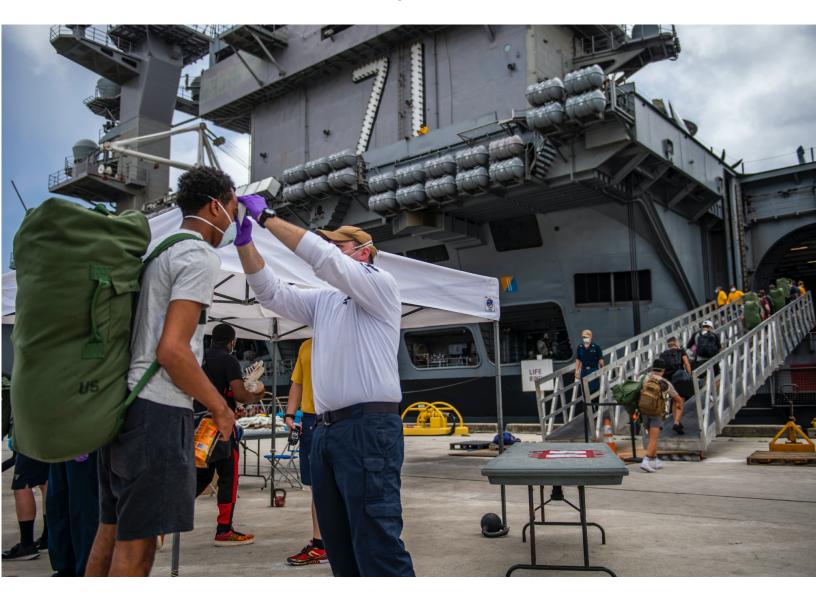# Civilian-Military Coordination During the U.S. National Response to COVID-19

Center for Human Rights and Humanitarian Studies

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Acknowledgements

Executive Summary

Within the first few months of the World Health Organization declaring the COVID-19 outbreak a Public Health Emergency of International Concern, most nation states mobilized a level of military involvement in their domestic responses. The United Nations Office for the Coordination of Humanitarian Affairs 2007 Oslo Guidelines and 2018 Recommended Practices for Effective Humanitarian Civil-Military Coordination of Foreign Military Assets in Natural and Man-Made disasters both detail the proper use of military assets in humanitarian disasters. According to the 'Principle of Last Resort' stipulated in these guidelines, military assets "should be requested only where there is no comparable civilian alternative and only the use of military or civil defense assets can meet a critical humanitarian need."[1] For U.S. domestic responses, the Federal Emergency Management Agency utilizes a similar framework, preferring to use the U.S. military as a last resort in national disaster responses – primarily because of the high cost associated with using military capabilities.

The U.S. military's health system is substantive across metrics such as budget, size, and logistical capacity for disaster or public health emergency response. The U.S. National Guard alone played a variety of functions, such as setting up new medical facilities and isolation centers, screening for COVID-19, disseminating public health guidance, contact tracing, supply chain/logistical support, providing COVID-19 testing to both students and the public at large, providing direct medical care to patients with COVID-19 and other illnesses, supporting vaccination efforts, and even driving school buses and teaching in schools. However, despite also being the global top-spender in health care, the U.S. faltered in its early response to the COVID-19 pandemic. As of March 2023, according to the CDC there have been over 103 million confirmed cases of COVID-19 and 1.1 million deaths in the U.S.

This project examines civilian-military interaction during the first year and a half of the U.S.'s national response to COVID-19. Utilizing the Eastern United States (FEMA Regions 1-4) as a case study, the project contributes evidence to a field where relationships, roles and responsibilities, and leadership structures have historically formed through necessity rather than through an institutionalized approach. Coupled with desk research that focuses on the national level, the interview data collected for this project offers a grounded approach to understanding how civilian and military actors worked together in discrete response contexts within the U.S. It also captures anecdotal data on real-time decision making that resulted in important on-the-ground innovations that may carry generalizable lessons for future responses.

The report's key findings revolve around four main themes: Adaptations and Innovations, Communication, Coordination, and Challenges. Based on these best practices and obstacles, the report offers eight recommendations:

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[1] "Guidelines On The Use of Military and Civil Defence Assets In Disaster Relief – 'Oslo Guidelines.'" UNOCHA - CMCS, November 2006. Page 4.

1. Pandemic response roles should first be filled by civilian responders; the military should engage in the response when there is no civilian resource to fill a need – and only until such time that a civilian responder can step in.

2. Investments should be made to ensure sufficient staffing and human resources at government public health and emergency response agencies. Public health and emergency response agencies may want to hire staff with experience in humanitarian response. Hospitals should create internal systems to ensure sufficient staffing when there is a surge of patients, such as during a pandemic.

3. Pandemic response leaders must better assess how to allocate duties between civilian actors, the military, and private industry.

4. Military, including the National Guard, should fill logistical and human resource gaps in pandemic response only when there is a defined need. Pandemic response missions should continue to be operated by government civilian agencies, with the Department of Defense serving a supporting role.

5. Emergency response plans and frameworks should be updated to account for a global pandemic or national disaster, and specifically outline how to allocate scarce resources during emergencies that impact the entire nation.

6. Federal data should be shared directly with and be readily accessible to both state and local leaders to facilitate data-informed policymaking.

7. More Emergency Preparedness Liaison Officers should be deployed to facilitate civil-military coordination early on in pandemic response. There should be intentional efforts to facilitate socialization between different emergency response actors.

8. Pandemic response medical records, such as for mass testing and mass vaccination, should be integrated into local health departments' and/or local health systems' information management systems when appropriate.

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Acronyms

ACS - Alternate Care Site
ASPR - Assistant Secretary for Preparedness and Response
CNA - Certified Nursing Assistants
DCO - Defense Coordinating Officer
DHS - Department of Homeland Security
DoD - Department of Defense
DoS - Department of State
DPA - Defense Production Act
DSCA - Defense Support of Civil Authorities
EMR - Electronic Medical Record
EMS - Emergency medical services
EPLO - Emergency Preparedness Liaison Officer
ESF - Emergency Support Function
FEMA - Federal Emergency Management Agency
FMA - Foreign Military Assets
HHS - Department of Health and Human Services
ICU - Intensive Care Unit
MEDS PODS - Medical Emergency Distribution System Points of Dispensing
MMT - Medical Military Teams
NEPLO - Navy Emergency Preparedness Liaison Officer
NRCC - National Response Coordination Center
NRF - National Response Framework
PA - Primary Agency
PCA - Posse Comitatus Act
SCO - State Coordinating Officer
UCG - Unified Coordination Group
UNOCHA - United Nations Office for the Coordination of Humanitarian Affairs
WHO - World Health Organization

I. Introduction

Within the first few months of the World Health Organization (WHO) declaring the COVID-19 outbreak a Public Health Emergency of International Concern, most nation states mobilized a level of military involvement in their domestic responses.[2] The United Nations Office for the Coordination of Humanitarian Affairs (UNOCHA) 2007 Oslo Guidelines and 2018 Recommended Practices for Effective Humanitarian Civil-Military Coordination of Foreign Military Assets (FMA) in Natural and Man-Made disasters both detail the proper use of military assets in humanitarian disasters. According to the 'Principle of Last Resort' stipulated in these guidelines, military assets "should be requested only where there is no comparable civilian alternative and only the use of military or civil defense assets can meet a critical humanitarian need."[3] For U.S. domestic responses, the Federal Emergency Management Agency (FEMA) utilizes a similar framework, preferring to use the U.S. military as a last resort in national disaster responses – primarily because of the high cost associated with using military capabilities.[4]

Despite this principle, military assets are increasingly being utilized to fill key capacity gaps or provide unique capabilities in humanitarian responses both internationally and domestically across a variety of sectors.[5] For example, militaries were used during the public health response to the 2018 Kivu Ebola Epidemic in the Democratic Republic of Congo, the 2014 displaced persons crisis in Jordan's Rukban, and the 2020 Ta'al volcano eruption in The Philippines.[6]

This increasing usage of military assets to bolster civilian responses demonstrates the importance of better understanding civilian-military interactions during emergencies, which remains an understudied field.[7] In general, studies on civil-military coordination during humanitarian emergencies tend to focus on international contexts, in which humanitarians and international military actors are working either in tandem or parallel as part of a disaster response. Fewer studies consider the use of the military in domestic disaster contexts, and even fewer in public

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[2] Gibson-Fall, Fawzia. "Military Responses to COVID-19, Emerging Trends in Global Civil-Military Engagements." Review of International Studies 47, no. 2 (April 2021): 155–70. https://doi.org/10.1017/S0260210521000048.

[3] "Guidelines On The Use of Military and Civil Defence Assets In Disaster Relief – 'Oslo Guidelines.'" UNOCHA - CMCS, November 2006. Page 4.

[4] The Oslo Accords, UN Guidelines on the Use of Foreign Military and Civil Defense assets in disaster relief, and other UNOCHA or Inter-Agency Standing Committee reference materials do not have requirements restricting the use of national military forces in support of domestic relief efforts. However, for the US, much of the military force is covered by Title 10 of the US Code which prevents it from being used domestically (Posse Comitatus Act of 1878) unless they are first specifically requested and then task-organized under the command of the national guard (Title 32), which can operate domestically under the control of their state governor.

[5] A common misperception is that all other options must be exhausted before the Last Resort principle. However, the relevant documents are clear that whenever it's evident that capability or resources are not adequate, using military resources may occur at the onset of a disaster.

[6] Grace, Robert, Alejandria, Maria Carrinnes, Bates, Madison. et al. Moving humanitarian-military relations forward: a new typology. Int J Humanitarian Action 8, 2 (2023). https://doi.org/10.1186/s41018-023-00134-5

[7] See Nevin, Remington L., and Jill N. Anderson. "The Timeliness of the US Military Response to the 2014 Ebola Disaster: A Critical Review." Medicine, Conflict and Survival 32, no. 1 (2016): 40–69. https://www.jstor.org/stable/27017927.

health emergencies such as epidemics and pandemics. Assessing the parallel operation of civilian and military health systems within country-specific contexts has the potential to yield generalizable findings on efficacy and efficiency of such interventions.[8]

The U.S. military's health system is substantive across metrics such as budget, size, and logistical capacity for disaster or public health emergency response. The U.S. National Guard alone played a variety of functions, such as setting up new medical facilities and isolation centers, screening for COVID-19, disseminating public health guidance, contact tracing, supply chain/logistical support, providing COVID-19 testing to both students and the public at large, providing direct medical care to patients with COVID-19 and other illnesses, supporting vaccination efforts, and even driving school buses and teaching in schools. However, despite also being the global top-spender in health care, the U.S. faltered in its early response to the COVID-19 pandemic. As of March 2023, according to the CDC there have been over 103 million confirmed cases of COVID-19 and 1.1 million deaths in the U.S..[9]

This project examines civilian-military interaction during the first year and a half of the U.S.'s national response to COVID-19. Utilizing the Eastern United States (FEMA Regions 1-4) as a case study, the project contributes evidence to a field where relationships, roles and responsibilities, and leadership structures have historically formed through necessity rather than through an institutionalized approach. Coupled with desk research that focuses on the national level, the interview data collected for this project offers a grounded approach to understanding how civilian and military actors worked together in discrete response contexts within the U.S. It also captures anecdotal data on real-time decision making that resulted in important on-the-ground innovations that may carry generalizable lessons for future responses.

The report opens with a case overview of the U.S. national response to COVID-19, including its emergency frameworks and the key actors involved in the COVID-19 response. It then moves into a review of the relevant literature on civil-military interaction during public health emergencies, including the COVID-19 pandemic. Next, the report details the qualitative data collection methods used as well as the analytical techniques. The report then presents the findings of the research, based on the desk research and key informant interviews with response actors. Finally, the report concludes with recommendations for improving civil-military coordination in future responses during pandemics.

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[8] For an example, see National Biodefense Strategy and Implementation Plan for Countering Biological Threats, Enhancing Pandemic Preparedness, and Achieving Global Health Security." The White House. October 2022. https://www.whitehouse.gov/wp-content/uploads/2022/10/National-Biodefense-Strategy-and-Implementation-Plan-Final.pdf

[9] "COVID Data Tracker." CDC. https://covid.cdc.gov/covid-data-tracker/#datatracker-home

II. Case Overview

a. National Pandemic Response Plans, Frameworks, and Procedures

Former President Donald Trump banned travelers from China after the U.S. reported its first case in January 2020, but the federal government did not immediately implement a national plan for managing the large domestic outbreak that occurred over the following weeks.[10] For example, lockdown and quarantine policies varied at the local level, with states like California implementing its own plans to preemptively curb viral spread.[11]

While the U.S. was ranked as the most prepared nation for a global pandemic by the Global Health Security index, many states faced critical shortages of medical equipment. In mid-April – when the U.S. was reporting the highest number of cases and deaths in the world – President Trump invoked the Defense Production Act (DPA) to increase production of these supplies.[12] A key challenge unique to the U.S. context among high-income countries has been providing testing and care to millions of uninsured citizens.[13]

In the U.S., government responses to public health emergencies are civilian-led.[14] The National Response Framework (NRF) "establishes broad lines of authority for federal government agencies to prepare for and respond to any terrorist attack, major disaster, or other emergency."[15] The Secretary of the Department of Homeland Security (DHS) is the "principal federal official for domestic incident management" and "coordinates with federal entities to provide for federal unity of efforts for domestic incident management."[16]

Typically, the Department of Health and Human Services (HHS) is the primary and coordinating agency for Emergency Support Function (ESF) #8 which provides the mechanism for coordinated Federal assistance during public health and medical emergencies.[17] Through the Office of the

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[10] Wallach, Phillip, and Justus Myers. "The Federal Government's Coronavirus Response—Public Health Timeline." Brookings, March 31, 2020 https://www.brookings.edu/research/the-federal-governments-coronavirus-actions-and-failures-timeline-and-themes/.

[11] Luna, Taryn. "Inside Gavin Newsom's Fateful Decision to Lock down California." LA Times, March 19, 2021, sec. California. https://www.latimes.com/california/story/2021-03-19/one-year-anniversary-newsom-sweeping-covid-19-lockdown-stay-at-home-order.

[12] Siripurapu, Anshu. "What Is the Defense Production Act?" Council on Foreign Relations, January 26, 2021. https://www.cfr.org/in-brief/what-defense-production-act.

[13] Maizland, Lindsay, and Claire Felter. "Comparing Six Health-Care Systems in a Pandemic." Council on Foreign Relations, April 15, 2020. https://www.cfr.org/backgrounder/comparing-six-health-care-systems-pandemic.

[14] See "National Biodefense Strategy." October 2022.

[15] Kapp, Lawrence, and Alan Ott. "COVID-19: Defense Support of Civil Authorities." Congressional Research Service, April 2, 2020. https://crsreports.congress.gov/product/pdf/IN/IN11305.

[16] Department of Homeland Security. "National Response Framework: Fourth Edition." October 28, 2019. https://www.fema.gov/sites/default/files/2020-04/NRF_FINALApproved_2011028.pdf.

[17] U.S. Department of Health and Human Services. "Emergency Support Functions." Accessed September 27, 2021. https://www.phe.gov/Preparedness/support/esf8/Pages/default.aspx.

Assistant Secretary for Preparedness and Response (ASPR), the Secretary of HHS coordinates all ESF #8 actions with supporting agencies, such as the Department of Defense (DoD).[18]

However, primarily due to the unprecedented nature of the disaster affecting every US state and territory, on March 19, 2020, the White House Coronavirus Task Force directed FEMA to take over the coordination and management role from HHS as part of its "whole-of-government" approach to the pandemic. The National Response Coordination Center (NRCC) that had been established in Washington, D.C. became the Unified Coordination Group (UCG), co-chaired by the ASPR and the FEMA Administrator.

Each regional office has a governor-designated State Coordinating Officer (SCO) who interfaces with the Federal Coordinating Officer (FCO), who is appointed by the president to oversee federal assistance in the region. The Defense Coordinating Officer (DCO) coordinates with the primary federal agency, which was DHS/FEMA in the case of COVID.[19] The DCO is a Title 10 active duty officer and coordinates DoD support to the primary agency (PA) and the ESF. Emergency Preparedness Liaison Officers (EPLOs) are service reservists who support the DCO and provide specialized knowledge on their unique military service capabilities. EPLOs establish the initial communication between the civil agencies and the DoD as well as between the state National Guard and DoD.

b. The U.S. Military and Public Health

There is a long historical precedent in the U.S. that links public health to the military.[20,21] For example, World War II accelerated wartime medical innovations with enormous lifesaving capabilities amongst civilian populations, such as the U.S. Military Committee on Medical Research's development of antimalarial chloroquine treatments.[22,23] As a general matter of force protection, the U.S. military medicine establishment possesses a "deep expertise" on emerging and reemerging infections and the ability to develop vaccines to combat them.

The 2019 "Crimson Contagion" simulation was prescient, as it modeled an outbreak in the U.S. of a respiratory disease originating in China. The game resulted in hundreds of thousands of deaths and a 70-page report detailing that States faced major obstacles in their response to the

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[18] Kapp, Lawrence, and Alan Ott. "COVID-19: Defense Support of Civil Authorities." Congressional Research Service, April 2, 2020. https://crsreports.congress.gov/product/pdf/IN/IN11305.

[19] "FEMA IS-75: Military Resources in Emergency Management." FEMA Emergency Management Institute, May 2011. https://training.fema.gov/emiweb/is/is75/instructor%20guide/instructor%20guide.pdf.

[20] Michael, Nelson L. "SARS-CoV-2 in the U.S. Military — Lessons for Civil Society." New England Journal of Medicine 383, no. 25 (December 17, 2020): 2472–73. https://doi.org/10.1056/NEJMe2032179.

[21] Gibson-Fall, Fawzia. "Military Responses to COVID-19, Emerging Trends in Global Civil-Military Engagements." Review of International Studies 47, no. 2 (April 2021): 155–70. https://doi.org/10.1017/S0260210521000048.

[22] Barr, Justin, and Scott H. Podolsky. "A National Medical Response to Crisis — The Legacy of World War II." New England Journal of Medicine 383, no. 7 (August 13, 2020): 613–15. https://doi.org/10.1056/NEJMp2008512.

[23] Quail, Geoffrey. "The Debt Tropical Medicine Owes to the Military." Journal of Military and Veterans' Health 23, no. 3 (2015): 18–21.

fictional disease "due to a lack of standardized, well-understood, and properly executed resource request processes" at the Federal level.[24] In 2019, the US Naval War College, Johns Hopkins University's Applied Physics Lab, and Uniformed Services University of the Health Sciences also ran "Urban Outbreak" – with design support from Brown University researchers – to explore challenges and opportunities in civil-military coordination for a pandemic response.[25]

All 50 U.S. states have a public health act, which allows for the state to mandate preventative measures like quarantines, vaccines, social distancing, and lockdowns to protect the public from infectious diseases.[26] In terms of institutional relationships, the DoD has worked with FEMA, DHS, HHS, and the Department of State (DoS).

In terms of Defense Support of Civil Authorities (DSCA) during national emergencies, the DoD defines such activities as "support provided by U.S. Federal military forces, DoD civilians, DoD contract personnel, DoD Component assets, and National Guard forces (when the Secretary of Defense, in coordination with the Governors of the affected States, elects and requests to use those forces in Title 32, U.S.C., status) in response to requests for assistance from civil authorities for domestic emergencies, law enforcement support, and other domestic activities, or from qualifying entities for special events".[27]

DSCA during the national response to COVID-19 mainly included medical augmentation, logistical and administrative support, crisis action planning support, rapid contracting capabilities, and the vaccine development campaign called Operation Warp Speed.[28]

   c.   Key Military Actors Involved in the U.S. National COVID-19 Response

To increase the capacity of national healthcare systems in response to COVID-19, the Biden Administration (2021–) requested that the Secretary of Defense provide surge capacity to both hospitals and long-term care facilities, including nursing homes, assisted living facilities, and congregate care settings for individuals with disabilities in Executive Order 13997, issued on January 21st, 2021. In collaboration with the Secretary of Health and Human Services and the Secretary of Veterans Affairs, the Secretary of Defense was tasked with the "equitable and

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[24] "National Biodefense Science Board December 3, 2019 Proceedings: Assessing Best Practices to Improve National Training and Readiness for Health Care Providers/Clinicians to Deliver Appropriate Care during Disasters." ASPR. December 2019. https://www.phe.gov/Preparedness/legal/boards/nbsb/Documents/pblc-mtg-proceedings-3dec2019.pdf

[25] Davies, Benjamin; Lovett, Kaitlin Rainwater; Card, Brittany; and Polatty, David, "Urban Outbreak 2019 Pandemic Response: Select Research & Game Findings" (2020). *Urban Outbreak 2019*. 2. https://digital-commons.usnwc.edu/civmilresponse-program-sims-uo-2019/2

[26] "Legislation, Regulations & Policies," No date. https://www.cdc.gov/publichealthgateway/policy/legislation-regulation-policies.html.

[27] Department of Defense. "3025.18: Defense Support of Civil Authorities (DCSA).

[28] Cancian, Mark F., and Adam Saxton. "What Did the U.S. Military Learn in the First Year of the Pandemic?" Center for Strategic and International Studies, March 2021. https://csis-website-prod.s3.amazonaws.com/s3fs-public/publication/210323_Cancian_What_Military.pdf?AHA1o8n2Yo5ZqnLjAtDfNQei3YJQr0rs.

effective distribution of COVID-19 therapeutics and [the] bolster[ing of] clinical care capacity where needed to support patient care"[29]. Funding the research and development of "readily administered and scaled" COVID-19 therapeutics was an additional duty assigned to all three Secretaries.[30]

The National Guard is a unique U.S. organization within the DoD meant to serve both its community as well as the country. Its ranks are composed of individuals who work civilian jobs or attend college and undergo part-time military training, as well as full-time personnel within each state. As part of the reserve components of the U.S. Army and Air Force, members of the Guard can be deployed with very little notice. The Guard is under dual control of the state and federal government.

During the COVID-19 crisis, governors activated the Guard under Title 32 - which causes the federal government to absorb the cost (normally, states are responsible for costs when a governor activates them) while the governor maintains operational control - in all 50 U.S. states and four territories. HR 748 (CARES Act) appropriated $1.4 billion for the deployment in March 2020.[31] The Guard played a multiplicity of roles depending on the state context, mainly logistical and administrative until civil partners could fulfill the need. They engaged in activities such as building field hospitals, enforcing quarantine policies, educating the public, operating testing sites, facilitating logistics, ensuring supply chains, vaccinating the public, and disinfecting public spaces.[32]

The National Guard and law enforcement agencies have worked together closely in many states' pandemic responses. For example, in Rhode Island (RI) the National Guard helped police stop cars with out of state license plates and provide them with guidance on quarantine policies.[33] The RI National Guard was particularly public in its partnering with law enforcement. This also led to significant negative optics and made the response appear particularly militarized as it appeared that out of state citizens were being hunted down and arrested to some.

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[29] Executive Office of the President. 2021. "Improving and Expanding Access to Care and Treatments for COVID-19." Federal Register. January 26, 2021. https://www.federalregister.gov/documents/2021/01/26/2021-01858/improving-and-expanding-access-to-care-and-treatments-for-covid-19.

[30] Executive Office of the President, "Improving and Expanding Access to Care and Treatments for COVID-19."

[31] National Conference of State Legislatures. "National Guard Assists Response to the COVID-19 Pandemic." Updated April 28, 2020. https://www.ncsl.org/research/military-and-veterans-affairs/national-guard-activation-in-every-state-assisting-response-to-the-covid-19-pandemic.aspx.

[32] National Conference of State Legislatures. "National Guard Assists Response to the COVID-19 Pandemic." Updated April 28, 2020. https://www.ncsl.org/research/military-and-veterans-affairs/national-guard-activation-in-every-state-assisting-response-to-the-covid-19-pandemic.aspx.

[33] Allen, John R., John Donohue, Rick Fuentes, Paul Goldenberg, and Michael O'Hanlon. "The Military, Policing, and COVID-19." Brookings, April 2020. https://www.brookings.edu/wp-content/uploads/2020/04/fp_20200402_coronavirus_policing.pdf.

The Rhode Island National Guard at a checkpoint on I-95 where New Yorkers were made to pull over and were told to self-quarantine for two weeks, March 28, 2020, in Hope Valley, R.I. (AP Photo/David Goldman)

Former President Trump established federal primary responsibility in a Presidential Memo issued on March 22nd, 2020.[34] This followed the WHO's declaration of COVID-19 as a global pandemic on March 11th, and Proclamation 9994 declaring the COVID-19 outbreak in the U.S. as a national emergency on March 13th, when COVID-19 had been detected in 47 states and hospitals and health care facilities had to prepare for a potential surge in cases. Proclamation 9994 further stated that additional measures would be needed to contain the spread of COVID-19, granting Emergency Authority for the Secretary of HHS to waive or modify requirements for federal and state-sponsored health insurance and HIPAA[35] .

Governors of all 50 states had declared COVID-19 states of emergency and activated Emergency Operating Centers by the March 22nd Presidential Memo.[36] The Memo directed the Secretary of Defense to request that the governors of California, New York, and Washington order the National Guard to support their states' local COVID-19 response. A similar memo was issued to activate the National Guard in more than 40 states through April 2020.[37]

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[34] Executive Office of the President. 2020. "Providing Federal Support for Governors' Use of the National Guard To Respond to COVID-19." Federal Register. March 26, 2020.
https://www.federalregister.gov/documents/2020/03/26/2020-06476/providing-federal-support-for-governors-use-of-the-national-guard-to-respond-to-covid-19.
[35] Trump White House. 2020. "Proclamation on Declaring a National Emergency Concerning the Novel Coronavirus Disease (COVID-19) Outbreak – The White House." Trump White House. March 13, 2020.
https://trumpwhitehouse.archives.gov/presidential-actions/proclamation-declaring-national-emergency-concerning-novel-coronavirus-disease-covid-19-outbreak/.
[36] "Memorandum on Providing Federal Support for Governors' Use of the National Guard to Respond to COVID-19." The White House. March 22, 2020. https://trumpwhitehouse.archives.gov/presidential-actions/memorandum-providing-federal-support-governors-use-national-guard-respond-covid-19/
[37] Executive Office of the President. 2020. "Providing Continued Federal Support for Governors' Use of the National Guard To Respond to COVID-19 and To Facilitate Economic Recovery." Federal Register. April 24, 2020.

Activated by the federal government under Title 32, the National Guard remained under control of each state and governor; funds for National Guard deployment were paid by DoD. DoD received mission assignments from FEMA to cover the expenses of National Guard deployment. To be eligible for Title 32, each state must: a) Have an approved FEMA major disaster declaration or submitted a FEMA major disaster declaration, b) Have less than 500 individual members or less than two percent of the state National Guard in State Active Duty, and c) Submit a FEMA resource request and accept the cost share.[38]

In Executive Order 13912, issued on March 27th, up to one million members of the Army, Air Force, and Coast Guard (when not operating within the Navy), in addition to members of the Ready Reserve, were ordered into active duty for up to 24 months following Proclamation 9994 and the national emergency declaration of the threat of COVID-19 on the U.S.' healthcare system.[39]

Federal deployment of the National Guard to support states' COVID-19 response was extended first through May 31st, 2020, then August 21st, 2020, then December 31st, and finally through March 31st, 2021 under the Trump Administration.[40,41] These Presidential Memos also addressed the role of the National Guard in mitigating local outbreaks and in maintaining compliance with public health orders and protocols issued by federal agencies. The Memos further suggested that the National Guard may contribute to economic recovery in states where COVID-19 had been mitigated.

Members of the National Guard, and other branches of the U.S. military, in addition to law enforcement officers, were categorized as emergency responders in the Paid Leave Under the Families First Coronavirus Response Act within the Wage and Hour Division of the Department of Labor. These service members were ineligible for the emergency paid sick leave because their

https://www.federalregister.gov/documents/2020/04/24/2020-08958/providing-continued-federal-support-for-governors-use-of-the-national-guard-to-respond-to-covid-19.

[38] FEMA. 2021. "National Guard Deployment Extended to Support COVID-19 Response | FEMA.Gov." FEMA. March 17, 2021.

[39] Executive Office of the President. 2020. "National Emergency Authority To Order the Selected Reserve and Certain Members of the Individual Ready Reserve of the Armed Forces to Active Duty." Federal Register. April 1, 2020. https://www.federalregister.gov/documents/2020/04/01/2020-06985/national-emergency-authority-to-order-the-selected-reserve-and-certain-members-of-the-individual.

[40] Executive Office of the President. 2020. "Extension of Governors' Use of the National Guard To Respond to COVID-19 and To Facilitate Economic Recovery." Federal Register. December 8, 2020. https://www.federalregister.gov/documents/2020/12/08/2020-27068/extension-of-governors-use-of-the-national-guard-to-respond-to-covid-19-and-to-facilitate-economic.

[41] Executive Office of the President, "Providing Continued Federal Support for Governors' Use of the National Guard To Respond to COVID-19 and To Facilitate Economic Recovery."

roles provided "transport, care, healthcare, comfort and nutrition of such patients, or others" in response to COVID-19, and it was crucial to maintain staffing of the healthcare workforce.[42]

President Biden's January 21st, 2021 Memo directed the Secretary of Defense to request that governors order the National Guard to support their local COVID-19 response through September 30th, through December 31st, 2021, and then through April 1st, 2022[43,44].

Members of the military, including the National Guard, were called into service to increase vaccination and vaccinator capacity on February 16th, 2021 by the Acting Secretary of HHS. The military was deployed to support the national COVID-19 vaccination program. The Acting HHS Secretary anticipated an increase in vaccine supply and aimed to limit further strain on "health care system capacity and the [existing] vaccination workforce" by mobilizing members of the federal workforce, including the military[45].

d. Unique Capabilities of Military Actors in National Public Health Responses

The DoD became involved in the domestic COVID-19 response on January 29, 2020 when it approved a HHS assistance request for March Air Reserve Base to provide approximately 200 beds for State Department officials evacuated from Wuhan, China—it continued to aid in this manner throughout February and March 2020 by adding 12 funneling airports and four evacuee sites.[46] The first COVID-19 related death in the United States shortly followed on 6 February 2020 in California, and two days later the Vice Chairman for the Joint Chiefs of Staff created the COVID-19 Crisis Management team. On February 28, the DoD established the DoD COVID-19 Task Force.

In early March 2020, the DoD continued supporting the HHS by assisting in the manufacture of N95 respirators; on the same day, the Department received approval for 16 labs that are authorized to test for COVID-19. By mid-March, the Department of Defense made five million

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[42] Wage and Hour Division. 2020. "Paid Leave Under the Families First Coronavirus Response Act." Federal Register. April 6, 2020. https://www.federalregister.gov/documents/2020/04/06/2020-07237/paid-leave-under-the-families-first-coronavirus-response-act.

[43] Executive Office of the President. 2021. "Maximizing Assistance From the Federal Emergency Management Agency To Respond to COVID-19." Federal Register. February 5, 2021. https://www.federalregister.gov/documents/2021/02/05/2021-02569/maximizing-assistance-from-the-federal-emergency-management-agency-to-respond-to-covid-19.

[44] Executive Office of the President. 2021. "Memorandum To Extend Federal Support to Governors' Use of the National Guard To Respond to COVID-19 and To Increase Reimbursement and Other Assistance Provided to States." Federal Register. January 28, 2021. https://www.federalregister.gov/documents/2021/01/28/2021-02043/memorandum-to-extend-federal-support-to-governors-use-of-the-national-guard-to-respond-to-covid-19.

[45] Department of Health and Human Services, Office of the Secretary. 2021. "Sixth Amendment to Declaration Under the Public Readiness and Emergency Preparedness Act for Medical Countermeasures Against COVID-19." Federal Register. February 16, 2021. https://www.federalregister.gov/documents/2021/02/16/2021-03106/sixth-amendment-to-declaration-under-the-public-readiness-and-emergency-preparedness-act-for-medical.

[46] U.S. Department of Defense. 2023. "Coronavirus: Timeline." U.S. Department of Defense. April 19, 2023. https://www.defense.gov/Explore/Spotlight/Coronavirus-DoD-Response/Timeline/.

respirator masks, 2,000 deployable ventilators, and PPE available to HSS from its strategic reserves. It also began hosting the "Hack a Vent" challenge, meant to address the need for rapid prototyping in the face of an inevitable national shortage of ventilators.[47]

As mentioned earlier, the DPA is in continued use by the Biden Administration. The DPA allowed the military to prioritize production of materials related to vaccine development, such as the manufacturing of glass vials by pharmaceutical companies. The DPA has also been used to mandate repurposing of industrial facilities for activities such as ventilator and PPE production.

A key shortcoming of the DPA that became apparent during the U.S. national response to COVID-19 is its reliance on existing national industrial capacity. Given the effect of COVID-19 on the global supply chain, this proved a major limitation. For example, most medical supplies used in the U.S. are made in Asia, specifically in China. Countries had little incentives to share supplies internationally, given that they were needed in national responses. Coupled with the fact that U.S. production capabilities are low, the increased DPA contracts created backlogs and long lead times until overall capacity was increased.[48]

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[47] U.S. Department of Defense. 2020. "Trump Administration Collaborates With McKesson for COVID-19 Vaccine Distribution." U.S. Department of Defense. August 14, 2020. https://www.defense.gov/News/Releases/Release/Article/2313808/trump-administration-collaborates-with-mckesson-for-covid-19-vaccine-distributi/.

[48] Cancian, Mark F., and Adam Saxton. "What Did the U.S. Military Learn in the First Year of the Pandemic?" Center for Strategic and International Studies, March 2021. https://csis-website-prod.s3.amazonaws.com/s3fs-public/publication/210323_Cancian_What_Military.pdf?AHA1o8n2Yo5ZqnLjAtDfNQei3YJQr0rs.

III. Literature Review

While civil-military coordination has been significant during responses to COVID-19, scant academic literature explores this phenomenon.[49]

Early studies on national COVID-19 pandemic response show extreme variance in the range and frequency of civil-military-police cooperation strategies used domestically. For example, in Europe, Spain and Italy frequently relied on their militaries, while Sweden had a comparatively low level of use.[50] In Serbia, Russia, and France, security forces set up military hospitals to address civilian needs; in South Africa, the military enforced lockdowns; in Australia, law enforcement continued to police lockdowns into 2021; and in Indonesia and the Philippines, the military handled the state's pandemic response entirely.[51] No study to date that the authors are aware of has systematically analyzed civil-military-police coordination during the COVID-19 pandemic within the U.S..

Historically, studies seem to be generally positive about the role of the military in responding to domestic public health emergencies. For example, Sri Lanka's military was vital in leading a door-to-door extermination program in order to reduce the number of mosquitos, thus successfully reducing the number of dengue cases in the country.[52] Another example is a close information-sharing relationship between civilian and military agencies in China that allowed for a quick identification of Zika, as well as developing treatments for influenza.[53] The response to Sierra Leone's Ebola epidemic underlined the importance of deploying the military and the success they had in addressing the needs of the populace, while also considering some of the consequences of military use, such as civilian backlash against the use of threats or intimidation.[54]

In general, studies on civil-military-police coordination during public health emergencies tend to focus on international contexts, in which humanitarians and international military actors are

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[49] See the 2022 "National Biodefense Strategy" as a non-academic source.

[50] Gad, Mohamed, J Kazibwe, E Quirk, A Gheorghe, Z Homan, and M Bricknell. "Civil–Military Cooperation in the Early Response to the COVID-19 Pandemic in Six European Countries." BMJ Military Health 167, no. 4 (August 2021): 234–43. https://doi.org/10.1136/bmjmilitary-2020-001721

[51] Gibson-Fall, Fawzia. "Military Responses to COVID-19, Emerging Trends in Global Civil-Military Engagements." Review of International Studies 47, no. 2 (April 2021): 155–70. https://doi.org/10.1017/S0260210521000048.

[52] Tissera, Hasitha & Samaraweera, PC & Jayamanne, Deepal & Botheju, Wcd & Wijesekara, NWAN & Chulasiri, Pubudu & Janaki, Mds & Alwis, Klnsk & Palihawadana, P. "Civil-military cooperation (CIMIC) for an emergency operation against a dengue outbreak in the western province, Sri Lanka." Dengue Bulletin, January 2014. https://www.researchgate.net/publication/301646909_Civil-military_cooperation_CIMIC_for_an_emergency_operation_against_a_dengue_outbreak_in_the_western_province_Sri_Lanka

[53] Ma, H., Dong, JP., Zhou, N. et al. "Military-civilian cooperative emergency response to infectious disease prevention and control in China." Military Medical Research, December 30, 2016. https://doi.org/10.1186/s40779-016-0109-y

[54] Kamradt-Scott, A., Harman, S., Wenham, C., Smith III, F. "Civil-military cooperation in Ebola and beyond." The Lancet, January 9, 2016. https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(15)01128-9/fulltext

acting within a specific emergency with the approval of a foreign government.[55] Fewer studies consider domestic contexts, where civilian health actors are typically considered the 'first line of defense' in public health issues.[56] This is despite the fact that in many domestic contexts, the military health system is "substantive," across metrics such as budget, size, and endowment.[57] For example, military actors played a key role in the response to the 2014 Ebola outbreak in Nigeria.[58]

In fact, this idea that civilian agencies are supposed to act as the 'first line of defense' is evident since militaries will sometimes not join the response until absolutely necessary. In West Africa (specifically, Sierra Leone and Liberia) during the Ebola response, for example, several civilian agencies and NGOs were forced to either shut down or scale back from the response early on when they were expected to lead the response, forcing the military to step in and become a significantly larger part of the response or becoming one of the main leaders/sources of public health promotion.[59]

Furthermore, the West Africa example also underlines how national and international public health emergency responses may differ. The West Africa example emphasizes the different roles that any respective country's actual military can play from logistics to administrative actions, but also recognizes that foreign militaries and NGOs that joined the response also played an important role in addressing the public health emergency.

Public health emergencies like a viral pandemic differ greatly from an isolated terrorist attack, as their longitudinal nature creates challenges at all levels of government across the country.[60] In addition, as a largely public-facing profession, law enforcement officers are at exceptional risk of exposure during viral pandemics.[61] During a pandemic, law enforcement agencies must

[55] Boland, Samuel T, C McInnes, S Gordon, and L Lillywhite. "Civil-Military Relations: A Review of Major Guidelines and Their Relevance during Public Health Emergencies." BMJ Military Health 167, no. 2 (April 2021): 99–106. https://doi.org/10.1136/bmjmilitary-2020-001505.

[56] Roepke, Wolf-Diether, and Hasit Thankey. "Resilience: The First Line of Defence." NATO, February 27, 2019. https://www.nato.int/docu/review/articles/2019/02/27/resilience-the-first-line-of-defence/index.html.

[57] Gad, Mohamed, J Kazibwe, E Quirk, A Gheorghe, Z Homan, and M Bricknell. "Civil–Military Cooperation in the Early Response to the COVID-19 Pandemic in Six European Countries." BMJ Military Health 167, no. 4 (August 2021): 234–43. https://doi.org/10.1136/bmjmilitary-2020-001721.

[58] Kwaja, Chris M A, D J Olivieri, S Boland, P C Henwood, B Card, D P Polatty, and A C Levine. "Civilian Perception of the Role of the Military in Nigeria's 2014 Ebola Outbreak and Health-Related Responses in the North East Region." *BMJ Military Health* 169, no. e1 (May 2023): e9–14. https://doi.org/10.1136/bmjmilitary-2020-001696.

[59] Kamradt-Scott, A., Harman, S., Wenham, C., Smith III, F. "Civil-military cooperation in Ebola and beyond." The Lancet, January 9, 2016. https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(15)01128-9/fulltext

[60] Jennings, Wesley G., and Nicholas M. Perez. "The Immediate Impact of COVID-19 on Law Enforcement in the United States." American Journal of Criminal Justice 45, no. 4 (August 2020): 690–701. https://doi.org/10.1007/s12103-020-09536-2.

[61] "What Law Enforcement Personnel Need to Know about Coronavirus Disease 2019 (COVID-19)." Centers for Disease Control and Prevention, November 6, 2020. https://www.cdc.gov/coronavirus/2019-ncov/community/guidance-law-enforcement.html.

coordinate with public health experts as well as a variety of different essential actors to provide services and maintain public order.[62,63]

In some countries, lockdown enforcement was stringent. For example, in the Philippines, President Rodrigo Duterte authorized police to shoot anyone who "causes commotion;" in Kenya, several law enforcement officers are under investigation for the shooting of a teenager standing on a balcony during a curfew; and in Australia, people sitting on benches alone were threatened with six months of jail time.[64]

During the COVID-19 pandemic, many national health care systems were dramatically strained, some to the point of breakage and failure.[65] In the context of global economic contraction, countries began to adopt multi-sectoral approaches to addressing the pandemic domestically, including wide-ranging support from the military, security, and law enforcement sectors.[66]

Early research shows six main themes for military involvement in national COVID-19 responses in the European context:[67]

> "1) recognition of health security threat from COVID-19 spread, 2) detection and announcement of first military cases, 3) invocation of national crisis plans (including announcing of military involvement), 4) information on typologies of military support (how support was provided to specific interventions), 5) dealing with rumors and 6) modifying internal and external routine military activities to accommodate changes posed by the COVID-19 pandemic."[68][numbering added by author for clarity]

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[62] Richards, Edward P., Catherine C. Rathburn, Corina Solé Brito, and Andrea Morrozoff Luna. "Role of Law Enforcement in Public Health Emergencies: Special Considerations for an All-Hazards Approach." Department of Justice: Bureau of Justice Assistance, September 2006. https://bja.ojp.gov/library/publications/role-law-enforcement-public-health-emergencies-special-considerations-all

[63] Jennings, Wesley G., and Nicholas M. Perez. "The Immediate Impact of COVID-19 on Law Enforcement in the United States." American Journal of Criminal Justice 45, no. 4 (August 2020): 690–701. https://doi.org/10.1007/s12103-020-09536-2.

[64] Cave, Damien, and Abdi Latif Dahir. "How Far Should Police Go in Enforcing Coronavirus Lockdowns?" The New York Times, April 2, 2020. https://www.nytimes.com/2020/04/02/world/australia/coronavirus-police-lockdowns.html.

[65] Maizland, Lindsay, and Claire Felter. "Comparing Six Health-Care Systems in a Pandemic." Council on Foreign Relations, April 15, 2020. https://www.cfr.org/backgrounder/comparing-six-health-care-systems-pandemic.

[66] Graham, Euan. "The Armed Forces and COVID-19." International Institute for Strategic Studies, April 8, 2020. https://www.iiss.org/blogs/analysis/2020/04/easia-armed-forces-and-covid-19.

[67] These themes are based on an open-source grey literature review by Gad et al (2021) that gathered sources through systematic Google searches focused on the UK, Italy, Spain, France, Germany, and Belgium.

[68] Gad, Mohamed, J Kazibwe, E Quirk, A Gheorghe, Z Homan, and M Bricknell. "Civil–Military Cooperation in the Early Response to the COVID-19 Pandemic in Six European Countries." BMJ Military Health 167, no. 4 (August 2021): 234–43. https://doi.org/10.1136/bmjmilitary-2020-001721.

Other studies helpfully identify three broad themes in civil-military-police coordination that are observable in various domestic contexts: "1) Minimal technical military support; 2) Blended civil-military responses; and 3) Military-led responses".[69] The study's author argues that the approach a country adopted depended upon variables such as: " a country's historical military legacy, the robustness of its civilian health system, and its public health approach (including pandemic preparedness models and delivery frameworks)".[70]

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[69] Gibson-Fall, Fawzia. "Military Responses to COVID-19, Emerging Trends in Global Civil-Military Engagements." Review of International Studies 47, no. 2 (April 2021): 155–70. https://doi.org/10.1017/S0260210521000048.
[70] Ibid.

IV. Methods

a. Setting and Participants

Due to the nature of the U.S. federal system, one can argue that there were essentially fifty different responses, and that even within states, local responses differed. For this reason, the research team focused on the FEMA Regions on the Eastern Seaboard as a regional sample. The states in this sample vary in geographical size, population, politics, and how prone they are to natural disasters. This variation granted the researchers analytical leverage that allowed for insights across very different contexts.

Initial participants were contacted through Brown University's humanitarian response practitioner network and subsequent participants were selected through a snowball sampling method. Selection criteria for participants included direct involvement in the COVID-19 response as either civilians or military members. Participants also were selected for their involvement in civil-military interactions.

b. Data Collection

In addition to desk research, this report draws on 16 key informant interviews with individuals who worked in various segments of the U.S.'s national response to COVID-19. The interviews were collected via Zoom between October 2021 and July 2022. Seven of the interviews were civilian responders and the other nine were military responders. The interview protocol was designed to elicit participant perceptions of their role in the response and their observations on the civil-military interactions they witnessed and participated in. The questions probed their perceptions of partner agencies as well as elicited anecdotes about on-the-job innovations and challenges. The study focused on the first year and a half of the pandemic, from March 2020-October 2021. This project utilized the eastern U.S. as a case study, with the interviewees having worked in FEMA Regions 1, 2, 3, 4 at the time of their roles in the response. The institutional breakdown of these interviews is represented in the chart below:

Chart 1: Interviewee Institutions and FEMA Regions

Number of Interviews	Institution	FEMA Regions Represented
5	U.S.NR (Navy)	1, 2, 3
2	National Guard (Army)	1, 4
2	Navy (Active duty)	3
1	Local Emergency Management Agency	1

2	Federal Emergency Management Agency	2
2	State Department of Health	1, 4
2	Clinical Hospital Staff	1, 4

c. Data Analysis

The data analysis took place from July 2022 to February 2023. Interview transcripts were checked for accuracy before being uploaded into NVivo. The transcripts were all stored in the same project file but were separated into subfolders according to whether the participant was a civilian or military responder. This allowed the research team to compare codes within the interviewee type and across types.

The research team utilized a grounded, iterative process to identify salient themes and findings in the interview data. The research team initially created two separate codebooks for the two categories: 'civilian responder' and 'military responder.' After an iterative round of consensus coding, the team created one master codebook for all interviews. The researchers wrote memos throughout and had extensive discussions about findings to leverage different analytical insights. After these processes, the research team came to agree on the main findings of the data, which are presented later in this report.

d. Funding and Ethics

This research is based off data collection that was made possible by the Australian Civil Military Centre. It was exempt from ethical approval based on Brown University IRB guidelines and federal regulations on human subjects research. The researchers adhered to the highest standards of informed consent and data security. The team also anonymized the interview transcripts.

e. Limitations

While the desk research portion of the project focuses on the entire U.S. and Territories, the interviews are a regional sample of the Eastern Seaboard. Therefore, this report constitutes a preliminary study of the U.S. national response to COVID-19. While many of the project's findings are generalizable, it is important to note that the nature of the U.S. federal system means that state and local responses differed dramatically across the country. Future CHRHS research will expand the interview pool to include a representative sample of civilian and military responders from each FEMA region.

V. Findings

a. Adaptations and Innovations

i. Military Actors Fulfilling Nontraditional Roles to Fill Capacity Gaps

There was a desperate need for various positions to be filled as the response evolved from its earliest days. The combination of high demand for first responders and an inability to fill these positions led to the use of National Guard and military personnel to fill roles that traditionally would have been performed by civilian workers. Multiple participants noted that it was difficult to find enough people to assist in the response, and that COVID-19 created a risk that existing personnel may become sick. One participant stated that under these conditions, the response was forced to "recognize that there was a potential if people [responders] got sick that they would have to have a backup…a tertiary person in place to cover for somebody who might catch COVID-19 or not be able to serve for some reason."

The National Guard were heavily utilized across the U.S. to fill these capacity and personnel gaps in the COVID-19 response. One participant based in FEMA Region 5 described that the National Guard filled response roles where there was "no civilian resource to fill that local community need." One participant based in FEMA Region 4 spoke at length about the role that the National Guard played in Florida, describing how they were responsible for filling a multitude of tasks both directly and indirectly related to the response. These tasks included: moving PPE throughout the state using National Guard vehicles; setting up points of distribution to provide fresh water; working in food bank distribution; providing assistance to law enforcement; setting up drive-through testing stations; assisting in nursing homes; and building field hospitals. The breadth of responsibilities of the National Guard in Florida alone makes it clear why one participant referred to the Guard as a "Swiss army knife."

The military often supplemented medical care at hospitals or vaccinated civilians, particularly at mass vaccination sites since there were not enough trained civilian personnel to fill these roles. One military interviewee in FEMA Region 5 described training volunteer service members and military medics to become Certified Nursing Assistants (CNAs) so they could better help with vaccinations. This CNA certification would also have the long-term impact of giving them a skillset that would provide them with greater civilian career opportunities.

However, members of the Guard also noted that it was important to try to fill civilian roles with "civilian staffing first" and to treat the National Guard as a "last resort", rather than as the default solution to any personnel shortages. The participant further elaborated that the National Guard should be the "last in [and the] first out" during an emergency, emphasizing that the Guard should be replaced by civilians in the response as quickly as possible. This mentality was best illustrated by the interviewee's belief that "we probably overuse the National Guard" and how in future responses, as well as during the current COVID-19 response, it will be important to be judicious in the use of the National Guard and to instead opt for civilian elements when possible. One participant from FEMA Region 1 discussed how civilian staff at a vaccination site was laid off

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to accommodate the incoming military personnel, leading to contention amongst civilian responders. This is why, as with the National Guard, another interviewee warned that traditional military forces should be a "provider of last resort."

Other interviewees noted the use of traditional military (such as the Army, Navy, Air Force, and Marine Corps) personnel to fill capacity gaps. However, unlike the National Guard, the traditional military was significantly more constrained and reserved in its response role. For example, the military is not allowed to serve in a law enforcement role due to the Posse Comitatus Act.

ii. Public/Private Partnerships to Fill Capacity Gaps

In addition to filling capacity gaps with military actors, civilian agencies contracted with both public and private partners as part of the COVID-19 response. At the peak of the COVID-19 pandemic, contractors were hired to support a Rhode Island state health agency, doubling the size of the organization. Ensuring sufficient staffing for Alternate Care Sites (ACSs) was also a challenge. One participant shared that ACS or field hospitals were constructed in response to modeling predictions that a surge in COVID-19 cases would overwhelm Intensive Care Units (ICUs) and hospitals overall. In a surge, the ACS could offset the burden on hospitals and major health systems by accepting patients with milder COVID-19 infections or who were recovering from the disease as a "step down facility," so that patients requiring the most intensive care could be admitted to major hospitals.

Staffing remained a concern at both civilian hospitals and ACSs; ACSs therefore augmented staffing with Pediatric Emergency Physicians, as well as retired physicians and nurses, and contract nurses from across the country to address the need for additional nurses. Another participant reflected that they "pulled from a lot of crazy sources" to address staffing shortages across mass vaccination sites, including reassigning staff from the Federal Aviation Administration. Many of these new team members required training in emergency response.

One participant shared that "people outside the government helped us quite a bit as well." For example, an outside architecture firm was hired to design one of the ACSs in Rhode Island. Following a series of design exercises, contractors took the lead and constructed the space in 10-15 days. In another city in FEMA Region 2, an outside group was brought on to lead the COVID-19 response. This group was later replaced by city officials and then FEMA.

iii. Operating in Low-Resource Environments

Due to a lack of surge capacity in healthcare, regional partnerships, resource-sharing between states, and personal connections were all strategies states leveraged to acquire scarce resources to respond to the COVID-19 pandemic. Some states in FEMA Region 1 engaged in regional partnerships to secure resources, which ensured that they would not compete against or "hurt each other." One participant shared that their governor leveraged any personal connection to secure scarce resources. In New Jersey, ambulances from out of state were brought in to augment the state's own emergency medical services (EMS). Furthermore, civilians in other roles within EMS supported the emergency medical response until "the mass fatality demand declined."

A few participants discussed the importance of making informed decisions about prioritizing allocation of these scarce resources within communities. For example, one interviewee stressed the importance of getting PPE and vaccines to assisted living care facilities to protect the most vulnerable members of the population – the elderly and the staff who care for them. The same interviewee explained that ventilator distribution and PPE distribution were very important strategic decisions that state leadership made early on in the pandemic. Another participant noted how it was critical to only use certain, highly-trained medical personnel where necessary as to not tie up a specialist with responsibilities that a non-expert could perform. For example, this interviewee was a proponent of having corpsmen administer vaccines since it was relatively easy to give them additional training, rather than removing doctors who were more useful serving in their standard roles.

The military facilitated both piloting and scaling up of pandemic response initiatives. The National Guard was instrumental in supporting COVID-19 testing, both at mass testing sites and in nursing homes. One participant commended the National Guard's commitment to their mission and their courage to test so many residents in the early days of the COVID-19 pandemic:

> **"In the beginning, people were afraid to test people because they didn't want to be exposed. There was no vaccine or treatments. The National Guard people just did it – so that was pretty impressive."**

The military also helped scale mass vaccination efforts and achieve vaccine equity goals. One clinical health provider stated:

> **"I was quite concerned about our trajectory and the ability to vaccinate at the scale that we needed. So, I think, you know, the advantage of the military was just that scale . . . we needed to scale immediately . . . essentially [the military] has that type of capacity at the ready and so that's where I felt . . . that was the only pathway in trying to mitigate the impact."**

iv. Mass Vaccination Sites

Mass vaccination sites were the primary method of getting the general population inoculated against COVID-19. The COVID-19 mass vaccination campaign was led by civil medical professionals and civilian medical infrastructure, with DoD in a supporting role. In general, on a mission assignment, DoD takes on a supporting role to FEMA or other civilian agencies. Nearby large medical centers therefore became leads for COVID-19 mass vaccination sites, and these sites operated under a civilian provider's medical license. Malpractice and liability were two concerns with COVID-19 vaccination site. There was always a civilian medical doctor or pharmacist in charge – liability therefore fell upon the civilian medical center.

Mass vaccination sites were oftentimes integrated into state and local health departments' information management systems. Medical data collected at mass COVID-19 vaccination sites

was integrated into state health department systems due to HIPAA regulations and concerns. There were some initial challenges with the military and FEMA accessing these systems.

Every participant who discussed mass vaccination sites at length described the logistical challenges of operating these sites and how they solved a variety of problems. One difficulty was a lack of sufficient personnel to administer vaccines at a rate to meet goals. These goals were defined by the number of vaccines administered by the sites. One participant talked about how even though there was this "tremendous need to provide vaccinations," there was insufficient "manpower to do it," so, the vaccination center put in a "request[ed] . . . to the military to provide manpower" which allowed them to then fill the personnel gaps and reach their vaccination goals. Participants described how one site administered "7000 shots a day," while another participant stated that, "over a two-month period, we did over 300,000 vaccinations" which they described as "remarkably efficient." Civilian agencies and mass vaccination teams celebrated milestones to boost morale. One participant shared: "We put the shot count on like the scoreboard and like a buzzer would go off, and we would meet like a milestone, and then we would do a little photo op with the leadership team."

One participant described how one of the largest issues mass vaccination sites faced was the need to control a large inflow and outflow of people getting vaccinated without failing to provide adequate service to each person being vaccinated. The participant described how one vaccination center addressed this issue by contracting the design and set-up of the vaccination site to a company that normally handled marathons. This company also led marketing for the mass vaccination center. The participant described the military's relationship with the company as the company handling "the marketing" and "the efficiency of throughput [and] then the military provided the manpower."

Another adaptation to ensure both safety and security at COVID-19 vaccination sites was to have temperature taken inside the site, rather than outside. One participant noted that individuals with active COVID-19 infections were sometimes permitted inside vaccination sites. This participant reviewed site protocols and "found out that when people have taken temperatures, they were taking them as soon as a person walked in from outside, so of course they're cold . . . The temperature the way they were they were checking them[,] they're basically scanning and cold air, so we [had] to reevaluate the way we were doing that and [started to] check temperatures a little closer inside where . . . we were . . . checking their normal . . . temperature."

v. Alternative Care Sites and Field Hospitals
ACS were public-private partnerships across many sectors, from health care to engineering to government, and allowed surgeries and elective procedures to continue during the COVID-19 pandemic. Early in the COVID-19 pandemic, most surgeries and elective procedures were canceled or put on hold to allocate all resources to the COVID-19 response. There was insufficient staffing to address the increasing COVID-19 caseload and continue with regularly scheduled surgeries and elective procedures. One participant reflected that even triaging 20-30 patients per

day to the ACS allowed these essential medical procedures to continue and to avoid long-term health outcomes and health burden:

> **"In Phase One we had to shut down all of the outpatient operations and all surgeries because we didn't have enough staff to do all of that, and we saw the repercussions of [this] the month following."**

The military set up field hospitals in multiple states to lessen the load on hospitals. Multiple clinicians described how large, unused areas were converted to serve important roles in the response. These roles included creating mass vaccination centers and transforming multiple convention centers, large vacant office buildings and retail space, and stadiums into field hospitals. One participant described how hospital beds were set up in the Miami Convention Center to turn the space into a makeshift hospital to treat COVID-19 patients. Another participant talked about how field hospitals were set up in the Boston Convention Center. A third participant discussed how there was a decision about whether the Army Corps of Engineers should construct and set-up field hospitals or whether to contract the work to a private company. This participant elaborated that their state's emergency management met to discuss how to convert the office building into a hospital.

One ACS lead reflected on how planning and construction of the facility was a collaborative effort and that the team leaned into everyone's expertise: "To make [the ACS] happen, I mean we didn't have any hierarchies there we listened to everybody . . . from janitorial staff[,] people who cook . . . food[,] everybody had innovations, because everybody was working." One ACS facility was constructed in 10-15 days and included piped oxygen throughout the facility. One participant shared: "It was just everybody . . . working so hard at what they do, really, what they do best . . .if I were to look for beds[,] I wouldn't know where to go."

Design exercises and simulations were conducted to determine the layout and structure of the ACS, as well as patient flow from entering to exiting the facility. The military brought "logistics and organizational capabilities" and protected the liquid oxygen supply. Response staff at a site in Rhode Island realized they did not have enough curtain fixtures to separate the hospital beds from one another. A National Guard team resolved this issue by driving to every office supply store in the vicinity and buying out their supplies of binder rings, which were repurposed as curtain rings at the site. Beds were also difficult to find, so teams purchased beds from Ikea. Duplicating and integrating a large, local health system's Electronic Medical Record (EMR) facilitated the transfer of patients between the ACS and the main hospitals.

Healthcare staff and the military worked in tandem at the ACS – literally:

> **"The healthcare people took one of the rooms and the National Guard took the other room[,] there was just a short corridor between the rooms and we would constantly go back and forth[. W]e had radio communication [with] the National Guard."**

Like most other hospitals and health care facilities, the ACS also faced staffing shortages. Since pediatric emergency rooms had lower patient volume during the COVID-19 pandemic, Pediatric Emergency Physicians cared for adult patients at the ACS. Additionally, traveling nurses from across the country and retired physicians and nurses were hired or reassigned to address staffing needs. One participant shared that the current healthcare system has just enough staff and that we may need "people being idle, being paid to sit around a little bit because, in times of crisis you're going to need those extra people [,] you're going to need those extra beds."

One shortcoming of the ACS is that most were partnerships between federal and state governments – these partnerships did not always engage local government officials. FEMA, for example, identified ACS sites for one state. In another FEMA Region 1 state, the governor first initiated conversations about ACS with CEOs at large, not-for-profit health systems and asked the hospitals to collaborate with the National Guard to build these sites. A local city official shared that they were first notified of the ACS in their city via Twitter, and that communication with city governments like them was "always an afterthought" for state officials.

b. Communication

i. Internal Communication

Civilian agencies at the state and local levels held multiple meetings each day to facilitate the COVID-19 response. Daily team meetings became a common adaptation during the pandemic. Multiple participants discussed how daily team meetings became a norm during the pandemic and described how these meetings facilitated information sharing. By holding meetings daily, the team shared new information they had learned and organized the priorities for each day. One participant discussed how meetings promoted team cohesion and a "mentality that you know we are one team" by helping to further the idea that they had "one fight[,] one team[,] one mission" as a guiding principle.

Meetings with various partners were held throughout the day, including with military teams supporting mass vaccination sites in partnership with civilian agencies: "[The military was] included in our . . . morning stand up briefs, our tactics meetings during the day, [and] our evening wrap up meeting." One participant reflected on how meetings filled their entire schedule: "Endless meetings . . . it was very common to start meetings before the sun rose and well after the sunset to have meetings . . . just meetings all the time." Other calls included meetings for senior leadership, as well as state-specific calls. For mass vaccination sites, calls were opportunities to share incidents, such as employee injuries or security incidents, with regional-level supervisors who would pass the information on to national-level leaders. Even leadership at ACS participated in daily meetings with the Department of Health, as well as the governor's staff member assigned to the ACS.

One participant discussed how, in order to support team members, they created a "wingman concept" where someone always has a wingman looking after them, describing the wingman's

role as "the key to the wellness of the force." A second participant verified that the buddy system promoted "camaraderie and cohesiveness." Another participant discussed how "massive briefs" that aggregated information from all the departments were distributed by FEMA and HHS.

ii. External Communication

Civilian leaders had lots of media engagement during the COVID-19 response and felt the responsibility to communicate science to the public. Multiple participants engaged with the media during the COVID-19 response, from local emergency management to public health leaders to medical doctors. Media engagements and interviews were oftentimes organized by communications teams at government offices or by hospitals' public relations offices. Engagements included appearances on local news channels, as well as radio, print, and podcast interviews – one public health leader estimates they had over 600 media appearances. For one participant, media appearances were motivated by a commitment to accessibility:

> **"We tried to be as available as possible. We tried to answer every question possible. We tried to be available for whatever we could for any population."**

Media engagements during the COVID-19 pandemic aimed to quell the public's fears and to explain how viruses spread and infection prevention to a population that "did not understand these concepts." There was an emphasis on answering questions about a range of topics, such as what a ventilator is, identifying and explaining high-risk groups for COVID-19, and de-bunking COVID-19 misinformation. One participant explained technical methods that informed key findings, such as findings on geographic health disparities in COVID-19 infection and burden: "We had [to] discuss things like geographic Information System information so people knew there were high risk areas."

The media often engaged with military members when the military served at mass vaccination sites. At these sites, the media asked questions of both vaccination site leadership and service members. While many participants described how their service members were often excited to be interviewed or engage with the media, they also described navigating the issue of the military not being allowed to endorse politicians or certain politics, either knowingly or unknowingly. One participant elaborated on how it was important not to "pose for pictures" with politicians and to not provide any "public statements in favor" of them, to avoid issues with the legal framework disallowing the military from taking a political stance in U.S. politics. This became an issue when the Mayor of Boston was in a reelection campaign and visited the site. As service members were not allowed to endorse mayoral candidates, they were not allowed to take photos with them or conduct interviews that could be construed as military support or endorsement of their re-election campaign.

Furthermore, most service members knew that she was the Mayor of Boston but not that she was running for reelection. As a result, the "public affairs officer" handled media permissions and determined whether members were allowed to conduct certain interviews. One participant reasoned that many of the service members did not recognize that they may end up on a national

news organization, so it was important to ensure that policies on military interaction with the media were properly communicated. However, this participant discussed that interacting with the media boosted service members' morale.

Another participant expanded on the morale-boosting qualities of media engagement on the service members. The participant described how the vaccinator of the week at one mass vaccination center would be put up on the jumbotron at baseball games to loud cheering from the audience. This participant also discussed how the members getting on the front page of the city newspaper further boosted morale while also acting as an advertisement for the mass vaccination center where the military members worked.

c. Coordination

i. Importance of Pre-Existing Relationships and Experiences

Throughout the pandemic response, having personal relationships with important actors proved to be vital to the success of the response and one's own mission in the response. For example, one participant described the difficulties of keeping up to date on the evolving situation of the response and how having a network of personal contacts in an area helps when gathering information regarding the state of affairs in that area. The participant further emphasized that, even though there is a limit to the information that comes through official channels, if "you have a close enough personal relationship with folks, they will at least share with you what they can."

A second participant claimed that you "can't underestimate the importance of relationships" and qualified that "you don't want to be exchanging greeting cards . . .on the day of the event." The participant believes that having personal relationships is incredibly important and that it is necessary to establish these relationships before an emergency occurs – these relationships facilitate better information sharing and higher levels of cooperation. Another participant corroborated this statement by emphasizing how a prior relationship had allowed for high degrees of information sharing that was probably not shared across agencies officially.

Relatedly, civil-military coordination in previous emergencies made coordination in the COVID-19 response feel like "second nature." Having civil and military leaders who understand the other partner's goals may lead to more efficient and effective response. One participant who had worked with the military on the response to Hurricanes Sandy and Irma felt that the civil-military coordination for the COVID-19 response was "kind of second nature." While the military's support for Hurricane Sandy mostly involved logistics, for Hurricane Irma, the military dispatched medical teams to staff hospitals and provide security, staff hospitals, and manage logistics.

Participants reflected on how military and civil actors oftentimes have different approaches in emergency response. These varying approaches may lead to challenges that may distract teams from the goal of the mission. One participant suggested that there could be groups that have understandings of the different strengths and potentials and then act as "translators" and that there are "the right leaders in place that know how to act on both sides." In terms of pandemic

response, one participant commented on how health and medical actors are well-experienced in engaging the local community, which is critical to this type of response – military actors may not have as much experience in this area.

ii. Skills and Expertise the Military Contributes to Pandemic Response

Military operations exist within clear regulations and mission requirements. In most instances, civilian agencies requested DoD support for their missions. One participant commented on how DoD first engaged in COVID-19 mass vaccination in a supporting role: "We provide [the] Department of Defense with mission requirements[,] we say we need support doing X, Y and Z and the Department of Defense sources those resources for us." The DoD teams supporting civilian agencies included Command and Control elements, clinical teams, and pharmaceutical teams.

Civilian participants cited many strengths of the military in these supporting roles for pandemic response. Specifically, the military set up mobile COVID-19 testing tents, supported mass vaccination campaigns, and provided security. The military helped civilian responders by either providing additional personnel or logistical support. One participant highlighted the strength of the military who supported the mass vaccination, especially healthcare professionals within the military, the "medics and the doctors". The military contributed specific and professional-level training in medicine and public health. One participant shared that there were quite a few physician assistants and nurses from the military who supported the COVID-19 response. Another colonel was an epidemiologist and identified hospitals that were surging or would soon experience a surge of COVID-19 patients.

Due to the emergency, the normal contracting process where multiple bids must be considered was bypassed and one participant was surprised at how fast the military finished contracts, citing the process as quick and efficient. A third participant cited the military's regimented and top-down structure as the key to its ability to complete tasks quickly and in an organized manner. This participant elaborated that "National Guard . . . move[d] very fast and efficiently when providing logistical support".

Overall, civilian participants reflected and spoke positively about their engagement with military actors in the COVID-19 response. One civilian participant shared how the COVID-19 pandemic facilitated a new level of engagement between their civilian agency and the military: "We never worked with [the military] to that level before, I mean that was kind of new." The military's "logistics and organization capabilities" were cited as a key strength. Both civil and military actors respect each other's expertise:

> **"We respected their expertise, they respected ours . . . we let them do all the communications and logistics work[,] and they let us take care of patients, . . . that's what we do best and they did the other stuff very well[,] as well."**

iii. Policies that Inform Civil-Military Coordination

One participant discussed DSCA, explaining how this policy allowed military personnel to support the "zillion medical staff" who were overwhelmed by the COVID-19 response. However, this participant elaborated that the military notably did not receive extra funding towards this mission and expected to allocate their own funding towards the COVID-19 mission. Another participant described how "FEMA had overall lead of the operation," but that military members "were the actual staff on the ground . . . doing the day to day job."

One participant discussed how there were initially "growing pains with working with the civilian side." The participant elaborated that FEMA required military members to be present at a mass vaccination site which led certain civilian staff members at the site to be fired. However, according to this interviewee, the military and civilian sides eventually worked very well together, with the civilians in charge and the military providing support.

Multiple participants discussed the importance of having liaisons between the military and civilian sides of the response to support successful coordination. One participant stated that the two sides "don't always know the same language . . . [not] English and Spanish. . . like military and civilian." By having a military-civilian liaison, the two sides could circumnavigate differences in objectives and understanding and successfully coordinate the response.

Law enforcement was often overwhelmed during the COVID-19 response and needed assistance. Due to the Posse Comitatus Act (PCA), the military is disallowed from engaging in traditional law enforcement activities. Multiple participants emphasized the importance of the PCA when asked about engagement in law enforcement activities or support for law enforcement in any capacity. Law enforcement, however, sometimes assisted the military by either providing security at mass vaccination sites or providing information to the military. However, the National Guard assisted law enforcement on multiple occasions. One of the most publicized instances of National Guard-law enforcement cooperation occurred when the National Guard assisted Rhode Island state police and border patrol in informing those arriving from out-of-state about the state's quarantine expectations. This was misconstrued as military members detaining out-of-state civilians.

   d. Challenges

i. Limits of Pre-COVID Emergency Response Plans

Existing emergency response plans (pre-COVID-19 pandemic) made assumptions that were tested and questioned throughout the pandemic.

Existing emergency response plans did not anticipate that there would be multiple concurrent disasters. One participant reflected:

> **"You're handling multiple different responses at the same time and then your recovery all blurs together so you're recovering from COVID and a blizzard and a**

> **hurricane and in the South,parts of Louisiana [were] recovering from . . . five**
> **hurricanes that impacted them in the last two to three years."**

The color of various tents reflected how officials were responding to multiple concurrent emergencies: " The latest [tent] is from [Hurricane] Ida[,] but before that it was this and before that it was this[,] and you'll see like three or four different colored tarps on roofs . . . you can't even tell what damage is from Ida versus what damage is from the last few hurricanes."

Another assumption of the existing emergency response system is that an emergency will be localized and that all emergency response resources may be allocated towards this single, localized disaster. With the COVID-19 response, however, there was a national emergency: "Teams were cycling constantly; we had at one point when I was on the incident management team, when I was activated in January, we had teams in nine out of the 10 [FEMA] regions." Furthermore, while emergency response team members traditionally come from the same location, with COVID-19, more staff were pulled from across FEMA regions and across different teams: "You would end up with teams that had a couple people from this state, a couple people from that state[,] and a couple people from [a third] state."

One Medical Emergency Distribution System (MEDS) Points of Dispensing (PODs) Plan, for example, offered guidance on how to administer a vaccine (such as for anthrax) to a population over a short period of time "to vaccinate or provide a medication to 180,000 people within four or five days . . . [,] running [24/7] operations [at]multiple different sites." Two incorrect assumptions for COVID-19 mass vaccination were that there would be sufficient vaccine supply to vaccinate an entire population within a period of four to five days and that everyone would be willing to take the vaccine. The plans did not assume that mass vaccination would continue for at least a couple of months and that there would be vaccine hesitancy.

ii. Burnout Amongst Civilian and Military Responders

Participants discussed the struggles of working for incredibly long hours, as well as trying to mitigate the burnout that occurred among military members as a result. One participant discussed significant logistical work that went into avoiding burnout among military members in the response, such as providing higher quality meals and making sure that any individual member did not work longer than necessary. A second participant discussed how the threat of significant burnout of the military during the response was a concern because a large part of the military was just out of high school. These military members were very young and susceptible to viewing themselves as "invincible to the world" and overworking themselves. Another participant discussed how the work was monotonous; this may contribute to burnout due to the lack of variation in the day-to-day work. Additionally, while being away from home and loved ones during an emergency may be normal for these individuals, it can also be a challenge from a mental health and motivation standpoint when military members could be from outside of the local area.

Like the military, civilian COVID-19 responders worked long hours – for mass vaccination, staff arrived at 5:30 AM and left around 11 PM so that residents could get vaccinated after work. Other staff supporting the COVID-19 response worked 12-16 hours per day. The experience-level and expertise of a team is another concern relating to staffing and burnout. One participant with an entry-level team felt that they could only assign individual tasks to their staff and soon hired a Deputy Director with experience in humanitarian response to lead and coordinate the COVID-19 response. In addition to paid staff, volunteers played key roles in the early COVID-19 response: Volunteers provided emergency food distribution, set up mutual aid networks, and supported the mass vaccination campaign. One participant shared that like staff, volunteers soon burned out. This participant elaborated that it was unreasonable to expect staff and volunteers to work at such high capacity for such extended periods: "We burned out . . . staff members who quit[,] . . . we burned out all of our volunteers and we burned out medical directors, because it was a requirement that you have a certain level medical licensed person on [site], you can do [it if] you only have a week or two of these, but [not] when you're running [mass vaccination sites] for six to seven months."

Certain types of paid staff responding to the COVID-19 pandemic were not compensated for all their hours worked. While entry-level and Union staff responding to the COVID-19 pandemic were paid for the total hours work and overtime, salaried staff and non-Union employees were not compensated for all their hours worked. Executives, oftentimes at the state or local levels, made decisions about whether to compensate salaried staff and non-Union employees – and some chose to not provide compensation. One participant shared: "When you say to somebody, I want you to work 35 hours a week, and they work twice that and don't get paid more, they don't like that, when you do it for a year, they really don't like it." While some leaders aimed to foster a positive organizational culture and a motivation to help when "people are suffering together," one participant felt that quality of work may suffer over time, especially when staff have not been compensated appropriately.

iii. Civilian Apprehension Towards Military Actor Involvement in Response

Some civilians, usually at mass vaccination centers, were apprehensive about military presence. One of the participants mentioned that governors and leadership may have concerns that federal troops operating in the U.S.A would make it appear like the state is not "self-sufficient," and may make civilians apprehensive about "soldiers…marching through the streets and telling them what to do." A second participant echoed this sentiment that governors did not want civilians to feel that federal troops were involved in the response.

The public was often mistrustful of the military and their presence in the response. The military often addressed this concern to successfully complete their work. Military members, especially at mass vaccination sites, often dealt with a portion of the public that was generally mistrustful and questioned the military's presence in the response. One participant described the public having a generally "very positive perception" of the military, but that "some of these people …their preconceptions were different". However, the participant noted that, even though some people had a negative preconception of uniformed members in the response, when they realized

that they were "just normal people" who happened "to wear a uniform, they were very accepting."

Another participant discussed how "military members showing up in uniform for some people was a little intimidating" which led to "some people…that refused to get vaccinations from people in uniform." his did not become a major concern because it was easy to redirect civilians who refused to be vaccinated by the military to civilian vaccinators. Furthermore, a different participant noted that they only recalled one person who refused to be vaccinated by a military member. Ultimately, most participants claimed that, overall, it appeared like civilians left mass vaccination sites with a positive impression of military members and their role in the response after engaging with military members at the site.

In Rhode Island, the National Guard assisted the state police in identifying individuals who had traveled from out of state at the border and informing these individuals about quarantine expectations for out-of-state visitors r. This quickly was misconstrued as the military locating and detaining people with out-of-state license plates. One participant described how this case showed how educating the media and public about what is actually happening becomes part of the response, as it is important to clarify public misunderstandings. These border interactions caused significant media attention when Governor Cuomo from New York expressed his anger to Governor Raimondo, which was based on inaccurate information as to the nature of the border mission.

Participants described numerous challenges that came up because of civil-military coordination. One issue that participants noted was ensuring that the original civilian organizations who led missions remained in charge of the project; for example, one participant discussed how the military "wants to help them out without sort of ceding the whole problem to federal authorities." A second participant backed this notion: "There are lots of issues in terms of…who's in charge theoretically." Another participant claimed that there were instances of "duplicated effort or some wasted effort" that resulted from both civilian and military organizations working jointly.

Multiple participants discussed a disjoint between the military approach and the civilian approach in administering vaccines. While the military aimed to maximize the number of vaccine doses administered, civilian medical teams were more concerned about vaccine prioritization, as well as how many vaccination slots should be offered. One participant discussed how "there was a lot of consternation back and forth" because the military leadership on site argued for offering 3200 appointments to guarantee a yield of 3000 doses administered, while civilian leadership opposed the idea. Multiple civilian and military participants mentioned this idea, so this appears to have been a source of notable friction between the military and civilian sides. In one FEMA Region 1 state, there was a large amount of confusion and disagreement about reimbursement for vaccinations if the military administered it versus civilian medical providers. According to one participant, this varied by state and locality but in their posting this disagreement ultimately resulted in military vaccinators not being used in the convention center.

iv. Lack of Resources

COVID-19 testing initially followed a centralized approach with only CDC-approved tests, but eventually transformed into a decentralized initiative. One shortcoming of early COVID-19 testing was the requirement to use CDC-approved tests – one participant shared that one month of the opportunity to contain the spread of COVID-19 was lost due to this policy. At local levels, testing first commenced with hospital employees. Drive-through testing was available first to ensure "maximal precautions", but then testing tents that could screen up to 100 hospital employees daily were set up.

Nearly every participant stated that lack of necessary resources or personnel were the main challenges -they faced throughout the pandemic response. For example, one interviewee reported that high-quality needles to administer the COVID-19 vaccine were especially scarce. This created a situation in which vaccinators were reportedly unable to get full usage of each vial – most vaccine vials had five to six doses and one to two doses were lost from each vial due to the lower quality needles.

One participant described how hospitals would be overrun – with emergency rooms overfilled, ventilators all used, every ICU bed occupied, and a lack of healthy and fit personnel to staff the hospital. A second participant described scrambling to find tests and vehicles for the use of their unit, as they were overwhelmed in the response. Another participant described how hospitals and mass vaccination sites needed temporary staffing support, which encouraged the military to train the military as certified nursing assistants. Yet another participant discussed the struggle of acquiring PPE because there was an evident lack of supplies due to the incredibly high and shared demand. One participant described how, since COVID-19 was a uniquely global pandemic, normal disaster response tactics, that would usually involve sending resources and personnel to the stricken area, would not work because everybody was "vying for the same resources."

One participant reflected on how there is no surge capacity at hospitals and that the military was used to fill in these gaps. This participant felt that this was a failure of the system and that having military members at hospitals went too far. The same interviewee claimed that governors like to have the military visible in the response – to mobilize the military and the National Guard and, because they assume that military presence increases public confidence. Relatedly, another participant reflected that engagement with local officials always felt like an "afterthought" in their state's COVID-19 response. This participant had positive feelings about their engagement with the National Guard but shared that their engagement was limited because the state kept the National Guard at their level.

v. Information Scarcity and Communication Challenges

Participants described how one of the largest challenges of the response was the lack of knowledge and direction about how to proceed and move forward. One participant summarized one of the primary issues in a significant understatement: "This was a little bit different from our typical response." Most participants strongly shared the idea that COVID-19 was a dramatically different threat that necessitated a significantly different response. The same participant

discussed how the response was characterized by "a lot of unknown" and that "a lot of the time we spent…was trying to understand what communities actually needed." A second participant noted that "there wasn't a huge amount of guidance available." Another participant stated that they felt like they were "building the airplane while they were flying" and "none of us had done this before."

Public health and emergency response officials at both the state and local levels had to find creative ways to acquire COVID-19 data to inform their policies and response. Officials at both state and local levels reflected that the information and data received from either federal or state government "was not really helpful." In one state, local responders only started to receive COVID-19 data from state leadership in Summer 2020, a few months into the COVID-19 pandemic. Civilian agencies made policy decisions with limited or imperfect data; many civilian agencies faced challenges in accessing state or local-level data from executive offices (such as the federal government/President's Office and the Governor's Office). With limited and imperfect data, civilian leaders used data from Europe to inform policy. Local responders therefore filled in the gaps by adapting/scaling data from China, Europe, and federal data acquired through personal connections.

Responders maintained their own Excel spreadsheets to understand the burden of COVID-19 in their locality. Local leaders felt that acquiring and informing their response through municipal data was important as their locality and the needs of their locality differed from those of the state. At the state level, local governments seeking COVID-19 data often watched daily COVID-19 briefings to access the latest COVID-19 statistics. One participant doubted the effectiveness of these state-level statistics. The state-level aggregate data, rather than more nuanced local-level data, limited the scope of the development of evidence-based policy: "It was incredibly frustrating, and it really didn't give us the information that we needed to make decisions that would drive policy . . . if you've spent any time [our city, the] city . . . is not representative of the state . . . at all." The locality sought a more nuanced approach to policy development but was unable to achieve this goal due to the limited availability of local-level data: "We felt strongly that we needed to be making decisions based on the demographics and associate economic situation of residents of the city which was not necessarily the same information or decisions that needed to be made statewide."

With limited COVID-19 data, civilians used data from Europe and specifically, from Italy, which was a few weeks ahead of the United States' COVID-19 curve, to inform policy development and response. Local leaders later used data from New York to inform their response. To account for the demographics of their own locality, responders created spreadsheets and weighted statistics from Europe and New York City to predict the COVID-19 curve in their locality: "I was literally calculating based on our demographics and our census block data and I had an Excel spreadsheet that I was plugging in our census data and our demographics and our percent non English speaking and our present over age 65 and all of these factors will decrease fatality rate that we were seeing in Italy and doing the math from there." To supplement gaps in data, participants leveraged their personal networks and accessed data in ways that were outside of the scope of

their roles in emergency response: "We feel like we're . . . undercover . . . Boston Globe reporters that are investigative journalist . . . because. . . we had sources and I would . . . text or call my source and be like[:] Hey[,] what are you hearing[,] what are you hearing . . . I can't get this [from] official channels[, so]what do you [have] for me?"

Data from the federal government more readily reached states from 2021 onwards.
A similar lack or breakdown of communication between varying levels of government agencies made the COVID-19 response less efficient. One participant shared an anecdote about how FEMA planned to distribute 9000 additional vaccine doses over an entire week. The local Mayor's office acquired this information and notified the public, leading to "on a very hot day we had about 4000 people lined up on the streets to get shots."

There were also instances where key details about COVID-19 vaccination clinics changed with short notice, such as the type of vaccine that would be offered: "They would change the information on a dime; like I was told 24 hours before I was supposed to run [a clinic,] I had 850 elders so at that point we're doing 65 plus[,] so I had 850 65-plus-year-olds registered for a vaccine and 24 hours before we were scheduled to open the clinic at 8am . . . that truck didn't arrive . . . you don't have [Moderna,] you have Pfizer like you either cancel all of those people and reschedule them or you give them Pfizer. We had never used Pfizer before." Another participant conveyed a similar concern: The federal government did not provide the resources they had committed to for the COVID-19 response, sharing that "we were supposed to get 25% of our supply, then the other [supplies were] . . . to come [at a] later date – we got the 25% . . . the 75% [did not] exist."

vi. Responding to Concurrent Emergencies
Emergency management responded to various concurrent disasters over the first few years of the COVID-19 pandemic, including hurricanes and tropical storms, blizzards, severe flooding, earthquakes, and civil unrest.

Multiple participants responded to weather-related disasters - including hurricanes, tropical storms, blizzards, severe flooding, earthquakes - as well as other missions regarding the Southwest border migration surge and the Afghan evacuations while responding to the COVID-19 pandemic. One participant shared that the COVID-19 mass vaccination campaign was just one part of their Regional Response Coordination Center. All three participants worked on the Eastern United States (FEMA Regions 1-4) and reflected on how there was greater risk for disasters from wildfires on the West Coast and due to historic flooding in the southeastern United States. Emergency responders on the West Coast and in the Southeast responded to COVID-19, as well as concurrent wildfires and historic floods: "[I am] talking to my colleagues down in Texas and California [and they have] had to do all of [COVID-19,] but [they] also had historic hurricanes and floods and wildfires." One participant reflected on how emergency response and "recovery all blurs together" when responding to so many concurrent disasters. Some parts of the United States were so hard-hit by disasters that it became difficult to distinguish the damage from each disaster.

On-the-job training and virtual deployments made it easier for emergency management to respond to concurrent disasters during the COVID-19 pandemic. Government employees were reassigned to support the COVID-19 response and other concurrent disasters. Staff came from the Army Corps of Engineers, the Peace Corps, the Coast Guard, and federal agencies like the Federal Aviation Authority, Veterans Affairs, HHS, and the Department of Transportation. Most of these staff did not have an emergency management background and required on-the-job training in staffing, logistics, and planning. One participant reflected that there was lots of flexibility in the workforce and the willingness to fill various emergency management positions. Emergency management also implemented virtual deployments, which allowed agencies to assess which staff members had to be in-person and limited the number of staff in-person at Emergency Operations Centers. For example, agencies devised a way to conduct damage assessments virtually.

vii. Structural Racism and Inequality in Health Outcomes

The COVID-19 pandemic brought attention to structural racism –various social programs throughout the pandemic aimed to address the social determinants of health. Civilian medical and public health responders approached the COVID-19 response with a health equity framework and employed innovative solutions like mobile testing and vaccination clinics to address barriers to access to care, as well as the social determinants of health.

One participant described the challenge – and infeasibility – of addressing structural and systemic challenges relating to the COVID-19 pandemic overnight and through rapid pandemic/emergency response:

> **"As much as you want to prevent adverse health outcomes in high density communities and people of color, we just weren't able to, to the extent that we wanted to[,] and that's one of those things where because it's really hard to prevent problems when the structural, social determinants of health are already there, for example in high density [areas] . . . people are all living close together in small houses, it's really hard to change that overnight, it's hard to change it [in a] year, [and] is not even changeable for some people."**

Addressing disparities that became evident during the COVID-19 pandemic will require addressing the social determinants of health, including "safer neighborhoods, health homes, better schools, . . . [and] increase[d] health literacy." One participant cited initiatives such as home food delivery for residents in quarantine and providing hotel accommodations for unhoused residents and "unemployment cash assistance to help people replace their lost income" so that individuals could pay their bills and avoid eviction.

All levels of government, from the federal government and White House to city government, remained committed to equity and "[took] extra steps to make sure marginalized and underserved communities were the ones getting access to those vaccinations." Some barriers

participants discussed include "interacting with military", language barriers, immigration and residency status, time out of work, and long wait times. Mobile clinics allowed medical services to be delivered within communities and in spaces residents who may have language barriers or be undocumented felt comfortable approaching for medical care and COVID-19 vaccination.

VI. Recommendations

1. Pandemic response roles should first be filled by civilian responders; the military should engage in the response when there is no civilian resource to fill a need – and only until such time that a civilian responder can step in.

Multiple participants stressed that the military should be a back-up or a last resort, stepping in if a civilian is ill or if there are no civilian entities that may fill a need. Even when the National Guard becomes engaged in pandemic response, there should be clear plans and timelines to replace the military with civilian responders. Military participants reflected that throughout the COVID-19 response, the National Guard seemed to be the default solution to quickly increase capacity and address personnel shortages. In one interview, a participant shared that civilian staff at a mass vaccination site were laid off once the military joined the mission. There were no plans to replace the military with civilian actors in the COVID-19 response – the military was engaged in the pandemic response throughout, with their roles shifting from mass testing to mass vaccination to substitute teaching at under-staffed public schools.

Another consideration of engaging the military in pandemic response is that while the National Guard has a broad scope of permitted duties, other branches of the military are more limited in how they may engage in pandemic response due to the PCA. Title 10 military can act on domestic soil under the command of the national guard in certain roles. This gets a little complicated and needs more education broadly. For example, under the PCA, the traditional military may not serve in a law enforcement role. The National Guard, however, supported law enforcement in varying capacities, such as with border patrol at the Rhode Island state border to inform out-of-state visitors about the state's quarantine requirements.

To inform future pandemic response, public health and emergency response decision-makers should document the key functions and roles of the military in the COVID-19 response. To most effectively allocate limited resources in an emergency, these leaders should assess whether a civilian entity could have filled these various roles in an emergency and determine which duties may be most effectively completed by the military in emergency response. Policymakers should develop protocols with more clearly defined thresholds for and decision support criteria on when and how to engage the military in future pandemic response. These guidelines should include key steps to disengage the military from the response and transition to entirely civil-operated response. Furthermore, public health and emergency management leaders must clearly outline an endgame for pandemic response and the criteria for concluding the emergency response.

2. Investments should be made to ensure sufficient staffing and human resources at government public health and emergency response agencies. Public health and emergency response agencies may want to hire staff with experience in humanitarian response. Hospitals should create internal systems to ensure sufficient staffing when there is a surge of patients, such as during a pandemic.

Ensuring Sufficient Staffing and Emergency Response Expertise at Civilian Government Agencies
Some civilian agencies felt that their staff was too entry-level to take initiative and lead during the COVID-19 response. Team leaders assigned individual tasks to these team members but could not assign these staffers to lead larger programs or initiatives, such as operating and managing mass COVID-19 vaccination sites. Civilian public health and emergency management agencies should ensure that all or most of their staff may take responsibility during an emergency. Staff should ideally be able to work with little oversight and supervision from leaders who oftentimes must simultaneously lead large initiatives such as mass testing and mass vaccination and also inform and collaborate with state and local executives on policy decisions.

Public health and emergency response agencies should offer pandemic response training to all staffers. Hiring staff with previous experience in and/or knowledge of humanitarian response may especially increase emergency response knowledge and capacity. One participant shared that they hired an administrator with experience in international humanitarian response early in the COVID-19 pandemic; this administrator made significant contributions to the team and led mass vaccination campaigns. Burnout, as well as unpaid overtime hours worked were two concerns for staff at civilian agencies. Civilian agencies should establish clear policies that guarantee that all staff, both salaried and non-salaried, receive overtime pay for all overtime hours worked. Civilian agencies should also offer staff sufficient support and time off to prevent burnout – agencies should encourage staff to take earned vacation time, even during an emergency. Agencies should be able to reassign other staff from the team to fill roles when regular staffers are on vacation.

Creating Systems for Surge Capacity Staffing at Hospitals and Health Systems
There were widespread staffing shortages within the healthcare industry throughout the COVID-19 response. To fill these staffing needs, providers were reassigned from other departments, contract nurses were hired, and federal Military Medical Teams augmented civilian hospitals when civilian resources had been exhausted and COVID-19 caseloads continued to increase. Recent analyses suggest that hiring temporary health care workers, such as travel nurses, was extremely costly for hospitals and health systems: The average travel nurse salary is just under $4,000 per week and that during the peak of the pandemic, traveling Intensive Care Unit nurses earned $10,000 each week[71]. Other studies found that travel nurse expenses constituted about 50% of hospital budgets for nursing salaries[72].

Participants shared that there is currently no surge capacity at hospitals. In the future, there may need to be some surge capacity, whether for another global pandemic or another disaster. Health systems may therefore need some staffers either working fewer hours or on stand-by to ensure

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[71] Sable-Smith, Bram. 2023. "Temp Nurses Cost Hospitals Big During Pandemic. Lawmakers Are Now Mulling Limits." *Kaiser Health News* (blog). March 17, 2023. https://khn.org/news/article/temp-nurses-missouri-legislation-hospital-costs/.
[72] American Hospital Association. 2022. "Massive Growth in Expenses and Rising Inflation Fuel Continued Financial Challenges for America's Hospitals and Health Systems." American Hospital Association. https://www.aha.org/system/files/media/file/2022/04/2022-Hospital-Expenses-Increase-Report-Final-Final.pdf.

sufficient staffing during an emergency. Developing internal surge staffing capacity within each hospital or local health system may lower costs in the long-run – the current data suggests that contract nurses and other healthcare workers may be more expensive than maintaining internal surge staffing capacity[73,74].

3. Pandemic response leaders must better assess how to allocate duties between civilian actors, the military, and private industry.

Civilian actors, the military, and private industry were instrumental in the U.S.' national COVID-19 response. While civilian health and emergency response agencies led and coordinated the COVID-19 response across the nation, these agencies partnered with the military and private industry to implement various policies. The military also filled crucial roles throughout the COVID-19 response, from mass testing to mass vaccination to even serving as substitute public school teachers and augmenting clinical staff at hospitals as part of Medical Military Teams (MMTs). One state health agency, for example, contracted with private industry to ensure sufficient staffing, doubling the size of their organization during the peak of the pandemic. A mass vaccination site partnered with a private company that operates marathons to determine the design, set-up, and patient flow at the site. Now that there is a better understanding of key duties that must be completed and capacities that must be filled in pandemic response, public health and emergency management officials should identify the parties that are best suited to complete each of these tasks and fill each of these capacities. Leaders should determine how to allocate duties amongst civilian agencies, the military, and private industry, considering each party's expertise. Public health and emergency management leaders should also consider the associated financial costs and the need to maintain healthy working conditions and avoid staff and responder burnout.

4. Military, including the National Guard, should fill logistical and human resource gaps in pandemic response only when there is a defined need. Pandemic response missions should continue to be operated by government civilian agencies, with the Department of Defense serving a supporting role.

The military may fill the need for key logistical and organizational capabilities in pandemic response. This includes logistical support for mass vaccination sites; rapid contracting and engineering capabilities for Alternative Care Sites and vaccine manufacturing; and the rapid deployment of military personnel to fill capacity gaps in both clinical and non-clinical roles. In addition to these roles, the military organized freshwater distribution, food distribution, and the National Guard assisted law enforcement as part of the COVID-19 response. The ability to rapidly increase capacity, such as the number of tests administered at a mobile testing site or the number of vaccine doses administered at a mass vaccination site, is another key strength of the military. Some military officers were also trained in medicine or public health and contributed these technical skills to the COVID-19 response. These officers' clinical and/or public health training

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[73] Sable-Smith, "Temp Nurses Cost Hospitals Big During Pandemic. Lawmakers Are Now Mulling Limits."
[74] American Hospital Association, "Massive Growth in Expenses and Rising Inflation Fuel Continued Financial Challenges for America's Hospitals and Health Systems."

allowed them to make data and evidence-based policy decisions. One officer and epidemiologist, for example, identified which hospitals would experience a surge in COVID-19 cases.

DoD had a supporting role in most of its engagement in the COVID-19 response, including for the COVID-19 vaccination campaigns. DoD should continue to support civilian agencies leading these efforts in future pandemic response, rather than lead the response. This relates to how the military should only be engaged in emergency response as a last resort and when all civilian resources have been exhausted. It is important to acknowledge that civilians may be apprehensive about military presence in their communities – multiple civil and military participants shared that some patients were uncomfortable with military presence at mass vaccination sites and preferred to receive the COVID-19 vaccine from civilians, rather than military vaccinators.

5. Emergency response plans and frameworks should be updated to account for a global pandemic or national disaster, and specifically outline how to allocate scarce resources during emergencies that impact the entire nation.

Inconsistent emergency response plans were one key limitation of the COVID-19 response. Most pre-COVID-19 emergency response plans assumed that there would be a single, localized disaster and that all the nation's resources could be allocated towards that single event. A global pandemic like COVID-19, however, strained the nation's existing emergency response system, especially during hurricane and wildfire season when multiple concurrent disasters occurred. Incident management teams were constantly deployed during the pandemic. In addition to the strain and burnout from continuous deployment, these teams may have been less efficient. To meet the demand for emergency responders, staff were recruited from across the country, rather than from one geographic area, and team members had to learn how to work together as they responded to an emergency.

Similarly, existing mass vaccination plans assume that there will be sufficient supply to vaccinate an entire population within a period of four to five days. Initial supplies of the COVID-19 vaccine, however, were limited and initially only made available to only healthcare providers and first responders. Only months later, in Spring and Summer 2021, were COVID-19 vaccines widely available to the American public. Mass vaccination sites were therefore in operation for months at a time and open for extended evening hours and on weekends to ensure that working adults were able to be vaccinated.

Updated emergency response plans should outline how to allocate limited resources, including personnel like incident management teams, with multiple concurrent emergencies across the nation. These emergencies include winter snowstorms and blizzards in the Northeast, hurricane season in the Southeast, wildfire season on the West Coast, and tornadoes and flooding across the country. Public health and emergency management leaders should also develop guidance on how to administer a novel vaccine or treatment to an entire population over an extended period (such as three to four months). This should include direction on how to prioritize vaccine

administration when supplies are limited, as well as guidance on how to train non-clinicians (such as the military) to administer vaccines or other novel treatments. Our interviews revealed that most vaccinators from the military were non-clinicians and received training on vaccine administration on the mission.

The U.S. military's leading role in Operation Warp Speed demonstrates that the military contributes essential expertise to vaccine distribution, such as the development of ultra-cold chain storage systems across the nation. The U.S. military's strategy to develop ultra-cold storage capacity to distribute COVID-19 vaccines across the country may inform guidance on how to increase capacity to transport and distribute countermeasures with unique storage and transportation requirements in the future. Public health leaders should assess and identify when and how to engage the military in vaccine distribution. These updated plans could also offer guidance on how to address mis- and disinformation and vaccine hesitancy; multiple participants, especially civilian participants, shared that communication remained a challenge throughout the COVID-19 pandemic and for COVID-19 vaccines.

Public health officials should also revisit the existing guidance on how to administer a vaccine over a shorter period (three to four days). Leaders should determine whether lessons from the mass COVID-19 vaccination campaign may inform vaccination plans to administer countermeasures that are available at sufficient supplies to vaccinate an entire population within a short time.

6. Federal data should be shared directly with and be readily accessible to both state and local leaders to facilitate data-informed policymaking.

There should be more transparent data sharing across various levels of government, from the federal to the state to local levels. To facilitate data-informed policy- and decision-making, government executives should collect and share data as local as the city-level publicly to all Americans, or at least with all government agencies. Our interviews found that granular data is available – and was available early in the pandemic; this data, however, was officially kept at the federal level and if this data was shared with state leaders, they did not always pass these data on to local leaders. The federal government should establish policies and systems to share data directly with local leaders to facilitate data-informed policymaking. Localities differ from counties and states and local leaders, whether mayors or emergency management leaders, should have all the available data to make the best policy decisions for their constituents. Furthermore, the federal government could require that state leaders, such as state health departments, must share federally collected data with localities and counties in their state.

7. More EPLOs should be deployed to facilitate civil-military coordination early on in pandemic response. There should be intentional efforts to facilitate socialization between different emergency response actors.

Both civil and military participants shared that civil and military actors have different approaches to their work and oftentimes aim to achieve differing goals or varying targets through their work. For example, with the mass COVID-19 vaccination campaign, military actors aimed to maximize the number of vaccine doses administered, while civilian agencies sought to achieve certain equity targets outlined by the federal government. Having more liaisons on both the military and civilian sides will allow both parties to navigate their different approaches and will facilitate a more coordinated response. NEPLOs facilitate the DSCA, the policy that guides the military's support to civilian agencies. The NEPLO coordinates with Naval teams deployed to their state and ensures that both civil and military actors understand the scope of each party's involvement in the mission and the limits of their role in the mission.

Military and civil actors should learn about each other's goals and organizational structure and culture as part of their training. Both parties should understand the strengths and skills each party brings to pandemic response, such as the military's ability to quickly scale initiatives to have the desired impact and civilians' expertise at engaging local communities. Given the significance of personal relationships in the COVID-19 response, there should be ample opportunities for civil-military networking before a disaster occurs. Both civil and military leaders should maintain and expand networks fostered during the COVID-19 pandemic and use these networks to assess and determine what may be improved in future response. Exercises and simulations likely offer the best opportunities to facilitate training for future pandemic response.

Personal networks were instrumental in the COVID-19 response, both for information sharing and to facilitate the overall response. Information gathered through these informal, personal networks allowed participants to acquire more granular and specific data during periods where there was limited data sharing outside of individual government agencies. This information sharing allowed leaders of the COVID-19 response to make data-informed policy decisions and facilitated a more nuanced response. There should be intentional efforts to build professional networks across various levels of government (federal, state, and local), as well as between civil, military actors, and private actors. The Center for Human Rights and Humanitarian Studies' annual Civil-Military Coordination Workshop that brings together more than 100 civilian and military actors each year is an example of convening both civil and military actors. The two-day workshop aims to identify new opportunities for training and research in civil-military coordination and offers attendees both formal and informal opportunities to network with practitioners, academics, and leaders.

8. Pandemic response medical records, such as for mass testing and mass vaccination, should be integrated into local health departments' and/or local health systems' information management systems when appropriate.

Our interviews found that EMRs at ACS and mass vaccination record systems were integrated into either local health departments' or local health systems' information management systems. This integration allowed patients to be transferred between ACSs and main hospitals and ensured that collection of health data was HIPAA-compliant. Future pandemic response should similarly

aim to integrate these data management systems to facilitate the transfer of patients between ACSs and main hospitals and ensure that data collection complies with HIPAA regulations. Integrated systems will allow for more streamlined data management and allow civilian agencies to better track progress towards their targets, such as the health equity targets for the mass COVID-19 vaccination campaign.

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