 3. http://www.who.int/hac/crises/cod/sitreps/ebola_roadmap_sitrep_24september2014.pdf.

[158] "There [was] a reluctance at times to release data because the MOHs [Ministries of Health] were never really comfortable about how this data was going to be used . . . . So, they were really nervous about releasing the data." CDC Representative, JCOA Interview, 31 March 2015; Accurate reporting is important for decisions. There is a hesitancy to share information internationally because there is lots of personal data. As a result, the models were fed by public information and not ground truth, reducing the accuracy of their output. The unknown factor was 2.5-3.0 in the models. DTRA RCT-Ebola Representatives (paraphrased), JCOA Interview, 22 January 2015.

[159] DTRA J-2 Representative (paraphrased), JCOA Interview, 22 January 2015.

[160] Accurate reporting is important for decisions. There is a hesitancy to share information internationally because there is lots of personal data. As a result, the models were fed by public information and not ground truth, reducing the accuracy of their output. DTRA RCT-Ebola Representatives (paraphrased), JCOA Interview, 22 January 2015.

[161] Virginia Tech Network Dynamics & Simulation Science Laboratory website on Ebola, http://www.vbi.vt.edu/ndssl/featured-products/ebola (accessed 18 Dec 2015).

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[162] The data was unreliable, but we still based decisions on it. With imperfect data, you can't do solid analysis. The data was not coming from CDC or the WHO. It came from the Ministries of Health in the affected countries, who were awful at collecting the data. Everyone likes metrics, but it was based on worthless data. OSD Stability and Humanitarian Affairs Representative (paraphrased), JCOA Interview, 15 January 2015; There were discrepancies in the numbers reported for the outbreak. There were numbers from so many different agencies being reported. WHO got their numbers from the Ministries of Health in the affected countries. We were trying to identify trends. Was the outbreak going this way or that way? Predictive models needed ground truth for accuracy. DTRA J-2 Representative (paraphrased), JCOA Interview, 22 January 2015.

[163] "We are unable to predict how the epidemic will spread. We are dealing largely with the unknown. But we do know that the number of recorded Ebola cases represents only a fraction of the real number of people infected." MSF President Joanne Liu, Speech to the United Nations, 16 September 2014.

[164] DTRA Technical Reachback Branch Representative (paraphrased), JCOA Interview, 22 January 2014.

[165] "The spread of Ebola was due to a number of cultural practices. There are burial practices which are deeply rooted in West African culture. For example, the body of the deceased is washed and dressed and a ceremonial drink is passed around among the family and friends of the deceased." Alan Latimer, USARAF POLAD, JCOA Interview, 21 November 2014; "You can't overestimate the importance of societal factors in modeling. For instance, the touching of corpses is part of some African cultures." Dr. Aiguo Wu, DTRA, "Ebola Lessons Learned," via email 22 January 2015.

[166] Our modeling efforts previous to this have focused on Europe and Asia. Africa was low on the list, so we didn't know a lot about the social aspects of West Africa. We had nothing initially. We needed to know about the roads and how people interacted. There wasn't a lot of cell phone usage, especially in the rural areas. The constructs had to be rethought. We were starving for data. DTRA Technical Reachback Branch Representative (paraphrased), JCOA Interview, 22 January, 2014.

[167] "We had lots of people making it from rural areas to large urban slum areas, with no water or sanitation. It was a bad combination of poor health infrastructure and porous borders and the ability to get from forested deep rural areas to a large urban slum very easily." CDC Global Health Protection Representative, JCOA Interview, 30 March 2015.

[168] People flow to and from rural areas and urban centers and into the global travel system. It's important to understand what is driving the people to move. There is air, land, and sea movement and movement to and from urban centers. Regional, cross-border surveillance is challenging in that area of the world. . . . The data we got from the host nations was somewhat suspect in that the statistics came from the small number of formal border crossings. There were many informal crossings that had people crossing the border for medical, commerce, or other reasons. CDC Global Migration Task Force Representative (paraphrased), JCOA Interview, 30 March 2015.

[169] USAFRICOM is not good at developing standing JIPOEs. There are too many countries and the demand for current intelligence shorts forward planning such as standing JIPOEs. So, they did not have an existing JIPOE. In addition, this was a different type of mission against a disease, not traditional military threat. USAFRICOM AC J25 (paraphrased), JCOA Interview, 18 November 2014; They did the joint intelligence preparation of the operational environment (JIPOE) in just a few days for all three countries. USAFRICOM AC J-25 Staff Officer (paraphrased), JCOA Interview, 19 November 2015.

[170] BG Corey, JCOA Interview, 18 November 2014.

[171] We planned initially for an all-[military] solution; we planned big, as it is easier to taper back. The problem was that the desired force capability level turned out to be less than planned for. We didn't know what was available. USAFRICOM J-43 (paraphrased), JCOA Interview, 11 December 2014; "A lot of equipment that people were trying to bring into theater; you know heavy weapons, armored vehicles, facial recognition software. A lot of that stuff had no place and no role. We were spending gobs of time, energy, effort and funds to enter a theater much like we would any other combat theater. One that was completely unnecessary in this environment." BG Corey, JCOA Interview, 18 November 2014.

[172] USAFRICOM United Assistance EXORD, 20140814 (limited distributed); USARAF JIPOE Final Briefing v1, undated (referenced slide dated 15 September 2014).

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[173] "Once we arrived, the DOA [Department of the Army] folks and our G-9 folks and others started to get engaged, we quickly realized that there was a hell of a lot more than we had believed there to be." BG Corey, JCOA Interview, 18 November 2014.

[174] AMB Malac (paraphrased), JCOA Interview, 18 February 2015.

[175] USAID Representative (paraphrased), USAMB Monrovia, JCOA Interview, 19 February 2015.

[176] MG Watson (paraphrased), JCOA Interview, 20 December 2014.

[177] USAFRICOM J-35 Representative (paraphrased), JCOA interview, 9 December 2014.

[178] USAFRICOM J-5 Disaster Preparedness Planning Program Representative (paraphrased), JCOA Interview, 8 December 2014.

[179] Defense Attaché US Embassy Monrovia, JCOA Interview, 17 November 2014.

[180] JFC-UA J9 Representative (paraphrased), JCOA Interview, 16 October 2014.

[181] We didn't go with a JTF [joint task force] because of the JMD [joint manning document]. JTF JMDs are so hard to fill. The Services have to nominate bodies. You won't get a coherent staff with the JTF JMD. That's not the way to go in a crisis if you have to operate quickly. We needed a coherent staff. That's why we didn't call it a JTF. MG Watson, JCOA Interview, 10 December 2014; The suggestion to stand up a JFC and not a JTF was approved to accommodate the increased political visibility of OUA. The JFC was decided because it would not get bogged-down in JMD/Services/GFM process like a JTF. Additionally this improved reaction time and could then work on the RFF. BG Donald Bolduc (paraphrased), USAFRICOM Deputy J-3, JCOA Interview, 18 February 2015.

[182] "Because what really mattered was speed. What the ASCC [Army Service component command] provided was the ability for a 2-star senior leader heavy command element to come forward, get on the ground and start setting the theater for the follow on forces. . . . I personally thought USARAF under [Major] General Williams' leadership really did a good job of coming in and being able to do that in a quick and flexible manner and that was what the mission required at the time was speed and flexibility." Defense Attaché US Embassy Monrovia, JCOA Interview, 17 November 2014.

[183] You won't get a coherent staff with the JTF JMD. That's not the way to go in a crisis if you have to operate quickly. We [USAFRICOM] needed a coherent staff. That's why we didn't call it a JTF. MG Watson, JCOA Interview, 10 December 2014.

[184] "But who would run the steady-state activities? . . . We can assume risk with a shorter-time duration. If it lasts longer, there's more risk to the steady state activities. . . . I wish we had a Deputy COS [chief-of-staff] and a Deputy G-357. . . . We're understaffed." USARAF Chief of Staff, JCOA Interview, 18 November 2014; "Yeah, the ASCC got here and it's been about 30 days really laying some really good ground work for us. Their [USARAF] challenge is they're not manned to be a JTF. They don't have a robust staff. A division has the capacity that they don't have. Planning is one part. Just the J-codes or G, you know, 1, 2, 3, 4, bring so much more capacity than an ASCC has." MG Volesky, JCOA Interview, 23 February 2015.

[185] "They call us the "Mighty 14" that went in early—a bunch of colonels and a few enablers with me—we had the ability to move at the speed of trust." MG Williams, JCOA Interview, 19 November 2014.

[186] "The center of gravity for the planning was here [Vicenza]. The G-3 was forward [in Liberia] with me. I would have moved the center of gravity forward and brought more people forward in hindsight. . . . I should have had more planners forward." MG Williams, JCOA Interview, 19 November 2014.

[187] In late spring/early summer we began watching the outbreak. Assistant Secretary of Defense Lumpkin was concerned early on that this could turn into something so we started to monitor things. It doesn't have to be USAID asking for help. It was when the CDC sounded the alarm of the inadequacy of the civilian response that we got more engaged. OSD Stability and Humanitarian Affairs Representative (paraphrased), JCOA Interview, 15 January 2015; We were monitoring but not responding. MG West (paraphrased), JCOA Interview, 11 February 2015; Initial efforts before Ebola became an issue for DOD centered on informing the chairman and communicating with Africa Command. Not until we got the call, did we get involved. Once we get pulled into something we capitalized on our resources. We did not start planning until we received the call from US Agency for International Development. We did not plan in earnest until asked because we were not the lead agency. MG West (paraphrased), JCOA Interview, 11 February 2015; In the mid-summer of 2014, no one knew DOD would be asked to respond to the Ebola outbreak in West Africa. No one pays attention until there is a crisis. Dr. Kirchhoff (paraphrased), JCOA Interview, 15 January 2015; There was an overwhelming reluctance to be involved and

therefore we did not prepare for it earlier. We needed more support to plan ahead of time. USAFRICOM J-4 Surgeon's Office Representative (paraphrased), JCOA Interview, 19 February 2015.

[188] At first we were told this was not going to be a DOD problem, and then it was and we had to go broader. Strategic guidance did not catch up with us. The thought process was geared to a generic crisis response. A pandemic is different. . . . guidance was needed. USAFRICOM J-35 (paraphrased), JCOA Interview, 9 December 2014.

[189] As far as a plan specific to Liberia, there were draft, very preliminary draft, discussions about what we could do. USARAF G-3/JFC-UA J-3 representative (paraphrased), JCOA Interview, 6 January 2015.

[190] MG Watson (paraphrased), JCOA Interview, 10 December 2014.

[191] "The mission was not well-defined despite the president's statement; besides that, the disaster assistance response team would tell the military what to do. The specifics had to be sorted out." AMB Malac, JCOA Interview, 18 February 2015.

[192] What were the strategic objectives? At what point did someone say, "This is what we will achieve in Africa?" Fighting the disease is an operational or tactical objective, not strategic. . . . Who owns that strategic objective when USAID is the lead federal agency? Who owns the crafting of the strategic objectives? It's not DOD" Major General Watson (paraphrased), JCOA Interview, 10 December 2014.

[193] USAFRICOM J-5 Planner (paraphrased), JCOA Interview, 8 May 2015.

[194] For OUA, the operation started and ended in the J-35. We had some involvement from J-5 in the mid-crisis planning to get their agreement, but the operational planning was done by the J-35. MG Watson (paraphrased), JCOA Interview, 10 December 2014.

[195] "Quickly they determined that they needed to break out into various working groups, I think they started out with something like 20 of them, subordinate to the OPT (operational planning team) and reporting to the J-35." USAFRICOM J-5, Joint Operations Planner, JCOA Interview, 19 February 2015; The J-3 and Chief of Staff decided more needed to be done. This led to the establishment of 20 plus work groups. There was some friction on how to set up these work groups. The OPT wanted to align along functional lines. The Assistant Chief of Staff wanted to use the new draft boards, bureaus, centers, cells, and working groups (B2C2WG) structure. . . . They eventually somewhat overlaid the draft B2C2WG structure. . . . It was good in the sense it forced more staff participation in the Working Groups (WGs). USAFRICOM J-254 (paraphrased), JCOA Interview, 18 November 2014.

[196] Even before we showed up on the ground, the three planners that USAFRICOM had embedded in the DART (the engineer, logistician, and air planner), were worth their weight in gold, because they functioned as liaisons or interpreters that were able to understand what was going on and put it in language for us to understand." USARAF G-3 / JFC-UA J-3 (paraphrased), JCOA Interview, 6 January 2015.

[197] "The JECC was here . . . Exercise Lion Focus was going on and they'd started the academic week when the operation hit. They transitioned from academics into operations to help us. We were in the OPT (operational planning team) room and the JECC came in and said, 'We're here to help.' We shared our initial mission analysis and they listened as we worked through the planning meetings. They didn't just throw bodies at the OPT; they assessed where we needed help and offered to fill the gaps. We were more than willing to accept their help. . . . Their approach was to work with us, not tell us what to do or that we were doing things wrong. It was a good team effort." G-35 FUOPS USARAF (paraphrased), JCOA Interview, 21 November 2014; "It was the JECC planners that did the operational design. If we'd had a regular mission problem set instead of a crisis, the JFC J-5 would have been doing the planning soup-to-nuts. Because we were doing Exercise Lion Focus with the JECC here when we received the mission, the JECC did the operational design for us. It was solid so we used it as the framework for the operation. The USARAF G-5 planning staff initially focused on the force flow planning effort. We were given six hours to get the RFF cut. It was crazy. It was great to have the JECC planning experience and their canned work that gave a starting point. We also had the global force management team. We had access to the collective planning experience and extra capacity, as well as nuances of working with USAFRICOM." JFC-UA J-5 Transition Planning (paraphrased), USARAF, JCOA Interview, 18 November 2014.

[198] "As mission analysis would go, whether at the beginning of the crisis or as it developed, there was constant mission analysis and there was a formal OPT dedicated strictly to the organization of working groups, once it was determined the OPT was not the adequate forum to accomplish all the individual tasks…" USAFRICOM J-4 representative to J-35, JCOA Interview, 12 December 2014; A best practice was setting up work groups for discrete

independent problems. Before, they would discuss and solve problems in larger OPT. They developed the WG structure by brainstorming—they came pretty close to right, but needed to add a few and off ramp some. For example, they set up an interagency working group when they already had one across USAFRICOM. They pulled in required expertise . . . and just asked the interagency working group to focus on OUA issues. USAFRICOM J-35 Operational Planner (paraphrased), JCOA Interview, 10 December 2014.

[199] Having USARAF as the lead component was a tall task; since we had no RFF to hand them, they had to create one from scratch. We had to do crisis planning versus deliberate planning. The RFF required significant modifications with the short suspense, and even though we got it done, we stumbled along the way. USAFRICOM J-43 (paraphrased), JCOA Interview, 11 December 2014.

[200] USAFRICOM GFM/JOPES Planners JCOA Interview, 21 November 2014.

[201] "We planned initially for an all-MIL solution; we planned big, as it is easier to taper back. The problem was that the desired force capability level turned out to be less than planned for. We didn't know what was available." USAFRICOM J-43 (paraphrased), JCOA Interview, 11 December 2014.

[202] "To write and define operational requirements in a [RFF] is more than naming organized units within the Department of Defense inventory . . . . This presented a challenge and was a contributing factor to producing the very large RFF [Force Tracking Numbers (FTNs) 114; Passengers (PAX) 6,653] submitted to USAFRICOM on 17 September 2014. 'Planners were prevented from completing their analysis and getting questions answered based on their initial planning assumptions made by individuals not familiar with operating within Liberia. . . . The final contributing factor stemmed from the short suspense which resulted in independent functional inputs without operational integration which would have provided phasing of capabilities by events instead of notional dates.'" USARAF Force Flow Working Paper, JCOA Interview, 25 November 2014.

[203] US Army Africa Fires PAO (paraphrased), JCOA Interview, 17 November 2014.

[204] "There is not wide training or application of planning skills. For example, no one at USAFRICOM or USARAF knew how to build a total TPFDD [time-phased force and deployment data] – how to split up units and how to load them for quick offload." USAFRICOM J-35, JCOA Interview, 9 December 2014; USARAF had just "two DA [Department of the Army] civilians as subject matter experts (SMEs) and no military authorizations to provide continuity of operations within a 24-hour work center." USARAF Force Flow Working Paper, JCOA Interview, 25 November 2014; USAFRICOM JOPES normally runs all of the AOR and was quickly overwhelmed with OUA/Liberia. After the 101st Airborne Division (Air Assault) deployment was complete, the JOPES at Ft. Campbell deployed forward to USAFRICOM. USAFRICOM J-3 (paraphrased), JCOA Interview, 18 February 2015; You are only as good as your movement guy. Once you have the unit and cargo identified, you have to develop load plans – pallet numbers, configuration etc. This has to be done before USTRANSCOM will schedule a mission. It is typically done by enlisted personnel, E3-E4, some of whom don't have a lot of experience or competency. It typically only takes about 20 minutes for a qualified person to develop a load plan but it is a show stopper. USAFRICOM GFM/JOPES Planners J-354 (Paraphrased), JCOA Interview, 21 November 2014.

[205] DTRA should be folded in as a force provider for the GFM process, similar to the [armed] services. As it is now, there is no unity of command. They aren't even visible to the GFM process. Reporting is essential. We need a cleaner, easier way to get capabilities to the combatant commands Joint Staff J-35 DDRO (paraphrased), JCOA Interview, 23 January 2015.

[206] "USEUCOM provided some bridging forces such as the 21st Theater Support Command, a lot of engineers, postal, and finance. There is a force sharing agreement with USEUCOM—a requirement for support. It generally is for short term support of 30 days or less, but it is a way to get things out the door quickly. It is beyond valuable because there is no red tape in front of it." USAFRICOM GFM/JOPES Planner J-354 (paraphrased), JCOA Interview, 21 November 2014; "[USAFRICOM] was able to successfully leverage our partnership with sister [CCMD], European Command. Through force sharing agreements, USEUCOM could deploy forces in support of contingency operations for up to 30 days without the formal request for forces process and SecDef approval. This became an essential tool to rapidly build capability as a bridging solution until the lengthy RFF process could catch up. We used the force sharing agreement to deploy some key logistical enablers to include the 21st Theater Support Command (TSC) into Senegal to oversee operational logistics and provide command and control for the initial staging base, the Air Force Contingency Response Group (CRG) assets to run the APODS [aerial ports of debarkation] at Dakar and Monrovia, to establish the Director of Mobility Forces (DIRMOBFOR), and to augment

USAFRICOM HQ with needed capability . . . USAFRICOM also re-missioned fifteen Seabees from Djibouti to Liberia, with Joint Staff approval, as they were not part of the USEUCOM sharing agreement. The Seabees' experience and expertise was vital." Operation UNITED ASSISTANCE: Logistics Partnership Success, 12 January 2015, 4. http://www. africom.mil/newsroom/ article/25102 /operation-united-assistance-logistics-partnership-success; The J-4 piece set the theater to receive and prepare forces; we required JTF [joint task force] PO [peace operations] support. This was the first time that two JTF PO deployed simultaneously (Dakar and Monrovia) The JTF PO movement did not require OSD/JS approval; they're on a 96 hour [prepare to deploy order]. It required an USAFRICOM J-3 to USTRANSCOM request. They assessed the port and then deployed the forces. USAFRICOM J-43 (paraphrased), JCOA Interview, 11 December 2014.

[207] "We . . . built the RFF early on based on the info we had when we were told to execute and set things in motion based on the best info we had at the time and our experience doing this in other parts of the world. What we failed to do as an institution as time progressed was to step back from what I'll call the whirlwind of day to day operations and reassess our facts and our assumptions about the environment and decide whether or not what we had determined the RFF needed to be was still valid" BG Corey, JCOA Interview, 18 November 2014.

[208] As we progressed and started filling in those assumptions with facts, I was very frustrated with either the slowness or just downright unwillingness to just accept the fact and change the plan . . . . But there was just a general reluctance, I guess, to change the TPFDD and flow forces without the equipment., USARAF G-3 (paraphrased), JCOA Interview, 17 November 2014; They [USAFRICOM] did not hold a force flow conference to sort out requirements—though it was offered. This is something we usually do and it solves a lot of problems. In the end, two thirds of the 101st Airborne Division (Air Assault) equipment never got off the ship. USTRANSCOM Planner (paraphrased), JCOA Interview, 16 June 2015.

[209] USTRANSCOM has a 21 day validation process/program. USTRANSCOM was able to cut that down to 14 days and there are instances where it below this number as well. USAFRICOM J-3 (paraphrased), JCOA Interview, 18 February 2015; Joint task force-port opening sent two sets of equipment, one to Dakar and one to Liberia. Those things weren't needed that fast. USTRANSCOM leaned way forward USAFRICOM J-4 ADDOC (paraphrased), 10 December 2014.

[210] "Quite frankly, as we got three weeks into it we were seeing we probably did not need much of the stuff or many of the people that were destined to come into theater. There was just tremendous inertia and tremendous reluctance on the part of many levels of our military organization/government to turn anything off. . . . You now realized that if didn't take a breather and reevaluate the RFF we were going to have people sitting on the tarmac with no place to eat, no place to sleep, and no [latrines]." BG Corey, JCOA Interview, 18 November 2014; The lack of flexibility in getting resources on the ground was frustrating . . . we were fighting the plan not fighting the set of conditions. There were a lot of holes in our [initial] assumptions, if you will, that that plan was based off of. And as we progressed and started filling in those assumptions with facts, I was very frustrated with either the slowness or just downright unwillingness to just accept the fact and change the plan. . . . But there was just a general reluctance, I guess, to change the TPFDD and flow forces without the equipment. USARAF G-3 (paraphrased), JCOA Interview, 17 November 2014.

[211] "The force flow process has technical and uncertainty challenges. The RFF is pages and pages of text. We spent a lot of time translating and depicting it in an understandable form. We needed to translate 75 pages of text into PowerPoint slides with mission analysis justification. . . . The SecDef approves a capability but that translates into sending people into harm's way. It's really about who is going to go. So there is a disconnect in the way we brief it and in the tools when talking about capabilities versus units or people. Congress is asking about specific units but we were focused on capabilities. We need better human resources capabilities applied to the process and a better way to visually depict it. . . . We were trying to provide information to decision makers. There was a thirst for information. Describing force flow is challenging. . . . The systems involved don't talk to each other well. It's hard to get into JOPES. I can't find anyone in the Joint Staff J-4 who knows how to get into JOPES. It's a horrible stove-piped system." JS J-35 DDRO, JCOA Interview, 23 January 2015.

[212] USARAF G-3 (paraphrased), JCOA Interview, 17 November 2014.

[213] Commander, DLA Europe, JCOA Interview (paraphrased), 5 March 2015.

[214] Ibid.

[215] *Operation UNITED ASSISTANCE: Logistics Partnership Success*, (12 January 2015): 4; http://www.africom.mil/ newsroom/article/25102/operation-united-assistance-logistics-partnership success; "One of our [USAFRICOM] major success stories from the initial phase was sending key logistics personnel on the ADVON with Major General Williams [from the Defense Logistics Agency (DLA), the USARAF G-4, and the 414th Contracting Support Brigade]. Since this would be a heavy contracting and sustainment effort, it was vital to get these eyes on the ground from day one . . . they were augmented by additional contracting personnel as well as a five-person DLA Deployable Depot (DDE) forward team." *Operation UNITED ASSISTANCE: Logistics Partnership Success*, (12 January 2015): 4, http://www.africom.mil/newsroom/article/25102/operation-united-assistance-logistics-partnership success.

[216] Synchronization of OCS [operational contract support] efforts at GCC and JFC with operational contract support integration cell (OCSIC) and a common operational picture were invaluable at the start of OUA. Immediate management of contracts and resource requirements was paramount due to increasing reliance on the use of expedient contract solutions. USAFRICOM J-4 Senior Leader AAR participant (paraphrased), 12 December 2014.

[217] OSD Public Affairs, JCOA Interview (paraphrased), 16 January 2015; USARAF PAO, JCOA Interview (paraphrased), 13 November, 2014; USAFRICOM PAO (paraphrased), 19 November 2014.

[218] USAFRICOM J44 Planner, Comments on Draft Report, 30 December 2015.

[219] USAFRICOM GFM/JOPES Planner J-354 (paraphrased), JCOA Interview, 21 November 2014.

[220] *Operation UNITED ASSISTANCE: Logistics Partnership Success*, 12 January 2015, 3, http://www.africom.mil/ newsroom/article/25102/operation-united-assistance-logistics-partnership-success.

[221] "We quickly worked with USTRANSCOM to deploy a Joint Task Force Port Opening (JTF-PO) capability. On 20 September, a 14-person Joint Assessment Team arrived in Monrovia to begin the assessment process in Liberia and then Senegal, which would lead to follow-on JTF-PO forces." *Operation UNITED ASSISTANCE: Logistics Partnership Success,* 12 January 2015, 3, http://www.africom.mil/newsroom/article/25102/ operation-united-assistance-logistics-partnership-success; Something else that worked well: JTF-Port Opening opened airfields, provided a depot team, tied SPODs to APODs, and worked transition to the 101st Airborne Division (Air Assault). USAFRICOM J-4 Enterprise Senior Leader USTRANSCOM after action review participant (paraphrased), 12 December 2014; "[We would not be here] without JTF Port Opening getting our capability to get in here. All of those joint enablers were critical for us to get here in this expeditionary way…" MG Volesky, JCOA Interview, 23 February 2015; JTF-PO was a great thing but we know they have a 45-day shelf life. The plan did not identify a replacement for them for three weeks. It took a while to figure out whom to request to replace them. USARAF G-4 (paraphrased), 19 November 2014.

[222] "When you got past the airports and you got past the seaports, you soon began to recognize that . . . all those things that make a nation capable of receiving forces in a rapid manner just physically weren't there, or . . . were in a degraded capability. When you had power . . . it was a generator. . . hotels ran off generators. If you needed water . . . it was a well you dug, that you provided your own water, which provides an opportunity obviously for personnel to get sick from waterborne contaminants. If you wanted sewer and sewer operations, you pretty much had to provide for yourself. . . . So many challenges with the infrastructure of Monrovia, Liberia, as a whole, as a nation—the roads, the sewer, the power, the water. Complicating the problem was the fact that it was the rainy season . . . creating the roads that were there to be in many places not passable for normal vehicles and equipment. . . . Paved roads really were in around Monrovia and going north and west and after you got off of those you were pretty much operating on mud roads and dirt and clay." USARAF G-4, JCOA Interview, 5 December 2014; "The logistical concept of support for the operation [established] an intermediate staging base (ISB) at Dakar, Senegal and a major air/surface port of debarkation in Liberia. These critical nodes set the theater for success from a mobility perspective. The ISB gave USAFRICOM operational flexibility in the event of greater spread of Ebola requiring a more regional response and provided redundant capability in the event the airfield in Liberia became unusable. Two organizations that were critical to this effort were USTRANSCOM and the Defense Logistics Agency." USAFRICOM Directorate of Logistics, *Operation UNITED ASSISTANCE: Logistics Partnership Success,* 12 January 2015, http://www.africom.mil/newsroom/article/25102/ operation-united-assistance-logistics-partnership-success.

[223] USAFRICOM Directorate of Logistics, "Operation UNITED ASSISTANCE: Logistics Partnership Success*,"* 12 January 2015, http://www.africom.mil/newsroom/article/25102/ operation-united-assistance-logistics-partnership-success.

[224] It seemed to take too long for some engineering assets to get there [Liberia]. Specifically, the Forward Engineer Support Team (FEST) from USACE (US Army Corps of Engineers) and the Contingency Real Estate Support Team need to be able to get there faster. It would have been great to have had their capability from the beginning. USARAF Engineering (paraphrased), JCOA Interview, 17 November 2014.

[225] The 416th Crisis Response Unit (engineering command) was supposed to be a key enabler. They had been here (Vicenza) three months prior and their commander promoted them as the engineering crisis response unit. So we put them on the RFF (Request for Forces) and found out they would not be ready to deploy for 120 to 180 days. They had to train, they weren't trained up or ready. USAFRICOM J-44 Engineering Planner (paraphrased), JCOA Interview, 21 November 2014.

[226] BG Corey, JCOA Interview, 18 November 2014.

[227] USARAF G-4, JCOA Interview, 5 December 2014.

[228] AMB Malac, JCOA Interview, 18 February 2015.

[229] USAFRICOM was preparing to establish ISBs in Senegal, Ghana, and one other country prior to the crisis. When it happened in OUA, it reinforced the idea that the operation was intended to establish a permanent foothold. USAFRICOM PAO Office (paraphrased), JCOA Interview, 19 November 2014; "One rumor was that the US military had come to take over the government and most of the locals supported. . . . towards the end of a press conference she [AMB Malac] stopped the rumor of the government being overthrown when she said let me be the first to say the US military is not here to take over." USARAF G-3 officer, JCOA Interview, 17 November 2014.

[230] The [public affairs] side was pretty well coordinated from in-country through USAFRICOM to DC—there were daily talking points. OFDA only has one PA person. R4 (USAFRICOM Commander, General David Rodriquez) was very clear early on to get out the message that DOD was in support of USAID. There was also an internal messaging piece to reassure family members, USAFRICOM OFDA Representative (paraphrased), JCOA Interview, 24 November 2014; "Early on, the CG (commanding general), ambassador, and DART leader decided to do the public affairs jointly. They wanted to show the whole of government effort through the messaging. It was the right image for the effort. It did complicate scheduling since all three principals had to be available. . . . There were some nuances among the leaders (the CG, Ambassador, and DART leader); they had different backgrounds, but there wasn't any major friction. The media tended to gravitate toward the military. Some of the media requested separate interviews with the CG. The other leaders didn't get upset about it. We always emphasized to the producers that we were trying to show the unity of effort and wanted to get all three leaders involved." USARAF PAO, JCOA Interview, 13 November 2014.

[231] "During the first week all reports were doom and gloom. The CG recognized the need to change the message. The PAO was given guidance to turn that around." JFC-UA Chaplain (paraphrased), JCOA Interview, 13 November 2014.

[232] "We [JFC-UA] were told the local media had to be paid to show up to cover a story. We did leverage local media. You have to understand the environment. The local media couldn't afford a taxi to the airport to cover the arrival of forces or supplies, for example. The embassy helped organize media trips that picked up the local media, paid for a meal for them, provided transportation, etc. The embassy PAO was the lead for that." USARAF PAO, JCOA Interview, 13 November 2014; "The local Liberian media was a gamble as to quality. It's a different level than we're used to. Some will print anything you tell them and don't check for additional sources. Oral traditions become fact in the news. I wasn't there for the first press conference that addressed the rumor about the US military being there to take over the government. The ambassador's public affairs had the lead for that." USARAF PAO, JCOA Interview, 13 November 2014.

[233] "We had a minimal role in messaging the population. It wasn't a JFC (joint force commander) line of effort. The embassy, USAID, CDC, UN, Government of Liberia had that role, which is as it should be. The requirement for information operations or [psychological operations] was not there for this type of mission. You get some pushback on IO [information operations], depending on what country you are operating in. Comparisons to Iraq and Afghanistan are not productive since the environment is so different in Africa." USARAF PAO, JCOA Interview, 13 November 2014; "We were not allowed to use PSYOPS (psychological operations) as the Ambassador would not allow it. . . . We thought about trying to get COMMANDO SOLO [Special Operations EC-130] like we used in Haiti or the radio in the box but the Ambassador held the permission. Ibid, JCOA Interview, 17 November 2014; "The host

nation audience was our top priority for the mission. Everything for the locals and local media went through the embassy for perception influence." Ibid.

[234] "I collocated at the embassy with my [public affairs] counterparts there, as did JPASE (joint public affairs support element). The DART public affairs was also close by, though not collocated. Being in proximity worked well. We could coordinate and create synergy in our efforts." USARAF PAO, JCOA Interview, 13 November 2014; "Messaging was done by the US Embassy PAO and USARAF's PAO through joint collaboration to cover fast breaking developments regarding the effort to contain the spread of Ebola in Liberia." AMB Alan Latimer, USARAF POLAD, JCOA Interview, 21 November 2014.

[235] "The OUA mission was above even USAFRICOM, the White House was doing the messaging and sending out press releases. . . . The thirst for information was insatiable. Everyone outside [JFC-UA] felt they could go directly to the source (us) to get information. This was a national mission so the White House, Pentagon, Joint Staff, OSD, Army staff all went direct to me without any filtering. . . . We had individual requests from White House, OSD, and Joint Staff. The thirst for information was just unquenchable. I was coordinating the *NY Times, Washington Post, Time Magazine*, etc." USARAF PAO, JCOA Interview, 17 November 2014.

[236] The coordination was pretty flat. OSD (PA) created multiple portfolios including J-5, J-3 to include USAFRICOM. There was a recurring video teleconference with USAFRICOM, USARAF, and JPASE— it was a best practice for disseminating information, OSD Public Affairs (paraphrased), JCOA Interview, 16 January 2015; USAFRICOM had conference calls with USARAF. We plugged into those. I was on the distribution list for emails, along with the PAOs from the embassy, USAFRICOM, USARAF, CDC, and USAID. There wasn't as much interaction with the Joint Staff or OSD PAOs. USAFRICOM set the stage with the public affairs guidance. They were tied in with USAID and CDC. JFC-UA PAO (paraphrased), JCOA Interview, 21 February 2015.

[237] The [commanding general] arrived in Liberia on 16 September. I arrived on 1 October. I had one guy go a week earlier than me. The JPASE deployed rapidly to support us and help handle the international media environment. They were fantastic. Once they were on the ground, it really turned the information environment in our favor. USARAF PAO (paraphrased), JCOA Interview, 13 November 2014; There was no PA (public affairs) for several weeks and no video capability. Media wants on-the-ground assessments. This is just the nature of a response of this type and the way it was publicized and who was involved. Something to note is the Liberian society is very distrustful. There needed to be immediate efforts to combat this through strategic messaging about why DOD was involved. The embassy was overwhelmed by media requests. They are not built to handle this—neither are combatant commands or USARAF therefore the workload is shared all the way up the chain to include OSD. Even on a daily basis embassies are not designed to handle services that a DOD PA can provide (imagery, combat camera, photography video) that can help get the perspective on the ground back to leadership and decision makers. Deployment of a JPASE element was slow – about 4 weeks. PA assets on the ground are vital, especially in this type of scenario. OSD PA (paraphrased), JCOA Interview, 16 January 2015.

[238] USAFRICOM has the peculiar problem that its Army, Navy, and Air Force components' command and control resides on another [geographic combatant command's] network (USEUCOM). "We have steady-state issues at USARAF since we are on the USEUCOM domain and USAFRICOM is on the USAFRICOM domain. We have the dynamic of a [geographic combatant command] and component headquarters that reside in another [geographic combatant command's] AOR." USARAF G-6 (paraphrased), JCOA Interview, 19 November 2014.

[239] We have templates for Army-centric command posts. This was a joint operation with other Services [tactical control] TACON to us. So, we used the Joint Communications Support Element. . . . USAFRICOM wanted to have the follow-on forces on the USAFRICOM domain enclave. . . . Our organic communications wouldn't support being on the USAFRICOM enclave. USARAF G-6 (paraphrased), JCOA Interview 19 November 2014.

[240] In order for the 101st Airborne Division (Air Assault) systems to work on the USAFRICOM domain, all baselines had to be programmed on every system. The USAFRICOM J-6 sent out CDs to baseline all the computers they were bringing. About 60 percent were re-baselined prior to arrival, which took 90 days. Because all Services have different baselines it's complex to create a common baseline. USAFRICOM J-6 (paraphrased), JCOA Interview, 19 February 2015.

[241] This NIPRNET is going thru a Liberian telecom internet service provider, just like you have in your house. I don't know where else that has been done. We're using their internet to do operational work. JFC-UA J-6 (paraphrased), JCOA Interview, 21 February 2015.

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[242] Everybody that we were working with down there [Liberia] was operating off of what we came to affectionately refer to as the dirty internet and so not a lot of utility in SIPR[NET]. We made the decision to take out the hard drives and stuff like that and reconfigure most of our computers to work off of the NIPR[NET], because that's where most of the information we were operating with was located. Still USAFRICOM, USARAF rear, Joint Staff, everybody else was pushing documents on the SIPR side. USAFRICOM J-3 (paraphrased), JCOA Interview, 6 January 2015.

[243] A NIPR[NET] command portal would have helped. We need to have our tools and information database on a CAC (common access card)-enabled NIPR[NET] site. USARAF G-2 (paraphrased), JCOA Interview, 14 November 2014.

[244] "We had a very limited number of SIPR[NET] computers so we had a lot of latency in getting a piece of information, of being able to access a computer in order to get the information we needed to respond. It was a very, very cumbersome process to try and take those critical pieces of information from SIPR[NET] and get them into a realm where they could be used by the community, which was not operating off the SIPR[NET] or anything like it." JFC UA J-3 (paraphrased), JCOA Interview, 6 January 2015.

[245] USAFRICOM J-4 (paraphrased), JCOA Interview, 11 December 2014.

[246] The vast majority of products and planning within the command are done on SIPR[NET]. There was a problem with that (access) as we started. Our NIPR[NET] was almost the same thing – it is so well protected no one can get to it. So that was the problem. USARAF KMO (paraphrased), JCOA Interview, 19 November 2014.

[247] "If I wanted to collaborate on SharePoint with the folks back here in the rear, then I had to be on a different system. I had to physically get up from one location, move to another, log on to a different computer in order to be able to look at—to contribute to these documents. Of course I couldn't walk a product between the two—it had to be re-created. All that was problematic and SharePoint was not very useful—it all came back to email. We would download a large presentation, make modifications, send it out by email, and then rely on others to upload it in a timely manner into SharePoint." JFC-UA J-3 (paraphrased), JCOA Interview, 6 January 2015; We have two collaboration sites: 1) an Intelink site, which is CAC (common access card)-enabled, and 2) the APAN (All Partners Access Network) site for unclassified, non-FOUO (for official use only) information. . . . USAFRICOM originally created the Ebola Response Site and handed it off to us. We are now in the process of transitioning it back to them, since we have completed our tasks and are redeploying. The NIPR[NET] Intelink site is our SharePoint site. APAN is where we post finished products that are unclassified. The SIPR[NET] Intelink site is only used by a few people for OUA. JFC-UA KMO (paraphrased), JCOA Interview, 17 February 2015.

[248] Use of APAN was implemented although needlessly controversial. APAN is a very easy cloud-based service tool, very similar to a blog. Individuals believed that the information they posted could not be controlled and would be used against their career and didn't see it as a collaboration tool. APAN was the best tool to use in this information permissive environment. Other UNCLASS[ified] systems require extensive work defining what portals, email systems and collaboration tools (non-common access card) to use. APAN can be a completely closed system with individual access given on a request/verification basis or open to all. JFC-UA J-6 (paraphrased), JCOA Interview, 19 February 2015.

[249] APAN was the accepted solution for USARAF. It was not a very effective tool. It was not embraced by our interagency partners. People were hesitant to use it because the rules of disclosure were not well-defined. Spillage to the public domain was a valid concern. There were foreign disclosure concerns. USARAF G-6 (paraphrased), JCOA Interview, 19 November 2014; OFDA funds Relief Web and it is internationally recognized, yet DOD tries to develop unclassified systems to provide a single source of information. APAN for example—it is not DOD's role to coordinate with NGOs etc. There have been a number of studies by RAND [Corporation] and others showing the system does not work. Yet, the USAFRICOM J-6 pushed this solution because he had used it in Afghanistan. USAID/OFDA Representative (paraphrased), JCOA Interview, 24 November 2014.

[250] MG Williams as quoted in "USARAF Hotwash of OUA: Forming a [joint force command] in response to a HA mission," Un-published briefing, 4 November 2014.

[251] AMB Malac, JCOA Interview, 18 February 2015.

[252] JCOA identified 14 external LNO (liaison officer) positions resident within the JFC-UA Joint Operations Center and 10 JFC-UA billets in external organizations. Robust LNO exchanges also existed across the US government (DTRA to USAFRICOM, DOD to CDC, DOD to USAID, etc.).

[253] The following anecdotes provide examples of the benefit of LNOs in conducting operations, "We had to coordinate ground movement. We didn't have points of contact at remote locations to help coordinate the ground movement, so we used the National Ebola Coordination Center to do the coordination. UNMIL (UN Mission in Liberia) had the local contacts and were able to move. They were helpful partners." JFC-UA J-9 Civil Affairs (paraphrased), JCOA Interview, 17 February 2015.

[254] "The LNOs worked well. This was the first time a DART was used for a disease response. We all learned as we went along. . . . None of us are health experts; we relied on the CDC heavily. When DOD came, it gave us the ability to plan. I had conversations with OFDA regarding the placement of military planners in the DART. Even before we knew how many DOD would be assigned to the operation, we were asking for people who knew how to plan. OFDA responded that the assignment of military planners to a DART had never been done before. In the end, they did allow the planners to be assigned. And it was helpful." AMB Malac, JCOA Interview, 18 February 2015.

[255] "The DART initially resisted embedding DOD LNOs and planners." Defense Attaché US Embassy Monrovia, JCOA Interview, 18 February 2015.

[256] The three planners that USAFRICOM had embedded in the DART (an engineer, a logistician, and an air planner), were worth their weight in gold because they functioned as liaisons or interpreters that were able to understand what was going on and put it in language for us to understand. USARAF G-3 / JFC-UA J-3 (paraphrased), JCOA Interview, 6 January 2015; "When the leadership of the DART rotated, we had gotten smarter and developed the sync matrix. The second DART crew liked it. The third DART crew also liked it and decided to have us run the meetings. By that point, we were the continuity." JFC-UA J-9, JCOA Interview, 17 February 2015.

[257] The CDC, WHO, and MSF rotate frequently and are only here for a short time period; because we are here longer, the Liberians look to us for the continuity. JFC-UA J-2 LNO to Liberia Ministry of Health and Social Welfare (paraphrased), JCOA Interview, 20 February 2015; "Over time, DOD became the continuity because of the more frequent rotation of the other partners. The DART would rotate every five to eight weeks." JFC-UA J-3, JCOA Interview, 17 February 2015; The CDC is responsible for health messaging for the US efforts. We advised the CDC health folks. There were six people here when we arrived in October; they are now on their sixth rotation. We were the continuity. JFC-UA J-39 (paraphrased), JCOA Interview, 17 February 2015; "DART personnel changed out frequently. We were the continuity because we were there for the whole mission." 86th CSH, JFC-UA, JCOA Interview, 21 February 2015.

[258] Our go-to organization was UNMIL. On 7 October, I attended a UNMIL meeting that had everyone there, including some higher-level people. The Chief of Aviation for Spriggs-Payne Airfield was there. Aviators have a common bond. UNMIL's aviators knew the area. They handed me a DVD with a lot of their LZs (landing zones) on it. I have subsequently handed it back to them, updated based on our experience with the operation. For example, we included the photos of the LZs that we took. JFC-UA J-3 Air Operations (paraphrased), JCOA Interview, 20 February 2015.

[259] JFC-UA J-9 Civil Affairs (paraphrased), JCOA interview, 17 February 2015.

[260] JFC-UA J-4 (paraphrased), JCOA interview, 21 February 2015.

[261] "We helped them develop a twice-a-week synchronization matrix. That kind of thing is foreign to other agencies. We do this synchronization matrix every Wednesday and Saturday." MG Williams, JCOA Interview, 19 November 2014; "We were able to evolve a synchronization matrix, so I think that is something that is going to come out of [Operation] UNITED ASSISTANCE—for future operations there will be a MITAM (mission tasking matrix), a tasking matrix, and a synchronization matrix that goes along with it and in an effort in the future that will help populate a common operational picture. I think initially DART did not see the value of the synchronization matrix for the common operational picture but they very quickly—once we started building it—they said they quickly started using it and using it as a common basis to be able to talk to nongovernmental organizations." JFC-UA J-3, JCOA Interview, 6 January 2015.

[262] Our understanding of operational art and our ability to develop a sync matrix was needed. Where were the ETUs (Ebola treatment units) needed first? What was the priority for training the healthcare workers? What was the resupply priority? Without the sync matrix, a lot of individual actors were working independently (UN, host nation, various countries, etc.). What we do well is bring order to chaos. Once we helped them develop the sync matrix, people could see the path forward. COL (Dr.) Czarnik (paraphrased), JCOA Interview, 14 November 2014.

[263] DOD brings a culture of fixing an end-date and holding people accountable for completing tasks. The sync matrix tool allowed us to drive the tasks to completion. If you had been here a few months ago, you would have seen a different set of slides for the update briefings. The tasking was driven by USAID, but if something was behind schedule, it was us trying to drive it to completion. Not everything was in our purview, but the commanding general wasn't afraid to ask, "[US] AID, where do we stand on that?" JFC-UA Chief of Staff (paraphrased), JCOA Interview, 23 February 2015.

[264] "I think initially DART did not see the value of the synchronization matrix for the common operational picture but they very quickly—once we started building it—they said they quickly started using it and using it as a common basis to be able to talk to nongovernmental organizations." JFC-UA J-3, JCOA Interview, 6 January 2015.

[265] Regional, cross-border surveillance is challenging in that area of the world. There was intelligence on who was coming across the borders in different places. DOD mapping capabilities were helpful in Liberia. The data we got from the host nations was somewhat suspect in that the statistics came from the small number of formal border crossings. There were many informal crossings that had people crossing the border for medical, commerce, or other reasons. The maps were a key piece and helped us identify areas for disease monitoring. CDC Global Migration Task Force Representative (paraphrased), JCOA Interview, 30 March 2015.

[266] Africa is not a digital environment so the products are analog, such as the COP (Common Operational Picture). [We] took maps from Google Earth and put data on them and then pushed forward. [We] built a slide and faxed it forward. [The] G-2 used GeoInt and created a COP map [and] used [a] manual process for development and distribution. USARAF KMO (paraphrased), JCOA Interview, 19 November 2015.

[267] There was a synch meeting that gave situational awareness understanding feeds into the development of a COP to provide a good picture. There was an operations meeting daily where the J-3 met with USAID and the engineers to facilitate understanding. USARAF G-5 (paraphrased), JCOA Interview, 13 November 2015; We went to Google Earth straight off the bat here. It's intuitive and easy to use; that's the COP going into APAN – it's nothing more than Google Earth and is probably the best way to share the info." JFC-UA J-6, JCOA Interview, 21 February 2015.

[268] We gather information from the other organizations' portals and post it on our APAN Ebola Response portal. APAN is branded as DOD, so some organizations don't want to use it. The APAN Ebola Response Network site has 700 users, including CDC and USAID members. The Ministry of Health got involved with it for a while. They would give us their products and we'd publish them on our site. We developed a common operational picture as a visual picture of the ETU building activities and the road networks. The MOH liked seeing the development of the ETUs as they progressed. You can zoom in and out, depending on what you want to see. Everything is geo-referenced on the map with J-2 assets. The reports on APAN could also be geo-referenced. We included the landing zones, road networks, other health facilities, ETUs, etc. There is an RSS (Rich Site Summary) feed feature and we're able to auto-populate USAID information from Relief Web, JFC-UA KMO-APAN (paraphrased), JCOA Interview, 17 February 2015.

[269] "The first reality that faces operational commanders is that their staffs must share information with agencies and partners with whom they do not normally share information." US Army, Center of Army Lessons Learned, "Creating Conditions for Success in West Africa," #15-09, June 2015. JFC-UA KMO-APAN (paraphrased), JCOA Interview, 17 February 2015.

[270] There's a move to rely too heavily on having a digital COP, at the expense of just a good map overlay. We realized this in the operation. Luckily J-2 had prepared maps. We built overlays, and that was the COP. That was better for us than a digital COP. JFC-UA J-33 (paraphrased), JCOA Interview, 14 November 2015.

[271] "We always wanted the military to hand-off as soon as possible to civilian entities. We needed to get things moving and build civilian capacity so that we could eventually hand-off to GOL systems. We messaged that from the beginning, the military is here to do specific tasks. When it makes sense, they will hand off to civilian entities." AMB Malac, JCOA Interview, 18 February 2015; "This is an interim response, an interim effort until the international community, civilian agencies, other organizations, NGOs could come in behind us." Anne Witkowsky, Deputy Assistant Secretary of Defense for Stability and Humanitarian Affairs, JCOA Interview, 16 January 2015.

[272] MG Volesky, JCOA Interview, 23 February 2015.

[273] OFDA does the transition planning – coordinating who can take on DOD tasks and when. Two lines of effort will probably transition in December. It will be longer for the others – perhaps May. USAFRICOM OFDA Representative, JCOA Interview (paraphrased), 24 November 2014.

[274] "For what is a short-term or desired to be a short-term mission like this, you've got to come in already thinking about what your transition plan is. Who are the partners you should be working with toward the eventual goal of transitioning to them taking over?" BG Tate, JCOA Interview, 23 February 2015.

[275] "We were trying to say, who are the USAID partners that we might be transitioning what to and what are the target dates for doing so. Finally we got all that information together and we put together this slide, which ended up being . . . essentially the same slide was what got briefed to the President." USAFRICOM J-5 Planner, JCOA Interview, 19 February 2015.

[276] "JFC-UA will monitor the logistics systems built with our U.S. partners and the World Food Programme to ensure those systems are reliable, sustainable, and remain to the standard established." JFC-UA PA Communications Plan, 23 December 2014.

[277] "We drove transition. We said [we will hand over] 31 December. Sustainment and handover of the World Food Programme, we said 31 December. We drove suspenses for completions of Ebola treatment units. Not because our partners did not want to necessarily do it, but we had the capacity and ability to plan and to see all of that and then to work with them to synchronize these efforts." MG Volesky, JCOA Interview, 23 February 2015.

[278] "JFC-UA monitors for two weeks and provides assistance and logistical training as required." Task associated with Phase IV, JFC-UA briefing slide entitled "Transition of ETU Sustainment" Dated 23 December 2014.

[279] MG Volesky, JCOA Interview, 23 February 2015.

[280] We intentionally did not want to set something in place that couldn't be sustained by the country after we left. JFC-UA J-9 (paraphrased), JCOA Interview, 20 February 2015.

[281] MG Volesky, JCOA Interview, 23 February 2015.

[282] "The JFC is leaving at exactly the right time. They accomplished their tasks without mission creep. They did it right in that they filled the gap until others could." UN Mission in Liberia Officer, JCOA Interview, 23 February 2015.

[283] "I think, big idea-wise, one of the biggest successes here—MG Volesky was absolutely rigid in the idea that we are not going to have any mission creep. We are not going to expand what we were sent here to do. . . . It would have been very easy to start saying, "Well, we can also do this or we can do that." But then, the next thing you know, we could never leave." BG Tate, JCOA Interview, 23 February 2015.

[284] We are about 2600 strong now, which may be the height of the footprint. We have a conceptual waterfall chart for a drawdown to about 600. JFC-UA J-9 (paraphrased), JCOA Interview, 3 December 2014.

[285] "The commander's got to drive the assessment to continually get the staff to look at the new conditions to see what the impact on what your campaign plan lines of effort are. That is why we were able to send people home and right size the force." MG Volesky, JCOA Interview, 23 February 2015.

[286] By January, we just needed to wrap up some wells (for ETUs) and logistics responsibilities to NGOs and IGOs. Things were calming down so we were able to start sending some people home. JFC-UA J-9 (paraphrased), JCOA Interview, 17 February 2015.

[287] MG Volesky, JCOA Interview, 23 February 2015.

[288] Robert O. Work, Deputy Secretary of Defense, "Termination of Operation United Assistance and Maintaining Certain DoD Ebola Virus Disease-related Guidance and Authorities" Unpublished Memorandum, 10 August 2015).

[289] EVD outbreak numbers reported by US Centers for Disease Control and Prevention. http://www.cdc.gov/vhf/ebola/outbreaks/history/chronology.html (accessed: 7 July 2015).

[290] EVD information available at http://www.cdc.gov/vhf/ebola/about.html (accessed: 7 July 2015).

[291] Details of EVD symptoms, including specific signs and timeframes are available from the CDC at http://www.cdc.gov/vhf/ebola/symptoms/index.html.html (accessed: 8 July 2015).

[292] Ibid.

[293] "By early March, Guinea's health officials, MSF staff and WHO knew something strange and very worrisome was going on, but no one knew exactly what. More than three months after that end-December death, Ebola was nowhere on the radar screen of suspects for mysterious deaths in West Africa." Ground Zero in Guinea: The Outbreak Smolders—Undetected—for More Than Three Months," *World Health Organization Global Alert and Response*, www.who.int/csr/disease/ebola/ebola-6-months/guinea/en/.

[294] "In West Africa . . . infectious disease is part of everyday life. The cause of disease is often unknown or incompletely understood because of nonspecific clinical features, lack of diagnostic laboratory support, or little or

no knowledge about disease prevalence in a region." Randal Schoepp, et al., "Undiagnosed Acute Viral Febrile Illnesses, Sierra Leone," DOI:10.3201/eid2007.131265, July 2014; "Liberia's first two cases of Ebola, in the Foya district of Lofa county near the border with Guinea, were confirmed on 30 March 2014." WHO Report, *Liberia: a Country and its Capital are Overwhelmed with Ebola Cases,* http://www.who.int/csr/disease/ ebola/one-year-report/liberia/en/ (accessed: August 25, 2015).

[295] "WHO [World Health Organization] and the Guinean health ministry documented in March that a handful of people had recently died or been sick with Ebola-like symptoms across the border in Sierra Leone. But information about two of those possible infections never reached senior health officials and the team investigating suspected cases in Sierra Leone . . . it was not until late May, after more than two months of unchecked contagion, that Sierra Leone recorded its first confirmed cases." Kevin Sack, Sheri Fink, Pam Belluck, and Adam Nossiter, "How Ebola Roared Back," *New York Times*, 29 December 2014.

[296] WHO Report, *Liberia: a country-and its capital-are overwhelmed with Ebola cases,* http://www.who.int/csr/disease/ebola/one-year-report/liberia/en/ (accessed: August 25, 2015).

[297] All dates in year 2014. Case numbers from CDC website available at http://www.cdc.gov/vhf/ebola/outbreaks/2014-west-africa/previous-case-counts.html (accessed: July 9, 2015).

[298] "The small team of epidemiologists here thought that the outbreak was over and went home. As it turned out, the outbreak wasn't over and we were in the soup.", AMB Malac, JCOA Interview, 18 February 2015"; "By mid-March 2015, Liberia once again seemed poised to declare victory, having gone more than 21 days without a new case anywhere in the nation. . . . We thought we were down to zero back in April – we couldn't find any cases-but then the epidemic surged and overwhelmed us." Laurie Garret, "Ebola's Lessons: How the WHO Mishandled the Crisis," *Foreign Affairs,* September/October 2015*,* 80-107.

[299]All dates in year 2014. Case numbers from CDC website available at http://www.cdc.gov/vhf/ebola/outbreaks/2014-west-africa/previous-case-counts.html (accessed: July 9, 2015).

[300] "The outbreak of Ebola virus disease in West Africa is unprecedented in many ways, including the high proportion of doctors, nurses, and other healthcare workers who have been infected . . . The loss of so many doctors and nurses has made it difficult for WHO to secure support from sufficient numbers of foreign medical staff."
World Health Organization, *Unprecedented Number of Medical Staff Infected with Ebola: WHO Situation Assessment,* 25 August 2014.

[301] "There weren't enough healthcare workers volunteering to man the facilities that did exist. MSF, despite their great capacity, was overwhelmed. Their facilities were full." CDC Global Health Protection Representative (paraphrased), JCOA Interview, 31 March 2015.

[302] "Evacuation fees can run as high as $200,000 per person. Typically, the organization that employed the individual (or the organization's insurance company) foots the bill. . . . WHO will approach hospitals on a patient's behalf but will only pay for the evacuation of its own staff." Nsikan Akpan, "Ebola Evacuees: Who Are They, Where'd They Go, How'd They Fare?" NPR, 15 October 2014; the airlines' decision to discontinue service into Ebola-affected regions degraded access in and out of the region. Robert Wall and Betsy McKay, "Air Service Cuts Hinder Access to Regions Hit by Ebola Virus," *Wall Street Journal,* 28 August 2014, http://www.wsj.com/articles/air-service-cuts-hinder-access-to-regions-1409175631 (accessed: 23 November 2015).

[303] Dr. Bart Janssens, MSF website, http://www.msf.ca/en/article/ebola-west-africa-epidemic-out-control (accessed: 10 July 2015).

[304] "The epidemic in Liberia and Sierra Leone will likely worsen until 70% of Ebola patients can find room in a treatment center or other setting where they can't transmit the disease to others. Currently [29 September 2014], just 18% do so." Drew Hinshaw and Betsy McKay, "U.S. Troops Battling Ebola Get Off to Slow Start", *Wall Street Journal*, 29 September 2014, 29 and A8.

[305] "ETU Lessons Learned – DART Liberia," 19 December 2014.

[306] AMB Malac, JCOA Interview, 18 February 2015.

[307] "We had the official ETU requirements from the WHO. We based our initial building materials and design off of that. What we didn't know was what would be available locally." USARAF Engineer (paraphrased), JCOA Interview, 17 November 2014.

[308] We asked to visit an operational ETU. MSF's only request was that we not wear uniforms. The two hours we spent with them at the ETU was very informative. We called them several times, requesting to see specific things. They said, "Sure." USARAF Engineer (paraphrased), JCOA Interview, 21 November 2014.

[309] "When some of the sites were too small for the standard design, we modified the design to accommodate what the land dictated." USARAF Engineer (paraphrased), JCOA Interview, 14 November 2014; There were major changes to the ETU design. The WHO requirements we were first given were a *Cadillac* model with air conditioning and other bells and whistles. Once we were on-site the reality dictated a more basic model for the ETUs to meet the needs. When planning a site design, the infrastructure elements must meld to support all the requirements. For example, the number of air conditioning units will drive the power requirements. The same thing goes for water and sewage. So when we were planning for the original WHO design, we ordered material that we ultimately didn't need. We were able to repurpose the material, but the biggest thing was the lost time USARAF Engineer (paraphrased), JCOA Interview, 17 November 2014.

[310] The MOH wanted an ETU in each county, but did not consider terrain, infrastructure, and skills in the area. You needed flat ground, materials, and a generator. JFC-UA Engineers (paraphrased), JCOA Interview, 17 February 2015.

[311] JFC-UA Engineer (paraphrased), 14 November 2014; "ETU Lessons Learned – DART Liberia," 19 December 2014.

[312] "When some of the sites were too small for the standard design, we modified the design to accommodate what the land dictated." USARAF Engineer (paraphrased), JCOA Interview, 14 November 2014.

[313] "Some of these places were basically cut out in the middle of a jungle; the roads are incredibly horrible. They are trying to get gravel out there. There are literally some places in this country you can't get gravel. Wells were a huge issue all the way to the end. And there were only a few well companies; I think DOD at one point had a contract with every one of them. Equipment would break down, and they would bring someone in, it was a nonstop issue . . . rain, bridge collapse here that held up supplies for three or four days. . . . They airlifted supplies where they could. They threw the resources at it. We'd sit in these meetings twice a week with all the players—30-40-50 people in this room, and we'd go down each ETU and each little issue, timelines. . . . But, there are some things you just couldn't physically get it done. Or in one case, stuff was held up at the port and couldn't get it out of the container. A lot of it was West Africa." DART Team (paraphrased), JCOA Interview, 18 February 2015.

[314] BG Corey (paraphrased), JCOA Interview, 18 November 2014.

[315] "Some of these places were basically cut out in the middle of a jungle; the roads are incredibly horrible. They are trying to get gravel out there. There are literally some places in this country you can't get gravel. Wells were a huge issue all the way to the end. And there were only a few well companies; I think DOD at one point had a contract with every one of them. Equipment would break down, and they would bring someone in, it was a nonstop issue . . . rain, bridge collapse here that held up supplies for three or four days. . . . They airlifted supplies where they could. They threw the resources at it. We'd sit in these meetings twice a week with all the players—30-40-50 people in this room, and we'd go down each ETU and each little issue, timelines. . . . But, there are some things you just couldn't physically get it done. Or in one case, stuff was held up at the port and couldn't get it out of the container. A lot of it was West Africa." DART Team (paraphrased), JCOA Interview, 18 February 2015; They had estimated 33 days to build an ETU but some took up to 60 days due to need for more extensive ground preparation. The delays complicated the synchronization of healthcare worker training, personal protective equipment, etc. JFC-UA Engineers (paraphrased), JCOA Interview, 17 February 2015.

[316] ETU Lessons Learned – DART Liberia, 19 December 2014; JFC-UA J-3, JCOA Interview, 20 February 2015; AMB Malac, JCOA Interview, 18 February 2015.

[317] "The AFL knocked out two of [the ETUs]. They did Tubmanburg [ETU] completely. For Sinjay [ETU], we augmented their final days of construction with electrical and plumbing specialists." JFC-UA J-3 (paraphrased), JCOA Interview, 20 February 2015.

[318] "A German NGO took on four of them. We helped them with supplies, but they built the four. So, we were responsible for building 10 ETUs." JFC-UA J-9 (paraphrased), JCOA Interview, 17 February 2015.

[319] We built a separate OPORD (operation order) with the AFL for Operation UNITED SHIELD that proved very useful. The operation was designed to establish the agreement with the AFL to build the ETUs, but it also created a good partnership and working relationship with the AFL. United Shield was a combination of United Assistance and White Shield (the AFL operation). USARAF CCP Communications (paraphrased), JCOA Interview, 14 November 2014

[320] USAFRICOM J-35 (paraphrased), JCOA Interview, 9 December 2014.

[321] ETU Lessons Learned – DART Liberia, 19 December 2014.

[322] "We fought the plan for doing a 30-day ETU build . . . Buchanan [ETU] was probably done right at 30 days by a company of engineers, but we were better able to get to that site as it had a good road and supply network. Gbediah [ETU] was challenging. It was one of the final ETUs that we built. . . .It was January before all the ETUs were done." JFC-UA J-3 (paraphrased), JCOA Interview, 20 February 2015.

[323] MG Volesky, CG, JFC-UA (paraphrased), JCOA Interview, 23 February 2015.

[324] US Public Health Service (USPHS) LNO to JFC-UA, JCOA Interview, 19 February 2015.

[325] "We [DOD] were directed to be in the supporting role. The WHO wanted ETUs to provide 2x75-bed hospitals which eventually became the 25 bed hospital. Then USAID prepared to ask DOD for 1,000-bed which is what spawned the CJCS redlines (direct patient care redline was already in place) and gave USAID what DOD would provide." Joint Staff J-4 Surgeon's Office, JCOA Interview, 11 February 2015.

[326] Joint Staff J-4 Surgeon's Office, JCOA Interview, 14 January 2015.

[327] "EMEDS, as described in this TTP, refers to the operational medical support required to provide medical care to a myriad of operations with varying populations-at-risk (PAR) of 0-6,500. The mission of EMEDS is to rapidly deploy and provide forward stabilization, primary care, dental services, force health protection, and to prepare air and space expeditionary forces and/or civilian casualties (as appropriate) for aeromedical evacuation. The EMEDS+25 has twenty-five inpatient beds capable of providing medical and dental care for seven days in an austere environment without re-supply. The 25 beds provide complex medical/surgical inpatient capability consistent with the theater evacuation policy, as determined by the combatant commander." *Air Force Tactics Techniques and Procedures* 3-42.71, 27 July 2006

[328] AMB Carter (paraphrased), JCOA Interview, 9 December 2014.

[329] USPHS LNO to JFC-UA (paraphrased), JCOA Interview, 19 February 2015.

[330] 86th CSH (paraphrased), JCOA Interview, 21 February 2014.

[331] "There was a point when the equipment got here and was dropped off at the APOD. No one was formally signed for or tracking any of this equipment." Commander, 86th CSH, JCOA Interview, 21 February 2014.

[332] 86th CSH member(paraphrased), JCOA Interview, 21 February 2014.

[333] "Eventually accountability was established by our logistics company. They took all the excess equipment and inventoried it. It has since been shifted back to the MMU and it is their responsibility to maintain it. They basically gave them the containers with all the supplies in them and a list of everything." Commander, 86th CSH, JCOA Interview, 21 February 2014.

[334] USPHS LNO to JFC-UA, JCOA Interview, 19 February 2015.

[335] "Liberia: Monrovia Medical Unit Decommissioned" *New Dawn,* 5 May 2015, http://allafrica.com/stories/201505051068.html.

[336] Joint Staff J-35 (paraphrased), JCOA Interview, 12 January 2015.

[337] DOD, "Hagel Mobilizes Reserve Forces in Support of Operation United Assistance," DOD News Release, 14 November 2014, http://www.defense.gov/New-Article-View/Article/603652/hagel-mobilizes-reserve-forces-in-support-of-operation-united-assistance; US Army Office of the Chief of Public Affairs, "Department of the Army Identifies ARNG and USAR Units for OUA Rotation," 16 November 2014, http://www.army.mil/article/138397/Department_of_the_Army_Identifies_ARNG_and_USAR_Units_for_OUA_Rotation/.

[338] "We have a smaller active force to respond worldwide against a 'fight-tonight' type scenario, and we need to preserve that. Our Army has between two and six brigade combat teams ready at any moment to go; then why would we divert any capability to an OUA-type mission, when the RC can do that kind of thing."
MG W. Scott Gorske, ACJCS for NG Matters, JCOA Interview, 9 February 2015.

[339] "The 101st Airborne [Division (Air Assault)], who was preparing for a mission in Afghanistan at the highest level of readiness to go fight a counter-insurgency, is now being diverted to a mission, which really a(n) RC two-star command could have done, I think, in a very fine manner." MG Gorske, JCOA Interview, 9 February 2015.

[340] We thought it would be a six-month problem according to DOD and USAID estimates, so the Army decided to make it a six-month rotation which had the reserves coming in about April. It takes 180 day notification if from Service. The SECDEF can accomplish this in 120 days, but that has political implications. Joint Staff J-35 (paraphrased), JCOA Interview, 12 January 2015.

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[341] For 14 years, we've been fighting the global war on terror. The Services know how to tap into the reserve component to do that. What we forgot how to do is the emergent, the total surprise. OUSD P&R (paraphrased), JCOA Interview, 30 May 2015.

[342] "A member of a[n] RC who will be ordered to active duty for more than 30 days in support of a contingency operation (as defined in section 101(a)(13) of Title 10, United States Code) receives notice in advance of the mobilization date. In so far as is practicable, the notice shall be provided not less than 30 days before the mobilization date, with a goal of 90 days before the mobilization date." 2008 National Defense Authorization Act, Section 515, PL 110-181.

[343] The 101st Airborne Division (Air Assault) needed to start planning the transition to the reserve follow-on force before they had fully arrived in theater. Joint Staff J-35 (paraphrased), JCOA Interview, 12 January 2015; We built the RFF for the follow-on force in December. We realized that an approach would be National Guard, so we were trying to get ahead of their policy and cycle. That was our best guess. We went through multiple iterations with USAFRICOM. JFC-UA J-3, JCOA Interview (paraphrased), 20 February 2015.

[344] MG Watson (paraphrased), JCOA Interview, 10 December 2014.

[345] Not knowing where we were going to be in the April timeframe, it was a mark on the wall. It was a churn post-Thanksgiving in building that RFF. JFC-UA J-3 (paraphrased), JCOA Interview, 20 February 2015.

[346] "The other thing that people forget is that early on, there was a great deal of talk—not just early on, but all the way into January—a great deal of discussion about whether we were also going to expand into Sierra Leone and Guinea." BG Tate, JCOA Interview, 23 February 2015; "We need to decide if we are going to shift operations into Sierra Leone and/or Guinea." MG Watson, JCOA Interview, 10 December 2014.

[347] MG Volesky, JCOA Interview, 23 February 2015.

[348] USAFRICOM, "Pre-Deployment Force Health Protection Training Requirements," *USAFRICOM Operation UNITED ASSISTANCE Base Order, Annex Q, Appendix 6, Tab C*," DTG: 051804Z OCT 14.

[349] Jessica L. Wright, Under Secretary of Defense for Personnel and Readiness "Pre-Deployment, Deployment, and Post-Deployment Training, Screening, and Monitoring Guidance for Department of Defense Personnel Deployed to Ebola Outbreak Areas," Unpublished Memorandum, 10 October 2014.

[350] Doug Stanglin, Liz Stabo and Rick Jervis, "Ebola Patient in Dallas Hospital Dies" *USA Today,* 8 October 2014, http://www.usatoday.com/story/news/nation/2014/10/08/dallas-ebola-patient-dies/16786011/ (accessed: 23 November 2015); Lisa Maria Garza and Terry Wade, "US Health Official Allowed New Ebola Patient on Plane with Slight Fever" *REUTERS,* 16 October 2014, http://www.reters.com/article/2014/10/16/us-health-ebola-usa-idUSKCN0I40UE20141016#XyK2GMKPFWsiSWZr.97 (accessed: 23 November 2015).

[351] "Operation UNITED ASSISTANCE Ebola Outbreak Response: Force Health Protection Post Deployment TANK Brief", 22 October 2014.

[352] NOTE: Per CJCS Instruction 4220.01, DOD civilians could volunteer for CM but they were not ordered into CM. Therefore they "should return to CONUS on commercial air via one of the Customs and Border Control (CBP) identified enhanced screening airports" and enter in accordance with CDC rules. However if a civilian returned via a military flight and opted not to enter CM, there was no CDC mechanism to identify, assess, and monitor them, "If there were DOD civilians coming back from Liberia on military transport (at least in part), we wouldn't have visibility to get them into the active monitoring process." CDC Representative (paraphrased), JCOA Interview, 30 March 2015.

[353] "So policy related issues to that – there was no determination ahead of time whether Services were going to be responsible for their returning members who needed to go into controlled monitoring or might be at risk or whether there was a NC role in that. As we talked through it at the OPSDEP and TANK level we [USNORTHCOM] made the decision that we weren't going to push to be the synchronizer of those activities because when we learned, just by looking at the details, that the Services were all handling their people similarly then that really met our primary concern." RDML McAllister, JCOA Interview, 22 March 2015; There was no perceived friction between USNORTHCOM and USAFRICOM but perhaps between USNORTHCOM and the Services. The reason is the Services are responsible for redeployment and consequently controlled monitoring. The issue could arrive if an EVD is brought into USNORTHCOM. JS J-5 WHEM [Western Hemisphere] (paraphrased), JCOA Interview, 13 January 2015.

[354] "USNORTHCOM has a role in the US for force protection—when a unit goes from a force protection condition Alpha to Bravo, we know it. We have TACON (tactical control) for some force protection activities for all

installations in the [United States] no matter who they're assigned to—we do not have force health protection authorities, and this event caused us to have a conversation as to whether not NC should have force health protection authorities in the same way as force protection. You could make the argument that force health protection is just one element of all force protection – but there's nothing there. No policy guide. So, that would be a good conversation to have." RDML McAllister, USNORTHCOM J-3 Deputy Director for Operations, JCOA Interview, 22 March 2015; "Global pandemics, regardless of source nation, impact the homeland, requiring additional authorities to effectively synchronize operations within the USNORTHCOM AOR."USNORTHCOM Ebola Virus Disease Response GO/FO Hotwash, 25 February 2015.

[355] The J-5 spent political capital in getting the [controlled monitoring areas] in Italy and Germany. I don't think we have a lot of political capital left with Italy after jerking them around in Sigonella. USEUCOM representative (paraphrased), USAFRICOM J-4 Enterprise Senior Leader AAR, JCOA Notes, 12 December 2014.

[356] It [controlled monitoring] was not synchronized. Once the policy was out, it was not easily translated. There were pros and cons to the counter messaging. . . . The problem actually was that everyone got caught flat-footed with the Army's announcement. Things had not been finalized such as where the controlled monitoring facilities would be located stateside . . . USARAF did not think of the larger impact that the 21 day policy entailed. Timing was everything with strategic messaging and this decision took the eye off the mission. Also, CCMDs did not know this was going to happen and this forced OSD (PA) to retake the lead PA messaging. USARAF stepped out. MG Williams started skyping before RADM Kirby held his press conference. It created a challenge in getting the focus back on the mission. OSD (PA) (paraphrased), JCOA Interview, 16 January 2015.

[357] CDC wanted a roster of DOD-affiliated people who were coming back and going into 21-day controlled monitoring. They knew who was coming back commercially and doing active monitoring, but didn't have visibility into DOD's process. USAFRICOM was good about letting CDC know if DOD personnel were coming back on emergency leave. Yes, there was some confusion. What is the right way to track someone coming back? Someone is coming back for emergency leave, flying commercially, and under state responsibility for active monitoring. But, the Army says that it will also monitor. Does he have to report to both? DOD LNO to CDC (paraphrased), JCOA Interview, 30 March 2015.

[358] Once stateside was decided different problems and questions arose from State Governors. OSD (PA) (paraphrased), JCOA Interview, 16 January 2015.

[359] Initially, the policy was poorly articulated which spun members out of control. Once it was fully explained, the members felt different. . . . In this community, there are very specific meanings associated with different terms. *Quarantine* is serious; *monitoring* is a different thing. Controlled monitoring is a different thing. He [RDML Kirby] did not articulate the nuances of any of these things which led to mass confusion, both in the public and in the CNN-factor. That leads staffers to chase their tails to figure out "he said this" and now we hear this; which one is actually true? Senate Armed Service Committee (SASC) Professional Staffer (paraphrased), JCOA Interview, 4 March 2015.

[360] DOD LNO to CDC (paraphrased), JCOA Interview, 30 March 2015.

[361] Senate Armed Services Committee staff member (paraphrased), JCOA Interview, 4 March 2015.

[362] I was a strong proponent of the idea of pushing out an USAFRICOM team to visit the different countries and explain the situation. The idea "fizzled out" because it was seen as not needed—just prior to Spain announcing their hold on traffic until 21 days of Controlled Monitoring had occurred. I wonder if this would have happened if they had gone ahead with their plan. . . . One other thing we weren't prepared for was the retrograde of the equipment. There was discussion and concern about the cleaning of the equipment to ensure no Ebola-infected residue was present before arriving back at European bases. AMB Carter (paraphrased), JCOA Interview, 9 December 2014.

[363] For the 21-day controlled monitoring: Spain said they [SPMAGTF-CR] couldn't come back until after the 21-day monitoring. Germany and Italy only allowed US forces stationed in their countries to come in for the 21-day monitoring. So, the plan is to send the Marines back to CONUS for the monitoring. They are going to Langley-Eustis. There is also the question of how to get the MV-22 aircraft back to Spain. What needs to be done so that Spain will allow them to fly back in? USEUCOM is helping to coordinate. Each country operates differently. SPMAGTF LNO to USARAF (paraphrased), JCOA Interview, 13 November 2014.

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[364] The J-4 got it done – but – the J-5 spent political capital in getting the CMAs [controlled monitoring areas] in Italy and Germany. I don't think we have a lot of political capital left with Italy after jerking them around in Sigonella. USEUCOM Representative (paraphrased), USAFRICOM J-4 Enterprise Senior Leader AAR, JCOA Notes, 12 December 2014.

[365] The system we put in place afterwards—the funneling of passengers into the five airports . . . the pre-screening . . . created a registry of travelers which we shared with the health departments that we then tracked those people on a daily basis and sometimes more than once a day. That really evolved during the course of October, and I think we know now what that looks like, what it takes to resource it, that's kind of an after action item that got built in on the fly. I think that's not going to work for every disease but for something that's not super transmissible that is the domestic intervention. CDC Senior Leader (paraphrased), JCOA Interview, 31 March 2015.

[366] USNORTHCOM Surgeon (paraphrased), JCOA Interview, 18 March 2015.

[367] Brian P. McKeon, Principal Deputy Under Secretary of Defense for Policy, "Ebola Response Lessons Learned Report," Unpublished Memorandum, 18 November 2015.