



# **NAVAL POSTGRADUATE SCHOOL**

**MONTEREY, CALIFORNIA**

## **THESIS**

**PANDEMICS: A THREAT AGAINST  
U.S. MILITARY FORCES**

by

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March 2023

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**PANDEMICS: A THREAT AGAINST U.S. MILITARY FORCES**

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Submitted in partial fulfillment of the  
requirements for the degree of

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## ABSTRACT

The 2020 Coronavirus (COVID-19) pandemic brought military training, deployments, and ultimately troop movements to a screeching halt. As of May 24, 2021, the U.S. Department of Defense (DOD) produced an unclassified report stating that 194,345 service members had contracted COVID-19 to-date; unfortunately, 26 of these service members died. Ultimately, COVID-19 has demonstrated how disruptive a pandemic is on daily life, in and out of uniform. In many respects, though, this experience is neither new nor surprising; disease outbreaks and even pandemics have existed long before COVID-19.

A pandemic, while a rare occurrence in the world, is an increasingly concerning threat to U.S. national security. Twenty-first century technological and dynamic transportation systems have enabled military forces to deploy enormous capacities across the globe within hours. This transport capacity, while impressive, necessitates an important warning for national security: an infectious disease is just as transportable. For military forces that deploy across the globe, this threat has the ability to debilitate military readiness in hours. Therefore, which factors have enabled strategic responses to better preserve military readiness in the face of past pandemic and endemic epidemiological threats? Uncovering these factors will inform new military medical practices and procedures.

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## LIST OF ACRONYMS AND ABBREVIATIONS

|            |                                              |
|------------|----------------------------------------------|
| AWOL       | Absent Without Leave                         |
| CCIR       | Commanders Critical Information Requirements |
| CDC        | Center for Disease Control                   |
| CENTCOM    | Central Command                              |
| COCOM      | Combatant Command                            |
| CONPLAN    | Concept of Operations Plan                   |
| COVID-19   | Coronavirus of 2019                          |
| DHS        | Department of Homeland Security and Defense  |
| DOD        | Department of Defense                        |
| EOC        | Emergency Operations Center                  |
| FDA        | Food and Drug Administration                 |
| GAO        | Government Accountability Office             |
| H2F        | Holistic Health and Fitness                  |
| HHS        | Depart of Health and Human Services          |
| JFCOM      | Joint Forces Command                         |
| MEDCOM     | Medical Command                              |
| MOS        | Military Occupation Specialty                |
| NORTHCOM   | U.S. Northern Command                        |
| PACOM      | Pacific Command                              |
| SARS-CoV-2 | Formal name of Coronavirus                   |
| U.S. EUCOM | U.S. European Command                        |
| U.S.S.     | United States Ship                           |
| WHO        | World Health Organization                    |
| WWI        | World War I                                  |

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# **I. PANDEMICS: A THREAT AGAINST U.S. MILITARY FORCES**

A pandemic, while a rare occurrence in the world, is an increasingly concerning threat to U.S. national security.<sup>1</sup> Twenty-first century transportation systems have enabled military forces to deploy enormous capacities across the globe within hours. This transport capacity, while impressive, necessitates an important warning for national security: an infectious disease is just as transportable. For military forces that deploy across the globe, infectious disease could debilitate military readiness within hours. Therefore, this thesis asks: Which factors have enabled strategic responses to better preserve military readiness in the face of past pandemic and endemic epidemiological threats?

My research suggests that, historically, three prominent factors have contributed to sustaining military readiness when a pandemic or epidemiologic threat emerges and operating protocols are not yet established: (1) Synergy among military, medical, and government leadership can bridge both communicative and implementation efforts thereby preserving military readiness; (2) Dynamic approaches to biological outbreak surveillance will provide U.S. military forces and the American populace with the most up-to-date outbreak warning system; and (3) Utilizing effective methods developed from previous outbreaks and pandemics, policy makers and military forces can quickly adapt and promote protocols that swiftly maintain operational readiness.

U.S. public health is a fundamental pillar of national security. Both scholars and national security experts have expressed extreme concern for the formidable threat of a biological outbreak for quite some time. Michael Shurkin notes: “The 1918 pandemic placed America’s military leadership in the position of having to make difficult choices. The disease was killing soldiers, sailors, and marines, undermining readiness, and the Army’s ability to fight.”<sup>2</sup> Shurkin warns that current U.S. leadership must “do everything

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<sup>1</sup> Laurie Garrett, *The Coming Plague: Newly Emerging Diseases in a World Out of Balance* (New York: Penguin, 1994), 7.

<sup>2</sup> Michael Shurkin, “Pandemics and the U.S. Military: Lessons from 1918,” *War on the Rocks*, April 1, 2020, <https://warontherocks.com/2020/04/pandemics-and-the-u-s-military-lessons-from-1918>.

in its power to stem the current pandemic”<sup>3</sup> Additionally, Carol Byerly observed that “more American Soldiers died in army camp beds than in the battlefields of France. By the War Department’s own account, flu sickened 26 percent of the army—more than one million men—and accounted for 82 percent of total deaths from disease.”<sup>4</sup> Clearly COVID-19 did not inflict the same devastation on U.S. forces. Yet, a century after the 1918 influenza crisis, COVID-19 has rekindled a necessary discussion about U.S. national security and the credible threat that disease outbreaks pose to U.S. soldiers and military operations world-wide.

#### **A. SIGNIFICANCE OF THE RESEARCH QUESTION**

I personally witnessed the impact of COVID-19 on military readiness as a company Commander of an Army headquarters detachment from August 2019 to May 2020. Towards the end of my command, the COVID-19 pandemic began to spread across the United States, and I noted how military leaders tried to juggle social distancing and proper protections for service members and their families, while keeping up with the multitude of daily tasks and drills: equipment inspections and maintenance, conducting physical training, to weapon familiarization and qualification. As installation exposure numbers began to rise, soldiers and their dependents began to fall ill or were exposed to the virus. Following post procedures, affected personnel had to be restricted from duty and placed under quarantine restrictions under observation. As a direct result of current protective measures, individual and team training events were cancelled and deployments in to and out of theaters were paused, which ultimately impacted critical assessments and most military movements. In this technological age of early warning systems and mass media approaches, I was astonished by the lack of guidance on how to conduct military operations in a pandemic environment. I wondered, if the knowledge exists about how to maintain military readiness within a pandemic environment, why has this knowledge not

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<sup>3</sup> Shurkin.

<sup>4</sup> Carol Byerly, *Fever of War: The Influenza Epidemic in the U.S. Army during World War I* (New York: NYU Press, 2005), 7.

consistently been implemented into a cohesive medical-military operating procedure to protect soldiers while servicemembers continue their mission?<sup>5</sup>

These questions brought me to this project. Analyzing historical contexts, I gained insight into which factors were effective in the perseverance of military readiness and operations under a pandemic or biological outbreak condition. By understanding this disparity, it uncovered various ways military leaders and policy makers can shape how the United States military conducts operations through pandemic and epidemic threats.

## **B. LITERATURE REVIEW**

The U.S. military has operated under pandemic and epidemic conditions in the past with staggering losses.<sup>6</sup> Studies within the last 50 years have focused on increasing the sustainability of U.S. forces across the globe; therefore, the need to address the urgency for increased military public health awareness is crucial. This review examines literature within the medical, science, public health, and military realms to understand military readiness, and how effective implementation efforts are not at the level they need to be to combat the pandemic threat on military forces.

### **1. Readiness**

Military readiness is a well-known term in the military community. The Department of Defense (DOD) defines readiness as “the ability of military forces to fight and meet the demands of assigned missions.”<sup>7</sup> Every unit in the U.S. is assessed across all U.S. forces to determine what supplies and unit requirements are necessary for *the National*

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<sup>5</sup> Government Accountability Office, *Influenza Pandemic: DOD Combatant Commands’ Preparedness Efforts Could Benefit from More Clearly Defined Roles, Resources, and Risk Mitigation*, GAO-07-696 (Washington, DC: Government Accounting Office, 2007), <https://www.govinfo.gov/content/pkg/GAOREPORTS-GAO-07-696/html/GAOREPORTS-GAO-07-696.htm>.

<sup>6</sup> Byerly, *Fever of War*, 4–5.

<sup>7</sup> Readiness defined by the DOD and thereby serves as the true across all branches of service in the United States Military. G James Herrera, *The Fundamentals of Military Readiness*, CRS Report No. R46559 (Washington, DC: Congressional Research Service, 2020), <https://crsreports.congress.gov/product/pdf/R/R46559>.

*Military Strategy*.<sup>8</sup> An article cited in the *Army Times* cited the Holistic Health and Fitness Program (H2F) findings: “nearly 60,000 soldiers, or 13 Brigade Combat Teams were non deployable due to one or more deficiencies.”<sup>9</sup> Manpower reflects the number of people who can deploy and is necessary to understand readiness because not every person within one unit is deployable at any given time. Measurements of readiness in part rely on the number of personnel ready for a mission.

Readiness has remained a significant part of the military infrastructure dating back to the 1830s.<sup>10</sup> Current military doctrine dictates that, “Units will measure and report status in four areas: personnel (P-level), equipment and supplies on hand (S-level), equipment condition (R-level), and training (T-level). Units will assign a numeric value in the range from one through six for each of the four areas.”<sup>11</sup> Military leaders utilize these metrics to understand the units’ current level of readiness and what they can do or need to improve their current standing.

Military readiness is the unified standard of recognizing a unit or Soldier, derived from a snapshot of the whole formation.<sup>12</sup> The snapshot is then assessed against a metric to ensure that service members are healthy and fit to fight. Readiness is then translated as an agreeable assurance that service members are free of serious health-related ailments and will be able to achieve a given mission while in an austere environment.<sup>13</sup> Military leaders

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<sup>8</sup> “Army Readiness Guidance” U.S. Army, May 19, 2016, <https://www.army.mil/standto/archive/2016/05/19/>.

<sup>9</sup> Todd South, “How the Army holistic health and fitness program can help soldiers New Year’s resolutions,” January 3, 2022, *Army Times*, <https://www.armytimes.com/news/your-army/2022/01/03/the-armys-holistic-health-and-fitness-program-keys-to-new-years-resolutions/>.

<sup>10</sup> Herrera, *The Fundamentals of Military Readiness*.

<sup>11</sup> Joint Chiefs of Staff, *Force Readiness Reporting* CJCSI 3401.02B (Washington, DC: Joint Chiefs of Staff, 2011), [https://www.jcs.mil/Portals/36/Documents/Doctrine/training/cjcsi3401\\_02b.pdf?ver=2017-12-29-171240-350](https://www.jcs.mil/Portals/36/Documents/Doctrine/training/cjcsi3401_02b.pdf?ver=2017-12-29-171240-350).

<sup>12</sup> Department of the Army Headquarters, *Army Unit Status Reporting and Force Registration*, AR 220-1 (Washington, DC: Department of the Army, 2010), [https://armypubs.army.mil/epubs/dr\\_pubs/dr\\_a/pdf/web/r220\\_1.pdf](https://armypubs.army.mil/epubs/dr_pubs/dr_a/pdf/web/r220_1.pdf).

<sup>13</sup> Understanding the dynamic definition of Readiness by military leaders and servicemen and women. Christopher Bunt and Bonnie Sanchez, *Medical Readiness*. In O’Connor FG, Schoomaker EB, Smith DC (Eds.) *Fundamentals of Military Medicine*, 430–442. AMEDD, The Borden Institute, 2019), GPO U.S. Government Bookstore. <https://bookstore.gpo.gov/products/fundamentals-military-medicine>.

will render this report to higher headquarters frequently, in order to provide the most up to date operational capability, resulting in a realistic strategy.

Army Regulation 220-1, provides a thorough set of assessments that measures units that are ready for a given mission from those that are not.<sup>14</sup> Utilizing the same standard across the U.S. military force has allowed military leaders to predetermine their strength.<sup>15</sup> Furthermore, The *Institute for National Strategic Studies*, published an article, *Ready or Not: Regaining Military Readiness during COVID19* the authors state that the pandemic has tested the military's readiness. More importantly, this article calls for the DOD to apply more practical disease management tools to ensure the U.S. military can operate under pandemic conditions in the future.<sup>16</sup>

## **2. Ineffective Public Health Implementation Efforts**

The pandemic environment has shown a multitude of deficiencies between medical expert knowledge and effective implementation efforts to guide the public. The problem is not planning, the problem is carrying out the coordinated execution.<sup>17</sup> This is the case for two former U.S. Marine lieutenant colonels who studied biohazard defense contingency planning.<sup>18</sup> They took lessons learned from a large-scale pandemic flu exercise they conducted in 2005 and cross-referenced what efforts were being done against COVID-19; they found that few of the lessons from 2005 had been implemented in 2020.<sup>19</sup>

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<sup>14</sup> States all units must report their units' status. Department of the Army Headquarters, *Army Status Reporting and Force Registration-Consolidated Policies*, 32.

<sup>15</sup> Department of the Army Headquarters, *Army Status Reporting and Force Registration-Consolidated Policies*, 2.

<sup>16</sup> The article discusses how the military environment is not conducive to infectious diseases given the responsiveness required to complete a given task. Diane DiEuliis and Laura Junor, "Ready or Not: Regaining Military Readiness During COVID19," *Institute for National Strategic Studies National Defense University*, April 10, 2020, <https://inss.ndu.edu/Media/News/Article/2145282/ready-or-not-regaining-military-readiness-during-covid19>.

<sup>17</sup> James Ruvalcaba and Joe Plenzler. "As Military Planners, We Strategized for a Pandemic, Here's what we learned," *Military Times*, April 10, 2021, <https://www.military.com/daily-news/2020/04/10/military-planners-we-strategized-pandemic-heres-what-we-learned.html>.

<sup>18</sup> Ruvalcaba and Plenzler.

<sup>19</sup> Ruvalcaba and Plenzler.

The planners' mission in 2005 had been to lead a military planning committee in Okinawa, Japan, to protect U.S. servicemembers, their families, and DOD personnel residing in country from pandemic influenza and other health threats.<sup>20</sup> The group consisted of military and civilian professionals from the World Health Organization (WHO), the CDC, the National Institutes of Health, and State Department officials.<sup>21</sup> Their planning efforts resulted in the production of a detailed biohazard response plan.<sup>22</sup> Clearly, the right people were assembled to discuss the appropriate procedures against a biological outbreak and develop proper contingencies to ease operational expectations. However, planners James Ruvalcaba and Joe Plenzler admitted that due to “leadership not taking the [COVID-19] threat seriously enough, early enough...the lack of early mitigation has now cost us [the United States] more than 427,000 sick Americans, more than 14,000 deaths, and more than \$2.3 trillion.”<sup>23</sup>

This scenario illuminates a common theme with enforcing implementation efforts from science-research lead guidance—it can be ignored by higher authorities. Ruvalcaba and Plenzler's strategic plan against pandemic preparedness for deployed troops was drafted in 2005. Their publication cited methods that were later improved by a planning committee in 2020. Ruvalcaba and Plenzler's foundational understanding —created an extensive plan; yet higher authority dismissed the seriousness of the outbreak, and thereby the adoption of these protective procedures by the general-public was delayed.<sup>24</sup>

At the same time, the literature demonstrates that the problem with implementing public health measures exists due to an information gap.<sup>25</sup> Rivers and George point out that there are measurable gaps within infectious disease models to inform public health

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<sup>20</sup> Ruvalcaba and Plenzler.

<sup>21</sup> Ruvalcaba and Plenzler.

<sup>22</sup> Formed a response plan for all marine forces in Japan. Ruvalcaba and Plenzler.

<sup>23</sup> Ruvalcaba and Plenzler.

<sup>24</sup> Ruvalcaba and Plenzler.

<sup>25</sup> Caitlin Rivers and Dylan George, “How to Forecast Outbreaks and Pandemics: America Needs the Contagion Equivalent of the National Weather Service” *Foreign Affairs*. June 29, 2020, <https://www.foreignaffairs.com/articles/united-states/2020-06-29/how-forecast-outbreaks-and-pandemics>

policy backed by epidemiological expertise.<sup>26</sup> They continue that, “the country has no centralized system for disease forecasting; there exists no epidemiological equivalent of the National Weather Service.”<sup>27</sup> A disease forecasting system could drastically improve current biological response planning and implementation efforts.<sup>28</sup> These authors make an intriguing point about the usefulness of graphic models to spearhead planning considerations and prioritize implementation efforts.<sup>29</sup> Rivers and George’s analysis identified an under-utilized capability that can pin-point geographical hotspots to focus planning and resourcing efforts. Evolving this capability at the federal level would redesign disease management across the nation.

However, Rivers and George disclose that once the nation has reset from the pandemic, ties between modelers and decision-makers will fade and changes will not translate to policymakers.<sup>30</sup> Here is yet another gap between planning and timing implementation efforts; without the adoption of these innovative approaches into institutionalized formal systems, the U.S. government cannot effectively overcome and adapt its biological response effort.

Furthermore, the Secretary of Defense, “named the U.S. Northern Command (NORTHCOM) the lead [Combatant Command] COCOM for directing, planning, and synchronizing DOD’s global response to pandemic influenza on August 2006.”<sup>31</sup> NORTHCOM was created after the onset of 9/11 and thus William Arkin argues, if anyone should have been ready for coronavirus, it should have been NORTHCOM.<sup>32</sup> Arkin maps the organizations’ various and robust roles and responsibilities within the United States footprint and calls for the need in transparency between organizations such as

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<sup>26</sup> Rivers and George.

<sup>27</sup> Rivers and George.

<sup>28</sup> Rivers and George.

<sup>29</sup> Rivers and George.

<sup>30</sup> Rivers and George.

<sup>31</sup> Government Accountability Office, *Influenza Pandemic: DOD Combatant Commands’ Preparedness Efforts Could Benefit from More Clearly Defined Roles, Resources, and Risk Mitigation*.

<sup>32</sup> William M. Arkin, “NORTHCOM Operational Plans, Pandemic and Endemic,” *Federation of American Scientists* (blog), April 16, 2020, <https://fas.org/sgp/eprint/northcom-opplans.html>.

NORTHCOM and the general public.<sup>33</sup> Arkin also hints to a potential domestic relations gap between public health, the local community, and the military effort to combat pandemics.<sup>34</sup>

### **C. RESEARCH DESIGN**

This research examines a selection of historical biological outbreaks that affected U.S. military forces, specifically the influenza pandemic of 1918, commonly but inaccurately referred to as the “Spanish Flu,” H1N1 of 2009, and COVID-19 pandemic. I also reviewed examples of how the U.S. military handled each infectious disease. As a result, I identified three factors that both enabled and disabled strategic military responses that in turn preserved military readiness in the face of pandemic and endemic epidemiological threats: how the pandemic threat was identified, how medically responsive the military and government was, and leadership posturing during the pandemic. By measuring the outcome of readiness through successes and failures, I determined which factors were relevant to pandemic preparedness.

First, I focused my research on the development of U.S. military disease awareness and prevention, providing a fundamental baseline of U.S. military concern toward biological outbreaks. This opened a conversation about the 1918 influenza pandemic and 2009 H1N1 pandemic’s effects on military readiness. Gathering this information provided a mixture of responses from civilian and military leaders; some leaders were successful and others less successful at maintaining military readiness.

Second, I examined two previous pandemics: the 1918 and 2009 outbreaks and utilized the same influential factors to measure COVID-19 responsiveness. Here, I was able to identify the gaps that still exist in U.S. pandemic preparedness protocols.

To conclude this research, I discussed observable ways forward for military forces to utilize outside civilian agency integration. Creating a more integrated intelligence and

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<sup>33</sup> Arkin. “NORTHCOM Operational Plans, Pandemic and Endemic.”

<sup>34</sup> Author states that NORTHCOM cannot be the only strategic advantage against pandemics. A public understanding of the operational picture is paramount to synchronizing efforts across multiple mediums. Arkin, “NORTHCOM Operational Plans, Pandemic and Endemic.”

bio-surveillance team under Department of Homeland Security (DHS) such as the Center for Disease Control's (CDC) Epidemic Intelligence Service, would provide a global-watch and American outpost for infectious disease surveillance and a significant mitigation resource. This service's directive and mission could potentially inform the development of preventive and responsive methods for military operations. I examined whether or not the adoption of similar epidemiological intelligence services in provide military commanders and planners the necessary operational flexibility to maintain readiness when faced with a viral threat.

#### **D. CHAPTER OVERVIEW**

Following this introduction chapter, Chapter II provides background on the development and implementation of the U.S. military medical practices and procedures. The importance of this chapter is to lay the groundwork for the U.S. military medical history and its evolution through time, developing awareness and practices for communicable disease prevention. Chapter III highlights two historical influenza case studies, strictly identifying how the specific outbreaks were handled and what resulting factors derived from each case study. Chapter IV presents COVID-19 and cross examines COVID-19 factors against the two prior influenza outbreaks. This method presents a method of measurement to compare parallels between three pandemics and how they were handled. Chapter V is the conclusion where I form recommendations for further inquiry and research.

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## II. CHANGE YOUR SOCKS AND DRINK WATER: MEDICAL RESOURCES AND U.S. MILITARY FORCES

“Change your socks and drink water” is a universal military expression. It dates back at least to the Vietnam War, when long days walking in wet terrain caused trench foot, which would eventually eat at the skin layers and lead to severe amputations. In these conditions, sock-changing was a matter of life or death. Now that U.S. military presence is no longer primarily in the wet-swampy climate, the threat to soldiers is no longer wet feet; still this lesson from the Vietnam battlefields has become a normal cautionary medial practice. Indeed, it is sometimes used as a metaphorical Band-Aid, imploring the listener to gather composure and drive on. The evolution of the term’s meaning speaks to advances in military medical practice and technology.<sup>35</sup> What was once serious medical guidance has become an ironic, if team building, inside joke.

Military medicine has transformed its ambit from mobile medical tents with minimal supplies to well established institutions with abundant resources. This chapter provides the background of this transformation and emphasizes how this shift enabled the utilization of preventative health methods on military forces. This chapter also describes the U.S. military’s perspective on influenza pandemics and lessons experienced from previous outbreaks.

### A. THE DEVELOPMENT OF MILITARY MEDICAL INSTITUTIONS

In the era of, say, the founding of the republic, hundreds of thousands of U.S. military personnel died simply due to improper hygiene and sanitation methods.<sup>36</sup> Today, preventive medicine provides military forces with life-sustaining and protective measures against

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<sup>35</sup> A depiction of what medical care looked like before modern medicine. Charles Van Way, “War and Trauma: A History of Military Medicine – Part II,” *Missouri Medicine* 113, no. 5 (2016): 336–40, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6139825/>.

<sup>36</sup> Army publication notes, “high numbers of DNBI [diseased] casualties has had a significant impact on unit readiness and severely jeopardized the ability of some units to accomplish their mission.” Department of the Army Headquarters, *Field Hygiene and Sanitation*. TC 4–02.3.(Washington, DC: Department of the Army, 2015), 7. [https://armypubs.army.mil/epubs/DR\\_pubs/DR\\_a/pdf/web/tc4\\_02x3.pdf](https://armypubs.army.mil/epubs/DR_pubs/DR_a/pdf/web/tc4_02x3.pdf).

ailments that once significantly degraded available manpower.<sup>37</sup> This section highlights a few monumental developments in military medical advancement and provides a fundamental connection that exists between military conflict and medical adaptation. This concept supports the maintenance of military readiness.

## **1. Medical Advancements Throughout Military History**

One of the first demonstrations of a U.S. military leader utilizing preventative health measures to counteract manpower reduction was General George Washington. During the American Revolution, he fought for his soldiers to be inoculated against the formidable smallpox outbreaks.<sup>38</sup> Smallpox outbreaks like the Boston outbreaks of 1772<sup>39</sup> reduced the agility of General Washington's continental forces against British enemy forces.<sup>40</sup>

Preventative health and medical care were limited and inadequate during the Civil War.<sup>41</sup> A recent article reveals that, "disease was responsible for two-thirds of all Civil War deaths...[yet] medical evacuation systems, widespread use of anesthetics, and invaluable surgical experience rightly made American doctors proud of their accomplishments." Medical

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<sup>37</sup> Army Training Manual details soldier preventive health responsibilities from soldiers to commanders. Following these guidelines will protect the force from preventable ailments. Department of the Army Headquarters, *Field Hygiene and Sanitation* (Washington, DC: Department of the Army), 1-48

<sup>38</sup> General Washington ordered mass inoculation of variola to combat smallpox—a disease that killed an estimated 90% of his forces. English troops were immune to this disease and thus their immunity played to their advantage over the vulnerable American population. However, Gen. Washington's strategy paid off when Soldiers were immunized to the disease. Janet A. Aker, "Gen. George Washington Ordered Smallpox Inoculations for All Troops," Military Health System, August 16, 2021, <http://health.mil/News/Articles/2021/08/16/Gen-George-Washington-Ordered-Smallpox-Inoculations-for-All-Troops>.

<sup>39</sup> Smallpox was a credible threat to everyone on the American Revolution battlefield but especially to those that were not immune to the smallpox. Evidence points to the British forces using smallpox as a biological weapon in Boston against George Washington's Continental Army. General Washington being wary of the effect of the disease tactically maneuvered his troops to avoid exposure. Ann Becker, "Smallpox in Washington's Army: Strategic Implications of the Disease during the American Revolutionary War." *The Journal of Military History*; Lexington Vol. 68, Iss.2 (Apr 2004): 381–430, <http://www.jstor.org/stable/3397473>

<sup>40</sup> Becker, "Smallpox in Washington's Army: Strategic Implications of the Disease during the American Revolutionary War," 381–430.

<sup>41</sup> "NMHM Documents Military Medicine Advancements during the Civil War," National Museum of Health and Medicine Public Affairs, October 5, 2020, <http://health.mil/News/Articles/2020/10/05/NMHM-documents-military-medicine-advancements-during-the-Civil-War>.

field knowledge was under-developed during the Civil War, therefore, there were few, if any, internal systems of medical organization and logistical supply.<sup>42</sup>

The article in the National Museum of Civil War Medicine also notes, “hygiene standards were disregarded, and communicable diseases spread uncontrollably through battlefield formations, camps, and battle positions.”<sup>43</sup> Furthermore, as medical advancements continued to develop new practices, most physicians were set in their practices and cautious about new methods such as the germ theory of disease.<sup>44</sup> This theory called for diligent handwashing and sterilizing equipment between patients in order to prevent hazardous medical environments and encourage the spread of disease.<sup>45</sup>

In the 20th century, drastic improvements to medical practices and technical advances changed U.S. military procedures forever. For instance, military leaders realized there was a severe medical staff and services deficit during World War I.<sup>46</sup> Chief of Staff, Major General Leonard Wood, a trained physician, oversaw the reorganization of Army medical services that reflect modern-day medical services.<sup>47</sup> During this time, such medical procedures as wound debridement (clearing out the wound of foreign materials), aseptic treatments, the use of anesthesia, and the practice of amputating extremities to reduce the disease and death rate.<sup>48</sup> Medical advancements during wartime significantly increased the likelihood of survival and wound recovery during and after combat.

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<sup>42</sup> National Museum of Health and Medicine Public Affairs.

<sup>43</sup> National Museum of Health and Medicine Public Affairs.

<sup>44</sup> James Ross’s Graft Theory of Disease, physicians were wary and suspect of new methods and practices of disease control. Ibid; Germ theory was not initially adopted due to peer criticism. Phyllis Allen Richmond, “American Attitudes Toward the Germ Theory of Disease (1860-1880),” *Journal of the History of Medicine and Allied Sciences* 9, no. 4 (1954): 432, <http://www.jstor.org/stable/24619485>.

<sup>45</sup> Richmond.

<sup>46</sup> Chief of Staff Leonard Wood paved the way for what would be known as modern military medicine. Van Way, “War and Trauma: A History of Military Medicine – Part II,”

<sup>47</sup> Van Way. “War and Trauma: A History of Military Medicine – Part II,”

<sup>48</sup> Examples of medical advancement taking place in Europe during WWI. National Museum of Health and Medicine Public Affairs, “NMHM Documents Military Medicine Advancements during the Civil War.”

Military medical advancements are a direct result of wartime challenges.<sup>49</sup> For example, the Korean War saw the development of critical battlefield evacuations through the use of helicopters and Mobile Army Surgical Hospitals (MASH).<sup>50</sup> The Vietnam War established medical practices still trained and practiced today, including strategically placed battlefield hospitals for quick medical attention and blood banking drastically increased survival rates.<sup>51</sup> Military medicine was forced to advance to sustain operational manpower. This medical development institutionalized a standard of care for U.S. active-duty military, retirees, and dependents throughout the Gulf War, and Middle East operations.

## **2. Current U.S. Military Response to Outbreaks**

In addition to battlefield casualties, the U.S. military has developed protocols for outbreak scenarios. The Department of Defense's plan in an outbreak scenario is found within USNORTHCOM *CONPLAN 3591-09, USNORTHCOM's response to pandemic influenza*. This plan requires the Department of Health and Human Services (HHS), to contact NORTHCOM to coordinate military public and emergent assets during a pandemic.<sup>52</sup>

Today, medical officers are assigned to brigade and battalion staff of both combat maneuver and maneuver support units; medical specialists are located within formations or attached to mission sets.<sup>53</sup> Their primary objective is to protect their respective servicemember force and liaison between medical professions and ground commanders.<sup>54</sup>

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<sup>49</sup> Tobey, "Advances in Medicine During Wars: A Primer."

<sup>50</sup> Tobey.

<sup>51</sup> Author quotes a naval surgical consultant that expressed the significance of decreased hospital mortality, stating the "excellent" military medicine practiced during the Vietnam War. 307. Trudy Hawkins, "The Evolution of Forward Surgery in the U.S. Army: From the Revolutionary War to the Combat Operations of the 21<sup>st</sup> Century," Government Book Talk (blog), August 30, 2019, <https://govbooktalk.gpo.gov/2019/08/30/the-evolution-of-forward-surgery-in-the-u-s-army>.

<sup>52</sup> Headquarters U.S. NORTHERN COMMAND, *U.S. NORTHCOM Response to Pandemic Influenza CONPLAN 3591-09* (Peterson AFB, CO: 2009), 10.

<sup>53</sup> U.S. Army, *Medical Platoon ATP 4-02.4* (Washington, DC: U.S. Army, 2021), [https://armypubs.army.mil/epubs/DR\\_pubs/DR\\_a/ARN32336-ATP\\_4-02.4-000-WEB-1.pdf](https://armypubs.army.mil/epubs/DR_pubs/DR_a/ARN32336-ATP_4-02.4-000-WEB-1.pdf)

<sup>54</sup> The medical officer's role and responsibility within the Battalion. U.S. Army, *Medical Platoon ATP 4-02.4*.

At the execution level of operations, the Brigade medical officer relays information from the installation division surgeon whose main duties include: the health of the command, preventive medicine, and medical: treatment, surveillance, evaluations, and training. Medical Officers' source of information and orders derive from MEDCOM.<sup>55</sup> MEDCOM obtains its set of instructions from the U.S. Army Surgeon General and Commanding General. The Army Surgeon General's overall mission is to "provide ready and sustained health services support and force health protection in support of the 'Total Force' to enable readiness and to conserve the fighting strength while caring for our People and their Families."<sup>56</sup> The existing hierarchy of medical support is imperative to the disbursement of medical capabilities from the Surgeon General down to the Medical Officer –across most military areas of operations.

Over time, the U.S. military has come to understand and recognize the importance of personnel or "manpower." Today and at any given time, if a U.S. military unit's manpower decreases for any reason (e.g., absent without leave (AWOL), hospitalization, or death), higher headquarters requires company and battalion units to notify the battalion and division commander immediately.<sup>57</sup> Such critical information is commonly found within the Commander's Critical Information Requirements (CCIR).<sup>58</sup> CCIRs help subordinate units report information deemed critical according to strict guidelines to higher headquarter commanders.<sup>59</sup> CCIRs allow commanders to make quick and efficient decisions in combat

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<sup>55</sup> Department of the Army Headquarters, *Division and Brigade Surgeon's Handbook*, FM4-02.21- (Washington, DC: Department of the Army, 2000), 145. <https://www.globalsecurity.org/military/library/policy/army/fm/4-02-21/fm4-02-21.pdf>.

<sup>56</sup> Lieutenant General R. Scott Dingle and Command Sergeant Major Diamond Hough, "US Army Medicine Mission Statement," U.S. Army MEDCOM Office of the Surgeon General, <https://www.army.mil/armymedicine#org-about>.

<sup>57</sup> The availability of personnel is dependent upon the individual units' assigned mission. For example, the availability of a unit is noted as assigned personnel that can respond with 72hrs. Department of the Army Headquarters. *Army Unit Status Reporting and Force Registration*. AR 220-1, 2.

<sup>58</sup> Department of the Army Headquarters, "The Operations Process," ADP 5-0. Washington, DC: Department of the Army. 2019. [https://armypubs.army.mil/epubs/DR\\_pubs/DR\\_a/ARN18126-ADP\\_5-0-000-WEB-3.pdf](https://armypubs.army.mil/epubs/DR_pubs/DR_a/ARN18126-ADP_5-0-000-WEB-3.pdf). 1-10.

<sup>59</sup> Guidelines defined by priority intelligence reports such as enemy information or civilian changes and information on friendly forces such as anything having to do with the mission, troops, and operational support. Department of the Army Headquarters, "The Operations Process," 1-10

and at home.<sup>60</sup> Therefore, if a portion of a unit's manpower becomes susceptible to disease—like it would in a pandemic environment, the medical officer would be called in to discuss the severity of the ailment. Once the severity of ill personnel is quantified, this number ultimately determines the unit's effectiveness.<sup>61</sup> In short, the number of personnel available to conduct current operations determines the unit's readiness to achieve or potentially delay meeting the unit's objectives.<sup>62</sup>

Military protocols like the CCIR's address which actions to report during an impactful event. This guidance provides ground commanders a preset strategy to mitigate transmission—ensuring their units' readiness.<sup>63</sup> However, current pandemic strategies are not commonly practiced nor properly resourced prior to a scenario occurring.<sup>64</sup> For example, an Army transportation unit deploying from Fort Bliss, Texas assessed there were significant capability gaps within the unit. Unit personnel identified that even though Standard CBRN Bio hazard Operating Procedures (SOP) were implemented, significant shortages of equipment and

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<sup>60</sup> A document created to help staff through Mission Analysis and decision-making planning effort. Though this example talks about a specific mission, the detail is still the same. The Commander must have critical information to inform his/her decision process. Thomas Feltey and Matt Mattingly, "Initial Commander's Critical Information Requirements and the 5 Common Command Decisions" (316 Calvary Leader's Brigade, 2014), <https://www.benning.army.mil/armor/earmor/content/issues/2017/Fall/4Feltey-Mattingly17.pdf>.

<sup>61</sup> This regulation defines what personnel readiness is and how it affects unit deployability. Department of the Army Headquarters, *Army Unit Status Reporting and Force Registration*, Army Regulation 220-1 (Washington, DC: Department of the Army, 2022), 25, [https://armypubs.army.mil/epubs/DR\\_pubs/DR\\_a/ARN31982-AR\\_220-1-000-WEB-1.pdf](https://armypubs.army.mil/epubs/DR_pubs/DR_a/ARN31982-AR_220-1-000-WEB-1.pdf)

<sup>62</sup> Shows the dynamic relationship between individual readiness, the deployable unit, and mission assumption. Department of the Army Headquarters, *Army Unit Status Reporting and Force Registration*, 20-22.

<sup>63</sup> Eli Rothblatt, Jessica Fields, and Justin Jones, "Deploying During a Pandemic," *Army Sustainment*, 52(4), October 21, 2020, pgs. 10–13. <https://libproxy.nps.edu/login?url=https://www.proquest.com/trade-journals/deploying-during-pandemic/docview/2507257052/se-2?accountid=12702>.

<sup>64</sup> Article states that though CBRN teams train on contamination and decontamination practices, infectious disease and biological precautions are rarely taught to ground soldiers outside of the NBC military occupation specialty (MOS.) Eli Rothblatt, Jessica Fields, and Justin Jones, "Deploying During a Pandemic."

materials such as protective masks, hand sanitizer, cleaning supplies, and manning shortages hindered the process of quarantining soldiers promptly and continuously.<sup>65</sup>

Existing strategies to counter biohazards include a wide range of vulnerabilities that are depicted in Figure 1. This chart also highlights the complexity of disease management and known challenges amongst military forces. These particular challenges are common in a garrison environment and intensified in a deployed or training environment.

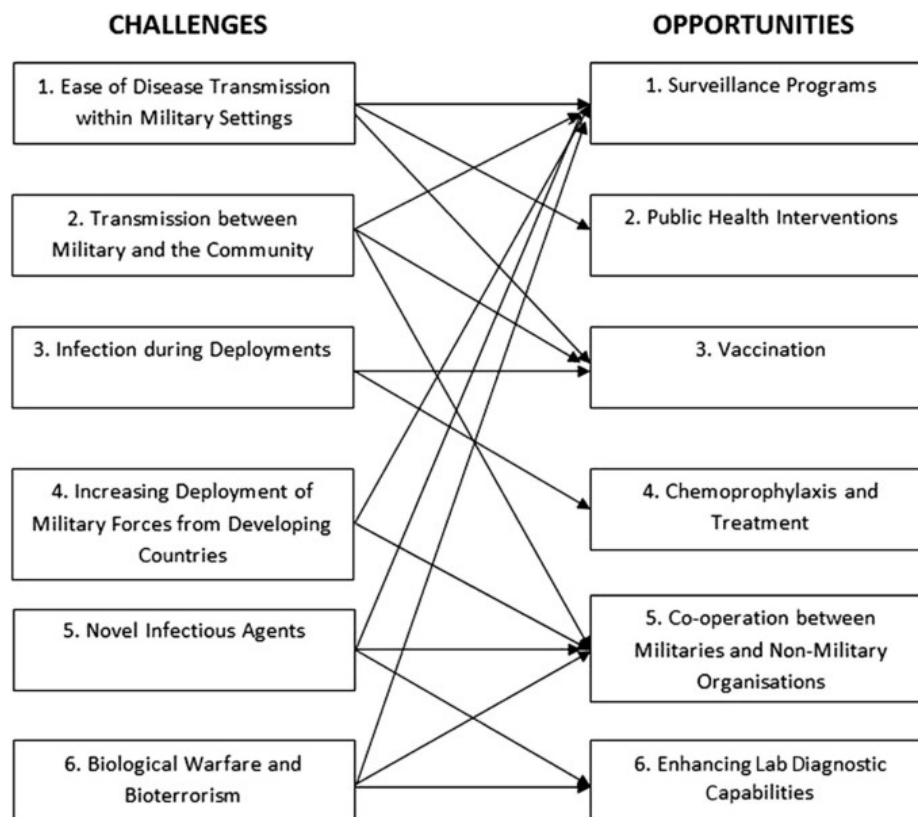


Figure 1. Robust relationships between military challenges and opportunities in order to counter infectious disease threats<sup>66</sup>

<sup>65</sup> Several constraints were determined during an after-action review identifying areas to develop and gaps operational tempo such as setting up a quarantine for a large part of the unit and conducting contract tracing. These procedures were unfamiliar at non CBRN units. Rothblatt, Fields, and Jones, “Deploying During a Pandemic.”

<sup>66</sup> Source: Zheng Jie Marc Ho, Yi Fu Jeff Hwang, and Jian Ming Vernon Lee, “Emerging and Re-Emerging Infectious Diseases: Challenges and Opportunities for Militaries,” *BMC Military Medical Research* 1, no. 21 (September 24, 2014), <https://doi.org/10.1186/2054-9369-1-21>.

Figure 1 illustrates the complexity of modern medical challenges for servicemembers in relation to the identified required resources (opportunities.) Within the military infrastructure these resources mandate a need from a higher coordinating official and effort, as most of these resources are simply out of range for unit and company level personnel to coordinate with. This hierarchical vulnerability alludes to a significant gap between DOD biohazard countermeasures and ground forces. Figure 1 also reflects the complex interconnectedness of medical challenges. These tools are not readily provided in the military company nor team level, therefore the ability to mitigate the challenge directly is not a viable solution for ground commanders and soldiers under their leadership.<sup>67</sup> This is just one example demonstrating that military forces have a significant need for modern medical tools.

### **3. Military Public Health Warnings and Awareness**

So far military medical advancements have derived from significant impacts on personnel readiness in military populations. As a result, U.S. government officials brought public health awareness to the forefront in 2007. The Government Accountability Office (GAO) hosted an Influenza Pandemic Conference with 10 U.S. Combatant Commands. Each command differed in their mission sets across worldwide areas of responsibility, all with varying degrees of resources and manpower.<sup>68</sup> The Influenza Pandemic Conference of 2007 discussed risk mitigation strategies and properly acknowledged the gravity of a pandemic obstacles facing military personnel and the task to conduct their given mission sets.<sup>69</sup>

The results of this exercise identified gaps within DOD's coordination of military pandemic response protocols.<sup>70</sup> Officials agreed that "An influenza pandemic could impair

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<sup>67</sup> Health education provides information on disease recognition and preventive transmission strategies that can enhance military protection against biological threats. Zheng, "Emerging and Re-Emerging Infectious Diseases: Challenges and Opportunities for Militaries."

<sup>68</sup> U.S. Combatant Commands such as U.S. EUCOM, PACOM, CENTCOM, and what was once JFCOM Government Accountability Office, *Influenza Pandemic*.

<sup>69</sup> Government Accountability Office.

<sup>70</sup> Government Accountability Office.

the military's readiness, jeopardize ongoing military operations abroad, and threaten the day-to-day functioning of the DOD due to a large percentage of sick or absent personnel.”<sup>71</sup> The GAO's thorough analysis of U.S. armed forces' constraints determined that there were several areas of concerning management challenges: a lack of defined roles and responsibilities within DOD; unclear measures of planning applied efforts; a significant lack of funding to support pandemic influenza preparedness; and also an inefficiently developed communications strategy.<sup>72</sup> The GAO forewarned DOD leaders and officials that they were not prepared to operate efficiently in a pandemic environment.<sup>73</sup> The report states, “Although COCOMs have taken numerous actions, GAO identified three management challenges that may prevent the COCOMs from being fully prepared to effectively protect personnel and perform missions during an influenza pandemic.”<sup>74</sup> Other areas of concern included interagency interoperability and lines of responsibility—all of which are still not clear today.<sup>75</sup>

This argument reflects that military public health awareness is an extremely complicated state of affairs.<sup>76</sup> Beverly Clearly identified this exact issue during the 1917–1920 influenza plight arguing that military, medical, historical, and epidemiology fields did not properly display the influenza crisis had on the 1918 war efforts in order to maintain decorum at home and preserve morale on the front lines.<sup>77</sup> This tactic meant that the right aid and research was not provided until after the war effort and several thousands of young lives were lost due to disease and not the assumed casualty from combat. Historian Alfred Crosby called this phenomenon, “America's Forgotten Pandemic.”<sup>78</sup> The title alone

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<sup>71</sup> Government Accountability Office.

<sup>72</sup> Government Accountability Office.

<sup>73</sup> Declared that the lack of planning amongst COCOMs leaves a significant gap in preparedness activities and resourcing materials. Government Accountability Office.

<sup>74</sup> Government Accountability Office.

<sup>75</sup> Government Accountability Office.

<sup>76</sup> Byerly, “Fever of War,” 11.

<sup>77</sup> Byerly, 11.

<sup>78</sup> Alfred W. Crosby, *America's Forgotten Pandemic: The Influenza of 1918* (UK: Cambridge University Press/ 2003) 356, <https://doi.org/10.1017/CBO9780511586576>.

alludes to the unfortunately natural tendency for government officials, leaders, and the public to become complacent with public health awareness and precautions, during wartime and especially once a pandemic or biological outbreak is no longer virulent.

## **B. CONCLUSION**

This chapter demonstrated the evolution of U.S. military's medical practices from field side tents to a now multilayered institution. Though advanced protocols are now in place to assure military readiness whether home or abroad, will current medical procedures be enough to protect military personnel readiness from the next pandemic? Medical effectiveness will not be as simple as changing socks and drinking water. U.S. and DOD officials acknowledge that current challenges and gaps within installation pandemic protocols if implemented correctly can increase protection of U.S. military manpower globally. However ongoing surveillance and mitigation strategy development is absolutely necessary to military readiness across U.S. forces.

### III. A TALE OF TWO OUTBREAKS

To learn from pandemic responses of the past, this chapter contrasts two pandemics that were handled drastically differently by the U.S. military: the 1918 Influenza and 2009 H1N1 pandemics. The 1918 case establishes perhaps the lowest point in the story of military health care and planning—at least amid a pandemic, and many of the signal missteps and mistakes could have been avoided. The 2009 case highlights factors that established efficient execution of strategic pandemic plans during the onset of the same influenza threat. Each case is examined for the following attributes: properly identifying the threat to preventing further transmission, medical responsiveness, leadership posture, and most importantly how military decisions throughout each outbreak affected military readiness. Drawing specific lines of comparison between these two pandemics illuminates specific turning points and areas of concern for U.S. military leaders to personnel influenza history.

#### A. THE 1918 INFLUENZA PANDEMIC

Even though U.S. and allied troops had fought bravely and won the war abroad, the war on the influenza virus was ongoing. What was presumed to be a quick illness, the influenza virus would ultimately return with U.S. troops transports back home.<sup>79</sup> Minimal virus identification and knowledge enabled specific leadership decisions that in turn set low medical priorities. These factors directly led to impractical medical responses—which resulted in the largest number of U.S. military personnel loss in U.S. military history.

The 1918 Influenza pandemic, caused by an H1N1 virus, infected an estimated 500 million people and killed over 50 million people worldwide.<sup>80</sup> Infected people were essentially dying from internal drowning as their lungs filled with fluid caused by an

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<sup>79</sup> Mary C. Gillet, *The Army Medical Department 1917–1941* (Washington, D.C.: Center of Military History, 2009), [https://history.army.mil/html/books/medical\\_department\\_1917-1941/index.html](https://history.army.mil/html/books/medical_department_1917-1941/index.html) The Army Medical Department 1917–1941.

<sup>80</sup> Eric Durr, “Worldwide Flu Outbreak Killed 45,000 American Soldiers during World War I,” *U.S. Army*, [https://www.army.mil/article/210420/worldwide\\_flu\\_outbreak\\_killed\\_45000\\_american\\_soldiers\\_during\\_world\\_war\\_i](https://www.army.mil/article/210420/worldwide_flu_outbreak_killed_45000_american_soldiers_during_world_war_i). (August 2018).

automatic response from inflamed lung tissue.<sup>81</sup> The human autoimmune response would overcompensate and fill the lung cavity with fluid causing the individual to enter a cyanotic state depriving healthy blood cells of oxygen.<sup>82</sup> 1918 Influenza was highly contagious, virulent, and not limited by territorial boundaries.

Approximately 165,000 Americans of varying ages died from influenza bringing about closures to local schools, theaters, and mask ordinances while in public spaces.<sup>83</sup> The 1918 pandemic tragedy serves as a baseline of scholarly pandemic emergency discussions due to its complicated make-up, unknown origin, and natural ability to reoccur. Douglas Jordan with the Center for Disease Control (CDC) states, “it [1918 influenza pandemic] would serve as a portent of nature’s ability to produce future pandemics of varying public health concern and origin.”<sup>84</sup>

Before the peak of the 1918 flu, 130,000 servicemembers were hospitalized out of 1.2 million.<sup>85</sup> Roughly 10.8% of the U.S. military was combat ineffective at home. In combat, 340,000 soldiers were hospitalized in France. More soldiers were being evacuated from the front with influenza than from combat wounds.<sup>86</sup> Influenza’s effect on military forces in 1918 was staggering: “By the War Department’s most conservative count, influenza sickened 26% of the Army—more than one million men...According to Lee County historians, they put

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<sup>81</sup> Describes in considerable detail the physical state of patients with influenza. Anton Erkoreka, “Origins of the Spanish Influenza pandemic (1918-1920) and its relation to the First World War.” *Journal of molecular and genetic medicine: an international journal of biomedical research* vol. 3,2 190–4. 30 (Nov. 2009): doi:10.4172/1747-0862.1000033

<sup>82</sup> See John Barry, “How the Horrific 1918 Flu Spread Across America,” *Smithsonian Magazine*, November 2017, <https://www.smithsonianmag.com/history/journal-plague-year-180965222/>

<sup>83</sup> “Spanish Flu,” History.com, December 22, 2021, <https://www.history.com/topics/world-war-i/1918-flu-pandemic>

<sup>84</sup> Centers for Disease Control and Prevention, “The Discovery and Reconstruction of the 1918 Pandemic Virus,” December 17, 2019, <https://www.cdc.gov/flu/pandemic-resources/reconstruction-1918-virus.html>.

<sup>85</sup> Teresa Paglione, “The Toll of the Spanish Flu in the Military and A Sampling of Lee County’s Soldiers who died Before they Could Fight the Germans in WW1,” *Lee County Historical Society*, June 16, 2020. <https://www.leecountyhistoricalsociety.org/spanish-flu-in-the-military#:~:text=By%20the%20War%20Department’s%20most,they%20even%20got%20to%20France.>

<sup>86</sup> Paglione, “The Toll of the Spanish Flu in the Military and A Sampling of Lee County’s Soldiers who died Before they Could Fight the Germans in WW1,”

sickness rates closer to 40%.”<sup>87</sup> The U.S. military faced a devastating blow from the sheer number of troops lost to the influenza virus. The influenza virus affected around 45,000 U.S. military personnel serving WWI.<sup>88</sup> This number represented roughly 20–40% of all U.S. Army and Navy personnel.<sup>89</sup>

Shifting focus from how the 1918 virus spread to why so many military personnel were infected reveals potential factors that influence the military’s ability to uphold military readiness throughout a pandemic.

## **1. Identifying the Threat**

The 1918 pandemic demonstrated how debilitating a novel virus can be to an overconfident population, especially to a generally healthier military population than civilian.<sup>90</sup> In the United States, the advent of such modern medical practices such as the appendectomy to treat appendicitis the specialty of neurosurgery along with the availability of x-rays to target specific treatments;<sup>91</sup> encouraged both the medical field and public leaders to reasonably believe modern medicine would intervene and the flu season would quickly dissipate.<sup>92</sup> America had successfully combated infectious diseases to include typhoid and

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<sup>87</sup> Paglione, “The Toll of the Spanish Flu in the Military and A Sampling of Lee County’s Soldiers who died Before they Could Fight the Germans in WWI.”

<sup>88</sup> Durr, “Worldwide Flu Outbreak Killed 45,000 American Soldiers during World War I.”

<sup>89</sup> The Army grew rapidly therefore the Medical Department had to grow to support this need. Due to the quick growth in number quality of care went down. Carol Byerly, “The U.S. Military and the Influenza Pandemic of 1918–1919,” *Public Health Reports* 125, no. Suppl 3 (2010): 82–91, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2862337/>.

<sup>90</sup> Joseph Pergolizzi et al., “Four Pandemics Lessons Learned, Lessons Lost,” *Signa Vitae*, vol.17(1), 1–5 (January 2021): 3, DOI:10.22514/sv.2020.16.0096. 5.

<sup>91</sup> Robert Richardson, “Surgery in the 20<sup>th</sup> Century: Malignant disease,” Encyclopedia Britannica, <https://www.britannica.com/science/history-of-medicine/Malignant-disease>

<sup>92</sup> Journal notes that at least 10 people were treated using convalescent blood products against the 1918 influenza. Acknowledging the practice of using blood products existed during this timeframe. Thomas Luke MD, Edward Kilbane, MD, “Meta-Analysis: Convalescent Blood Products for Spanish Influenza Pneumonia: A Future H5N1 Treatment,” *Annals of Internal Medicine*, 2006; 145:599-609, 17 October 2006, doi:10.7326/0003-4819-145-8-200610170-00139.

smallpox,<sup>93</sup> which further contributed to a general overconfidence in the limitations and vulnerabilities of U.S. medical science.<sup>94</sup>

In the fall of 1917, the United States invoked a draft to provide substantial manpower to the European allied war effort.<sup>95</sup> Lamentably, the U.S. military medical department was not prepared for the drastic influx of troops and services required for initial entry health examinations; camps were quickly overwhelmed.<sup>96</sup>

Mary Gillet notes that a camp physician's primary duty was to determine the status of fit and unfit recruits.<sup>97</sup> However, screening inconsistencies along with the sheer magnitude of new recruits quickly overwhelmed the camp examination process.<sup>98</sup> Gillet states, "On occasion draftees arrived in sufficient numbers to make careful and detailed examinations impossible given that medical officers had to check each man every day for two weeks to detect signs of infectious disease as soon as possible."<sup>99</sup> Most physicians were brought in from civilian sector to aid short staffing problems. Their main responsibility entailed initial screening examinations. Being new to the Army, civilian physicians were also not familiar with conducting military physicals and especially "for so many men in so little time."<sup>100</sup> Moreover, the screening process was simply meant to determine if the serviceman was healthy

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<sup>93</sup> During this period, the U.S. military knew how to test, sanitize, vaccinate, servicemen against typhoid and smallpox. Modern medicine seemed to create a false self-assurance in medical mitigation practices. Byerly, "The U.S. Military and the Influenza Pandemic of 1918–1919."

<sup>94</sup> Nancy Tomes, "Destroyer and Teacher": Managing the Masses During the 1918–1919 Influenza Pandemic," *Public Health Reports* 125, no. Suppl 3 (2010): 48–62, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2862334/>.

<sup>95</sup> "1918 Pandemic (H1N1 Virus)," Centers for Disease Control and Prevention, June 16, 2020, <https://www.cdc.gov/flu/pandemic-resources/1918-pandemic-h1n1.html>.

<sup>96</sup> The military draft grew numbers from 378,000 in April 1917 to more than 4.7 million personnel by the end of the war. Military medical assets tried to meet its needs. Byerly, *The U.S. Military and the Influenza Pandemic of 1918–1919*.

<sup>97</sup> Gillet, *The Army Medical Department 1917–1941*, p.131

<sup>98</sup> Gillet, 131.

<sup>99</sup> Gillet, 132.

<sup>100</sup> Over three million draftees were examined for the war effort. Many of these men had chronic and predisposed conditions that should have hindered these individuals from serving. Gillet, *The Army Medical Department 1917–1941*, 132

enough to fight abroad.<sup>101</sup> Physicians cared about how many soldiers could be sent into battle, known as the “effective rate”—the overall number of men who could fight and work.<sup>102</sup>

By March 1918, the first wave of military personnel began exhibiting a flu-like illness at Camp Funston, Kansas.<sup>103</sup> This camp served as a main collection point to train soldiers coming from the Midwestern states on how to fight over seas.<sup>104</sup> Camp Funston was one of the largest training camps in the United States, accommodating an estimated 40,000 troops.<sup>105</sup> With such population, the installation’s biggest problem well may have been the spread of communicable disease.<sup>106</sup> Respiratory diseases like influenza were especially troublesome given that they were hard to prevent.<sup>107</sup> Within March alone, 1,100 Camp Funston personnel would become ill with reports of the virus affecting personnel in Georgia.<sup>108</sup>

During the spring of 1918, infectious disease research did not make unified efforts to understand the virus. Studies varied as scientist tried to distinguish the virus. Furthermore, there was operational red tape hindering further understanding; for example, autopsies could not be conducted without special consent from the Army.<sup>109</sup> Therefore, the infectious disease division focused on preventative health measures and disease diagnosis efforts instead of understanding how the disease affected the human body.<sup>110</sup>

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<sup>101</sup> Gillet, *The Army Medical Department 1917–1941*

<sup>102</sup> This rate was meant to be kept statistically low and not meant to be an individually accurate picture of patient care. Medical officers wanted this number to remain low, showing their proficiency on paper. Byerly, *The U.S. Military and the Influenza Pandemic of 1918–1919*.

<sup>103</sup> Centers for Disease Control and Prevention, “1918 Pandemic (H1N1 Virus).”

<sup>104</sup> “Camp Funston” – Kansapedia Kansas Historical Society, October 2018, <https://www.kshs.org/kansapedia/camp-funston/16692>.

<sup>105</sup> Kansapedia Kansas Historical Society.

<sup>106</sup> Kansapedia Kansas Historical Society.

<sup>107</sup> Gillet, *The Army Medical Department 1917–1941*, 152

<sup>108</sup> Soldiers traveled through Camp Funston to be transported to other military installations unknowingly spreading the virus across the U.S. Durr, “Flu Outbreak Killed 45,00 U.S. Soldiers during World War I,”

<sup>109</sup> Gillet, *The Army Medical Department 1917–1941*.

<sup>110</sup> Gillet, 241

By April 1918, U.S. public health officials declared the United States was under the grips of an influenza outbreak.<sup>111</sup> Soldiers were still deploying to the European warfront by the thousands.<sup>112</sup> Given the perfect conditions of war, i.e., crowded bases, minimal medical attentiveness, low supplies and manpower downrange, transmission of the influenza virus would continue to wreak havoc until 1920.<sup>113</sup> Germ theory was a known medical measure developed in 1860 by a French chemist Louis Pasteur.<sup>114</sup> In other words, military medics understood how diseases were transmitted. However, even with this knowledge military medicine continued to operate under these overcrowded conditions.<sup>115</sup>

The military had medical resources though not enough to distribute the knowledge and capability that existed at the time. For instance, the Army's Division of Laboratories was created back in October 1917 in Dijon, France,<sup>116</sup> which resulted in the development of the Infectious Diseases specialty and Central Medical Laboratory. The development of laboratories created 300 functional laboratories within the following year.<sup>117</sup> This organizational change suggests that the military had resources that could identify and understand the hazardous conditions of the virus, while the first and second wave hit the United States. According to James Wright and Leland Baskin, the military had efficient laboratory services,

The United States entered the World War I in April 1917. Differing geography, weather, changing technology, changing war tactics, trench warfare, and similar changes created new issues that could be addressed by pathology and

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<sup>111</sup> Centers for Disease Control and Prevention, "1918 Pandemic (H1N1 Virus)."

<sup>112</sup> Centers for Disease Control and Prevention. "1918 Pandemic (H1N1 Virus)."

<sup>113</sup> Gina Kolata, *Flu: The Story of The Great Influenza Pandemic of 1918 and the Search for the Virus That Caused It* (Farrar, Straus and Giroux, 2011) pgs.1-330.

<sup>114</sup> National Research Council (US) Committee to Update, "Science, Medicine, and Animals," Washington (DC): National Academies Press (US); 2004. <https://www.ncbi.nlm.nih.gov/books/NBK24649/>

<sup>115</sup> Declares "crowd disease" as the hardest to prevent given measures to keep society from gathering were the hardest measures to enforce. Tomes, ""Destroyer and teacher: Managing the masses during the 1918–1919 influenza pandemic."

<sup>116</sup> Gillet, *The Army Medical Department 1917–1941*. 239

<sup>117</sup> James R. Wright, Leland B. Baskin, "Pathology and Laboratory Medicine Support for the American Expeditionary Forces by the U.S. Army Medical Corps During World War I." *Arch Pathol Lab Med* 1 September 2015; 139 (9): 1161–1172. doi: <https://doi.org/10.5858/arpa.2014-0528-HP>

laboratory medicine...Although clearly the overall service provided was outstanding, there were significant bureaucracy and organizational structural issues to be overcome from the beginning.<sup>118</sup>

The military laboratories had the science and technology, however, a lack of organizational structure caused manpower issues. As the laboratory efficiency evolved, command and control of the sections fell apart as laboratory personnel were being pulled from their assignments to assist patients directly.<sup>119</sup> Figure 2 shows a glimpse inside what was once a central laboratory fit with the ability to perform autopsies, prepare cultures, and identify biological specimens.



Figure 2. A Central Medical Laboratory.<sup>120</sup>

<sup>118</sup> Wright and Baskin, "Pathology and Laboratory Medicine Support for the American Expeditionary Forces by the U.S. Army Medical Corps During World War I."

<sup>119</sup> The physical separation of the Army's chief surgeon and the laboratories caused confusion, congestion, and a multitude of communication failures between the two entities causing disjointed application of this critical asset. Autonomy allowed the laboratories to thrive, but the practices and developments created did apply to the battlefield. Wright and Baskin, "Pathology and Laboratory Medicine Support for the American Expeditionary Forces by the U.S. Army Medical Corps During World War I."

<sup>120</sup> Source: Gillet, *The Army Medical Department 1917–1941*, 239

More importantly, the central laboratory was created to handle elaborate epidemic research efforts—through the availability of field teams and lab units.<sup>121</sup> Mobile medical assets. An example of the benefits of a medical laboratory, military medicine was able to conduct several efforts to identify the influenza virus<sup>122</sup> and develop vaccine trials. One such instance took place from 1918 to 1919, where the Pfeiffer’s Bacillus organism was used and tested as a potential vaccine to prevent influenza and the onset of pneumonia. Unfortunately, the results came back inconclusive<sup>123</sup> Understanding that military medicine had the ability to conduct vaccine trials leads to a fundamental assumption that the military science and medical field scientist had valuable knowledge about the 1918 virus.

## 2. Medical Response

Unknown parameters and limitations of the influenza virus directly attributed to an overall poor and sub optimal medical response to the 1918 pandemic.<sup>124</sup> A potential reason for this underwhelming response to the influenza virus may be attributed to a lack of trained medical personnel qualified before and during the pandemic. For example, stated in The Army Medical Department by Gillet, she explains, “Though an epidemiologist billet was templated for each military camp, the position was hard to find qualified persons for.”<sup>125</sup> Not having all epidemiologist billets filled meant that there were only a few personnel to procure efficient data and determine whether or not an outbreak was probable or occurring until it was clearly evident. Thus, when the influenza pandemic began to flourish in the U.S. military, not all camps had disease surveillance and prevention services on station.<sup>126</sup>

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<sup>121</sup> Gillet, The Army Medical Department 1917–1941, 240

<sup>122</sup> National Research Council (US) Committee to Update, “Science, Medicine, and Animals.”

<sup>123</sup> John Eyler, “The Fog of Research: Influenza Vaccine Trials during the 1918–19 Pandemic,” *Journal of the History of Medicine and Allied Sciences*, Volume 64, Issue 4, October 2009, 401–428, <https://doi.org/10.1093/jhmas/jrp013>.

<sup>124</sup> Author notes that the 1918 influenza impacted the American military more in just one year than any amount of war casualties during 20<sup>th</sup> century war. Kolata, *Flu: The Story of The Great Influenza Pandemic of 1918 and the Search for the Virus That Caused It*.

<sup>125</sup> Gillet, The Army Medical Department 1917–1941, 121.

<sup>126</sup> Gillet, 121.

Therefore, the Surgeon General tasked Col Victor C. Vaughan (seen in Figure 3)—with oversight over all Army camp epidemiologists.<sup>127</sup> As the President of the American Medical Association and sole surviving member of a typhoid fever medical team during the Spanish-American War, Col Vaughan was highly revered in the medical field.



Figure 3. COL Victor C. Vaughan, lead epidemiologist in WWI<sup>128</sup>

Vaughan first encountered the influenza epidemic at Camp Devens. Camp Devens, located near Boston, Massachusetts, was later found to be the first military base to be severely affected by the influenza virus.<sup>129</sup> Colonel Vaughan recounts his devastating visit:

Hundreds of stalwart young men in the uniform of their country, coming into the wards of the hospital in groups of ten or more... They are placed on the cots until every bed is full, yet others crowd in. Their faces soon wear a bluish cast; a distressing cough brings up the blood-stained sputum. In the morning, the dead bodies are stacked about the morgue like cord wood.”

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<sup>127</sup> Gillet, 121.

<sup>128</sup> Gillet, 122.

<sup>129</sup> Kolata, *Flu: The Story of The Great Influenza Pandemic of 1918 and the Search for the Virus That Caused It*; 352.

The virus, he wrote, “demonstrated the inferiority of human interventions in the destruction of human life.”<sup>130</sup>

Though Colonel Vaughan had a plethora of medical and wartime experience, he was no match (from his perspective) against the pandemic’s virulence. In fact, Vaughn later stated that “we [medical field] humbly admit our dense ignorance in this case”<sup>131</sup> Modern military medicine could not explain what was happening. Moreover, Colonel Vaughan’s personal testimony to the surgeon general did not prompt immediate change like one would have expected. His request to emplace specified protective measures went up to his superiors however, his request for medical proactive counter measures were ignored.<sup>132</sup> Acting Surgeon General Charles Richard called for canceling draft calls and minimizing transfers among camps and reducing the number of personnel on transport boats by half.<sup>133</sup>

There was a lack of overall military department guidance for how to uniformly handle and treat influenza patients across U.S. military encampments. Military medical leaders such as Acting Army Surgeon General Charles Richard insisted on informing the Medical Corps and White House officials about public awareness directly, “firing daily memos to the Army Chief of Staff Peyton March and others making recommendations on the epidemics.”<sup>134</sup> He warned that the influenza epidemic would severely decrease U.S. military manpower until the virus had run its course.<sup>135</sup> Other statements emphasized the need to induce quarantine measures immediately and reduce troop transportation ship to

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<sup>130</sup> Kolata, 16

<sup>131</sup> “Biography: Victor Vaughan.” *PBS*, <https://www.pbs.org/wgbh/americanexperience/features/influenza-victor-vaughan>.

<sup>132</sup> *PBS*.

<sup>133</sup> Army chief of Staff Peyton March ignored these protective measures vying for more rigorous screening protocols. President Wilson later conceding to reduce troop capacities by 10%. U.S. Army Heritage and Education Center: U.S. Army War College, *Battling the Bug: The Army’s Response to Epidemics and Pandemics* (Carlisle Barracks, PA: U.S. Army, 2014), [https://ahec.armywarcollege.edu/documents/Battling\\_the\\_Bug2.pdf](https://ahec.armywarcollege.edu/documents/Battling_the_Bug2.pdf).

<sup>134</sup> U.S. Army Heritage and Education Center, 89.

<sup>135</sup> U.S. Army Heritage and Education Center, 89.

half.<sup>136</sup> Unfortunately, throughout WWI, these safety and mitigation strategies were disregarded given the need of troops abroad.<sup>137</sup>

Additionally, the strained pandemic environment directly inhibited medical response to counter the 1918 influenza. Contrary to popular belief, the method and techniques of isolation and quarantine were commonly practiced in the early 20th century; in fact, the practice of separating people dates back to the 14th century.<sup>138</sup> Limited resources and understaffing were most likely the issues that exacerbated the influenza trajectory however the use of isolation and quarantine implies methods existed that could have made a significant impact.

For example, Figure 4 illustrates how hundreds of ill soldiers were placed in warehouse corridors that functioned as emergency hospitals with patients ranging from mildly symptomatic, highly contagious, to deceased. The constant rotation of personnel to and from the camps created a “revolving door” and further thwarted the slowing of the spread of influenza. *Smithsonian Magazine* reported that on March 4, 2018, “the first soldier known to have influenza, reported ill, within just two weeks 1,100 soldiers were admitted to the hospital, with thousands sicker in barracks... [Of the] 36 military camps, 24 were to suffer the same outbreak across the U.S. transmitting through neighboring communities.”<sup>139</sup>

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<sup>136</sup> U.S. Army Heritage and Education Center, 89.

<sup>137</sup> Army’s Surgeon General makes multiple attempts to address influenza concerns via telegraph to the White House. National Library of Medicine Digital Collections, *The Medical Department of The United States Army in the World War: by COL. Weston P. Chamberlain*. Volume IV (Washington: Government Printing Office= 1926), <https://collections.nlm.nih.gov/bookviewer?PID=nlm:nlmuid-14120390RX6-mvpart>. Pg 356

<sup>138</sup> Demonstrates that the practice of Quarantining stems from the Middle Ages, yet it was not until 1921 when federal government became involved with regulating quarantine activities. “History of Quarantine,” Center for Disease Control and Prevention, July 20, 2020, <https://www.cdc.gov/quarantine/historyquarantine.html>.

<sup>139</sup> Article shows how the influenza virus spread from civilian and military communities. Barry, “How the Horrific 1918 Flu Spread Across America.”



Figure 4. Camp Funston emergency hospital. Functioned as a main training center and unfortunate hot bed for the Influenza virus in 1918.<sup>140</sup>

Figure 5 clearly shows the extent of densely packed transport boats and how this environment exacerbated influenza outbreaks among fresh reinforcements inbound to Europe.

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<sup>140</sup> Barry.

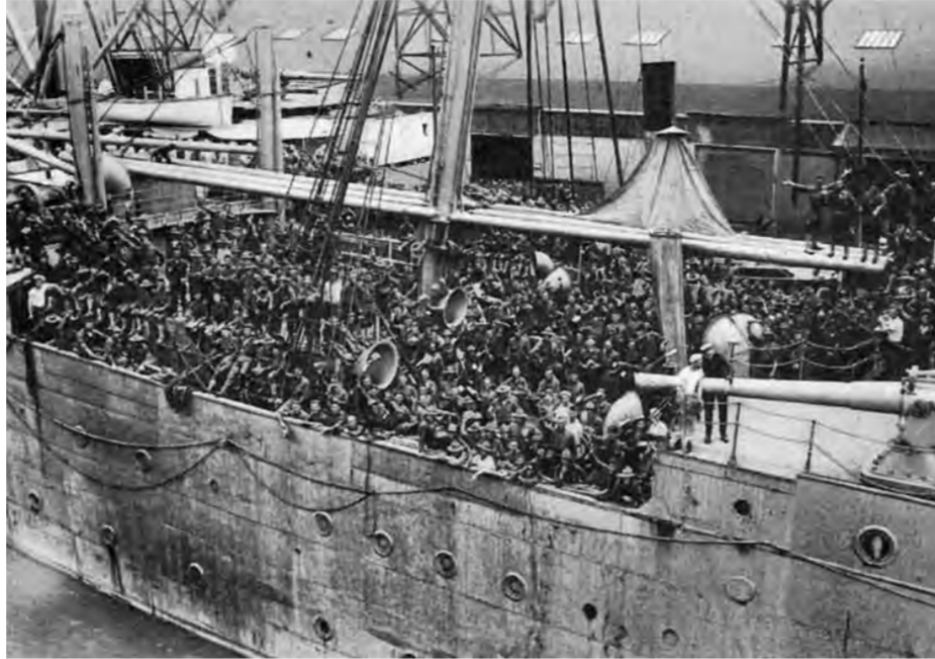


Figure 5. Picture of an overcrowded transport boat in Newport News, VA, starting their journey to Europe.<sup>141</sup>

By fall 1918, a second more contagious influenza wave crippled parts of the U.S. and military camps. Even though the war had ended by November of 1918, the influx of triumphant servicemen coming back to the United States further intensified transmissions stateside.<sup>142</sup>

Furthermore, medical and therefore military medicine were highly criticized throughout early 1900 society. Prime example, military patients did not trust military medicine during the initial onset of the pandemic. Soldiers reported that they would rather tough it out than to seek medical help.<sup>143</sup> There were reports that medical practitioners, and military leaders did not utilize proper precautions to protect themselves and troops

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<sup>141</sup> A transport boat heading to Europe full of servicemen. Gillet, *The Army Medical Department*, 205

<sup>142</sup> Centers for Disease Control, “1918 Pandemic (H1N1 Virus).”CDC.

<sup>143</sup> Jennifer George, “The Influenza Pandemic of 1918 and Its Effects on the United States Military.” (Student Thesis, Western Oregon University, 2005), 129. <https://wou.edu/history/files/2015/08/Jenny-George.pdf>

from transmitting the influenza virus.<sup>144</sup> The poor medical-to patient-relationship exacerbated the preexisting-troubled relations between medicine and military personnel thereby worsening the medical professions' sphere of societal influence and effectiveness. Marybelle Burch collected letters from several soldiers who wrote letters home complaining about military practices making soldiers sick and withholding evidence that would help to contain the disease.<sup>145</sup> Jennifer George states, "The soldiers clearly thought that the measures that were being taken by the military were ridiculous. This was due to in many cases the preventative measures making some of the soldiers just as sick as the disease would have."<sup>146</sup>

### **3. Leadership Posture**

The decisive tone by leadership to focus on the war effort (through public messaging) instead of protective measures heavily influenced military readiness during the 1918 Epidemic. In this context, leadership posture is understood as a leaders' stance decision-making influenced by set priorities. On one side of the spectrum, public officials did not want to incite public hysteria or panic while also wanting the public to take the influenza threat seriously.

Historians note that President Wilson had a problematic decision to make during WWI. He had to either display a strong message of western strength by coming to the aid of western allies or he had to conduct a tactical pause on sending troops to Europe in order to slow the spread of influenza.<sup>147</sup> Ultimately, Wilson opted to ignore the pandemic for the purposes of planning and policy.<sup>148</sup> Meantime, amid broader fears of defeatism,

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<sup>144</sup> George states that many of the soldiers at Camp W got sick from the vaccinations. Spreading medical distrust. Also, Navy personnel were forced to sleep outside during a storm because that was all the billeting available for the sick. George, "The Influenza Pandemic of 1918 and Its Effects on the United States Military."10-13

<sup>145</sup> George,

<sup>146</sup> George, 8.

<sup>147</sup> Patsy Widakuswara, "How U.S. Presidents Have Handled Public Health Crises," *VOA*, March 30, 2020, [https://www.voanews.com/a/science-health\\_coronavirus-outbreak\\_how-us-presidents-have-handled-public-health-crises/6186561.html](https://www.voanews.com/a/science-health_coronavirus-outbreak_how-us-presidents-have-handled-public-health-crises/6186561.html).

<sup>148</sup> Byerly, "The U.S. Military and the Influenza Pandemic of 1918–1919."

particularly in industrial production,<sup>149</sup> medical leaders and professionals were told to keep quiet about the true impact of the influenza's effect on troops, as these details might bring dishonor to troops and dishearten the American war effort.<sup>150</sup> Indeed, as John M. Barry notes, "Wilson never made a public statement about the pandemic. Never."<sup>151</sup> President Wilson and his staff were advised to censor real-time information on the effects of influenza on troops and incurred deaths.<sup>152</sup>

President Wilson's leadership posture during the 1918 influenza influenced outcomes for U.S. military forces and international relations for decades to come. His attempt to realize his post-war visions of peace at the Paris Peace Conference came to a devastating halt when President Wilson himself contracted influenza and was bedridden for several days.<sup>153</sup> Historians suggest that had Germany received a less punitive deal in the Paris Peace Agreement (as President Wilson had hoped for), Hitler's rise to power and potentially WWII could have been avoided.<sup>154</sup>

## **B. H1N1A (2009) SWINE FLU**

In the spring of 2009, nearly 100 years after the 1918 pandemic, another influenza outbreak caught the world by surprise. Accessibility to foreign destinations overnight and shipping products across the globe astronomically intensified the transmission rate in 2009. An estimated 60 million people were afflicted with the H1N1 Influenza A virus.<sup>155</sup> Figure

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<sup>149</sup> John Barry, "How the Horrific 1918 Flu Spread Across America," Smithsonian Magazine.

<sup>150</sup> Byerly, *Fever of War*.

<sup>151</sup> A direct quote used in a comparison of leadership styles between President Wilson and President Trump highlighting author John M. Barry work in *The Great Influenza: The Story of the Deadliest Pandemic in History*. Faith Karimi, "President Woodrow Wilson Also Downplayed a Pandemic and Was Infected." *CNN.COM Newsroom*, October 03, 2020, <https://www.cnn.com/2020/10/03/us/woodrow-wilson-coronavirus-trnd/index.html>.

<sup>152</sup> Karimi. "President Woodrow Wilson Also Downplayed a Pandemic and Was Infected."

<sup>153</sup> Dave Roos, "Woodrow Wilson Got the Flu in a Pandemic During the World War I Peace Talks," HISTORY, Oct. 2, 2020. <https://www.history.com/news/woodrow-wilson-1918-pandemic-world-war-i>.

<sup>154</sup> Historians uncover that the treaty of Versailles was signed but under great duress. History.com, "World War I."

<sup>155</sup> Pergolizzi et al., "Four Pandemics Lessons Learned, Lessons Lost."

6 illustrates how the H1N1 virus quickly spread due to the accessibility of various modern-day transportation modes across the globe.<sup>156</sup>



Figure 6. Shows the initial spread of the 2009 H1N1 virus spanning several continents within two months' time.<sup>157</sup>

Contrary to previous influenza outbreaks, U.S. military leadership had a plan.<sup>158</sup> Research reveals that preemptive and conscious planning committees working along with public health officials made a critical difference in implementing aggressive countermeasures. U.S. leadership actively responded and enforced measures that significantly subsided the

<sup>156</sup> Laura E. Peitersen, Calli S. Levin, and Allison G. Jones, "Department of Defense Biological Threat Responses to the 2009–2010 H1N1 Influenza Outbreak: A Real-World Exercise," (Maxwell Air Force Base, AL: USAF, 2011), 7–9. <https://media.defense.gov/2019/Apr/11/2002115515/-1/-1/0/51DODBIOTHREAT.PDF>.

<sup>157</sup> Source: "Column on Airneth," GLEAM: The Global Epidemic and Mobility Model, September 23, 2009, <http://www.gleamviz.org/2009/09/column-on-airneth/>.

<sup>158</sup> An example of DOD officials deliberately planning for a potential pandemic with the potential to threaten U.S. military forces. Peitersen, "Department of Defense Biological Threat Responses to the 2009–2010 H1N1 Influenza Outbreak: A Real-World Exercise,"

effects of the outbreak.<sup>159</sup> The response to 2009 H1N1 Influenza outbreak, highlights improved military pandemic preparedness and practical mitigation strategies that enabled the U.S. military to continue its mission whilst operating in this environment.

Much like 1918, this new (and novel) H1N1 influenza virus was attacking the young and healthy<sup>160</sup>—a targeted threat to the considerable majority of U.S. military fighting force. Therefore, military leaders sought to prevent this threat from infiltrating and enforced a significant plan of action to protect U.S. military forces. The response began with speedy and precise identification of the H1N1 virus, a quick and efficient medical response, and a direct delegation of leadership priorities. These factors counteracted the spread of the H1N1 virus and helped preserve U.S. military's readiness against the 2009 pandemic threat. Military efforts during this time prove that the science community, public health, and U.S. government infrastructure must continue to evolve itself alongside emerging viruses.

### **1. Identifying the Threat**

The first reported infection of H1N1 was in Mexico, April 18, 2009.<sup>161</sup> Immediately the WHO and CDC began working toward a vaccine and established an Emergency Operations Center (EOC).<sup>162</sup> Due to a prior outbreak in 2005, epidemiologists created tools to help execute a plan that resulted in a swift identification of the novel H1N1 influenza strain.<sup>163</sup> By April 25, the WHO declared H1N1 a Public Health Emergency of international concern.<sup>164</sup> Before the month's end, WHO raised its declaration to a

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<sup>159</sup> Identifies the progression of Army medicine had made over the last decade in 2000. As a result, mass vaccination program was established utilizing CHAMPUS and CDC to quickly inoculate troops. Diana Jeffery et al. "Impact of the 2009 Influenza (H1N1) Pandemic on the United States Military Health Care System." *Military Medicine*, vol.178, 6:653, June 2013. 653

<sup>160</sup> Centers for Disease Control and Prevention, "2009 H1N1 Pandemic."

<sup>161</sup> Centers for Disease Control and Prevention.

<sup>162</sup> Centers for Disease Control and Prevention.

<sup>163</sup> Kamradt-Scott, Adam. "What Went Wrong? The World Health Organization from Swine Flu to Ebola."

<sup>164</sup> Centers for Disease Control and Prevention, "2009 H1N1 Pandemic."

pandemic awareness level and instructed all countries to activate their pandemic preparedness plans.<sup>165</sup>

Concurrently, U.S. military healthcare was prepared, having experienced numerous scenarios handling, and developing protocol for outbreak conditions such as: the 1976 H1N1 outbreak in Fort Dix, H3N2 on a Navy ship from 1995–1996, and H5N1 in 2005. These real-time experiences provided a well-established baseline for military and public health entities.<sup>166</sup> As one expert notes, “Federal experiences identifying and controlling new strains of influenza are critical for military preparedness and the health care of DOD beneficiaries.”<sup>167</sup> By the end of summer in 2009, the CDC reported more than 1 million cases of H1N1 within the United States;<sup>168</sup> clinical trials had begun testing vaccines against this virus, just as a second wave hit the United States in August 2009.<sup>169</sup> By September 4, 2009, vaccines were approved by the FDA and vaccine doses started being administered by October 2009.<sup>170</sup> One year later, on August 11, 2010, the WHO stated that the 2009 H1N1 pandemic was over. The CDC estimated, “151,700-575,400 people worldwide died from H1N1pdm09 virus infection...80% of virus-related deaths were estimated to have occurred in people younger than 65 years of age.”<sup>171</sup>

The United States had responded quickly and appropriately to the threat at hand. This particular outbreak gave the U.S. government and military forces updated lessons for potential natural disasters or attacks.<sup>172</sup> Identifying the threat encouraged agencies and

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<sup>165</sup> Centers for Disease Control and Prevention. “2009 H1N1 Pandemic.”

<sup>166</sup> Implementation of mass vaccination campaigns fostering a unified effort between military healthcare, the CDC and local medical establishments. Diana D. Jeffery et al., “Impact of the 2009 Influenza (H1N1) Pandemic on the United States Military Health Care System,” *Military Medicine*, Volume 178, Issue 6, June 2013, 653–658, <https://doi.org/10.7205/MILMED-D-12-00345>

<sup>167</sup> Direct quote about the development of military healthcare through several infectious diseases supported a hasten relief effort. Jeffery et al., “Impact of the 2009 Influenza (H1N1) Pandemic on the United States Military Health Care System,”

<sup>168</sup> Centers for Disease Control and Prevention, “2009 H1N1 Pandemic.”

<sup>169</sup> Centers for Disease Control and Prevention. “2009 H1N1 Pandemic.”

<sup>170</sup> Centers for Disease Control and Prevention. “2009 H1N1 Pandemic.”

<sup>171</sup> Centers for Disease Control and Prevention. “2009 H1N1 Pandemic.”

<sup>172</sup> Peitersen, “Department of Defense Biological Threat Response to the 2009–2010 H1N1 Influenza Outbreak: A real world Exercise.”

resources to align in support of early mitigation and planning efforts to protect national security.<sup>173</sup>

## 2. Medical Response

The U.S. military medical field was not complacent during the 2009 H1N1 outbreak. DOD officials closely monitored as the virus continued to spread rapidly across the globe. Top military officials understood the crisis and the potential risk to military readiness, Peitersen states in her summary of the DOD's response to the 2009–2010 H1N1 outbreak, “that on August 26, the DOD purchased 2.7 million doses of novel H1N1 vaccine for active military members.”<sup>174</sup> The outbreak that began in March had vaccinations ready for purchase by August—establishing a military readiness timeline countermeasure.<sup>175</sup>

Vaccinations for U.S. military personnel began in October of 2009.<sup>176</sup> Talks of mandatory vaccinations for all uniformed personnel was a strategic planning effort for the department's Director of Preventative Medicine Army Lt. Col Wayne Hachey.<sup>177</sup> H1N1 vaccinations were heavily enforced.<sup>178</sup> LTC Hachey stated, “What we want to do is target those people who are at highest risk for transmission. Any place where we take a lot of people, squash them all together and get them nice and close and put them under stressful conditions will get the vaccine first.”<sup>179</sup> Military personnel were receiving their vaccinations at immunization campaigns and joint bases<sup>180</sup> regardless of geographical

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<sup>173</sup> Peitersen.

<sup>174</sup> Peitersen, 19.

<sup>175</sup> The development of H1N1 plan allowed DOD officials and planners to develop a biological warfare response plan. Peitersen, 4

<sup>176</sup> “H1N1 Vaccination to Be Required for U.S. Military,” Center for Infectious Disease Research and Policy, September 2, 2009, <https://www.cidrap.umn.edu/news-perspective/2009/09/h1n1-vaccination-be-required-us-military>.

<sup>177</sup> Center for Infectious Disease Research and Policy, “H1N1 vaccination to be required for U.S. military,” *University of Minnesota Underwriters*, September 2, 2009. <https://www.cidrap.umn.edu/h1n1-2009-pandemic-influenza/h1n1-vaccination-be-required-us-military>.

<sup>178</sup> Jim Garamone, “Troops to receive H1N1 Flu vaccinations,” *U.S. Army*, September 2, 2009, [https://www.army.mil/article/26861/troops\\_to\\_receive\\_h1n1\\_flu\\_vaccinations](https://www.army.mil/article/26861/troops_to_receive_h1n1_flu_vaccinations) September 2, 2009.

<sup>179</sup> Garamone.

<sup>180</sup> Peitersen, 30

location. For example, DOD reported that, “Units at Fort Gordon were scheduled in 20- to 30-minute increments, with 60 medics administering the vaccine while more than 80 additional personnel recorded data...Others were vaccinated through Joint efforts.”<sup>181</sup> DOD responded quick and efficiently to ensure combat power was not to be affected by the pandemic.

By December 2009, the DOD had decreased the number of illnesses throughout the military force health system. *The Department of Defense Responses to 2009–2010* reported that, the Army and the Air Force led the way with 94% of their force immunized, followed by the Coast Guard at 93%, and the Navy and Marines each at 82%.<sup>182</sup> Quick medical action led to a well-oiled delegation of protocols with fantastic results. Of all actions to take during the 2009 pandemic, the U.S. military medical field enacted an aggressive stance against H1N1.

### **3. Leadership Posture**

Leadership decisions established well before 2009 helped facilitate a strong foundation against the 2009 H1N1 pandemic. President George Bush published a national strategy for DOD pandemic preparedness in 2006, known as the White House’s Implementation Plan for the National Strategy Pandemic Influenza. President Bush’s guidelines orchestrated important collaborative efforts among national assets.<sup>183</sup> Establishing this plan enabled the outcome of 2009 for U.S. military forces. Another example of effective leadership posturing occurred in April of 2009 when Pacific Command (PACOM) provided general guidance stressing simple precautions to military forces within the operational environment.<sup>184</sup> Commanders across the globe made sure to

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<sup>181</sup> Peitersen, 23

<sup>182</sup> Peitersen, 25.

<sup>183</sup> The White house Implementation plan by President George Bush. “The National Strategy for Pandemic Influenza,” The White House, May 2006, <https://www.cdc.gov/flu/pandemic-resources/pdf/pandemic-influenza-implementation.pdf>.

<sup>184</sup> U.S. commanders had the responsibility of setting installation guidelines for servicemembers, dependents, and civilians residing and working on the vicinity of the military post. Peitersen, “Department of Defense Biological Threat Response to the 2009–2010 H1N1 Influenza Outbreak: A real world Exercise.”

push guidance that supported health protection posturing while a vaccine was under development.<sup>185</sup>

Prior to 2009, the DOD had established multiple avenues of internal support, to aid in infectious disease planning efforts. One main avenue of effort was Defense Secretary Donald Rumsfeld appointing USNORTHCOM as the lead organizational planner in 2006.<sup>186</sup> By October 2007 USNORTHCOM had developed a *Concept Plan to Synchronize DOD PI (Pandemic Influenza) Planning*, simply known today as *CONPLAN 3551*. The Government Accountability Office (GAO) declared, “that CONPLAN 3551 provides guidance to DOD and the military services on planning and preparing for a pandemic outbreak through the Departments of Health and Human Services (HHS) and Homeland Security (DHS).”<sup>187</sup> This plan would prove to be vital to the DOD’s infectious disease response policies and procedures demonstrated in 2009.<sup>188</sup>

CONPLAN 3551 drew lines of effort among civil support agencies, federal agencies, and DOD assets to combat the threat of infectious diseases on military forces.<sup>189</sup> This plan ensured that the gaps identified in the GAO meeting between COCOMs was fulfilled through vigorous interagency biological warfare exercises.<sup>190</sup>

Not wasting any time with a quickly developing pandemic threat, the DOD immediately enacted USNORTHCOM CONPLAN 3551 to decrease the chance of spreading the infectious disease among servicemen and -women.<sup>191</sup> By emplacing systems that would identify the threat and emplacing a follow-on plan, there was an efficient time lapse between planning and deliberate action.

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<sup>185</sup> Peitersen.

<sup>186</sup> Peitersen, 14

<sup>187</sup> Defense Civil Support: DOD, HHS, and DHS Should Use Existing Coordination Mechanisms to Improve Their Pandemic Preparedness, GAO-17-150 (Washington, DC: Government Accountability Office, 2017), 2.

<sup>188</sup> Peitersen, “Department of Defense Biological Threat Response to the 2009–2010 H1N1 Influenza Outbreak: A real world Exercise.” 14.

<sup>189</sup> Peitersen, 7

<sup>190</sup> Peitersen, 8

<sup>191</sup> Peitersen, 23.

During the Global War on Terror, as President Obama announced plans to send more troops to the Middle East against terrorist forces. U.S. military troops again were deploying rapidly to the middle east with a focus in Afghanistan and Iraq. Early 2009 there were 37,000 troops in Afghanistan.<sup>192</sup> By the end of 2009, an additional 98,000 troops were committed to help fight and train a competent Afghan Security Force.<sup>193</sup> Had an outbreak occurred during the amassing of military forces, thousands of troops could have contracted H1N1 and potentially spread the disease through parts of Europe and the Middle East.

In May 2009, President Obama addressed the American public directly,<sup>194</sup> empowering U.S. citizens to take proactive approaches to prevent catching the virus and provided recommended contingency plans to prevent the transmission of the virus. President Obama announced:

This is a new strain of the flu virus, and because we haven't developed an immunity to it, it has more potential to cause us harm. Unlike the various strains of animal flu that have emerged in the past, it's a flu that is spreading from human to human. This creates the potential for a pandemic, which is why we are acting quickly and aggressively. This H1N1 flu has had its biggest impact in Mexico, where it has claimed a number of lives and infected hundreds more. Thus far, the strain in this country that has infected people in at least nineteen states has not been as potent or as deadly. We cannot know for certain why that is, which is why we are taking all necessary precautions in the event that the virus does turn into something worse.

This is also why the Centers for Disease Control has recommended that schools and childcare facilities with confirmed cases of the virus close for up to fourteen days. It is why we urge employers to allow infected employees to take as many sick days as necessary. If more schools are forced to close, we've also recommended that both parents and businesses think about contingency plans if children do have to stay home. We have asked every American to take the same steps you would take to prevent any

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<sup>192</sup> "Timeline: The U.S. War in Afghanistan 1999–2001," Council on Foreign Relations, 2022, <https://www.cfr.org/timeline/us-war-afghanistan>

<sup>193</sup> "Council on Foreign Relations. "Timeline: The U.S. War in Afghanistan 1999–2001,"

<sup>194</sup> President Barack Obama, "Weekly address: President Obama Outlines Government Actions to Address the 2009 H1N1 Flu," The White House, May 02, 2009, <https://obamawhitehouse.archives.gov/the-press-office/weekly-address-president-obama-outlines-government-actions-address-2009-h1n1-flu>.

other flu: keep your hands washed; cover your mouth when you cough; stay home from work if [you are] sick; and keep your children home from school if [they are] sick.<sup>195</sup>

Unlike President Woodrow Wilson, President Obama's speech provided a vital message to harness and pushout resources throughout the U.S. His message was informative and permeable to all U.S. citizens and Armed Forces. The Obama administration continued working with the CDC to provide the most updated information on the virus outbreak and ensuring the U.S. public that the federal government would do what is necessary to take care of its citizens.<sup>196</sup> The 2009 H1N1 outbreak serves as a constant reminder to remain ready for the next global disrupter.

### **C. OBSERVABLE READINESS IMPACTS**

The influenza virus severely impacted U.S. military operations both at home and abroad. Comparing and contrasting the two influenza outbreaks' military readiness outcomes alludes to differences that made a significant impact. Understanding how the viruses were identified, how the medical field responded to the outbreaks, and also how leadership postured itself to respond to counter the outbreak unravels critical benchmarks. Though technological advancements have increased confidences, the art of comparing these two outbreaks ensures that future military readiness variables are considered in various pandemic environments troops may reside.

Both influenza pandemics caused significant logistical and tactical delays. Bombardt and Brown identified that the effects from influenza-mandated quarantine stagnated influxes of newly trained forces to the battlefield.<sup>197</sup> Front lines grew weary as reinforcements were delayed and new soldiers lacked proper handovers to apply the same

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<sup>195</sup> Direct quote from President Obama, addressing the nation about safety measures to inact. "Weekly address: President Obama Outlines Government Actions to Address the 2009 H1N1 Flu,"

<sup>196</sup> President Barack Obama, "Weekly address: President Obama Outlines Government Actions to Address the 2009 H1N1 Flu,"

<sup>197</sup> John Bombardt and Heidi Brown, "Potential Influenza Effects on Military Population," Institute for Defense Analyses IDA, Dec 2003. pg14-16.

techniques former troops previously applied.<sup>198</sup> These instances attribute to the inability to sustain operational pressure and enabled an already elongated the war.

In 1918 the flu not only stop military operations, it devastated national support stateside. The influenza virus targeted people between the ages of 20–40 years old, which represented roughly 95% of influenza deaths within the Army.<sup>199</sup> People were not healthy enough to serve let alone support the war effort. A lead senior military college professor emphasized, “It [influenza virus] ultimately killed more American military personnel than did enemy machine guns and artillery.”<sup>200</sup> More precisely, 24% of Naval and Marine fighting forces would succumb to influenza complications in 1918.<sup>201</sup>

The inability to maintain military readiness at the front lines diminished the U.S. military supremacy immensely. Data provided from the *Annual Report to the Surgeon General* in 1928 stated during the height of the 1918–1919 influenza pandemic mortality rates reached 45%.<sup>202</sup> In comparison to current personnel readiness 1918 manning losses were 5% over critical manning levels. This loss of personnel significantly handicapped the United States’ ability to maintain military effectiveness during wartime.

On the other hand, the 2009 pandemic lasted one year with minimal tactical delays. Evidence supports that the U.S. military enacted quick and efficient countermeasures against the 2009 H1N1 outbreak. For example, DOD officials required U.S. Commanders to account for influenza activity outbreak reporting systems to report the amount of vaccinated and ill personnel with their ranks.<sup>203</sup> Reporting accurate numbers that filtered

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<sup>198</sup> Congested lines of effort had significant effects on U.S. military operations. Bombardt and Brown, “Potential Influenza Effects on Military Population,” 101.

<sup>199</sup> Bombardt and Brown, 31.

<sup>200</sup> “Battling the Bug: The Army’s Response to Epidemics and Pandemics,” U.S. Army Heritage and Education Center: U.S. Army War College.

<sup>201</sup> Lauren Dutton, Peter Rhee, and etc. Combating an invisible enemy: the American military response to global pandemics,” *Military Medical Research*, 8: (January 2021) <https://doi.org/10.1186/s40779-021-00299-3>.

<sup>202</sup> MAJ Albert Bowen-under the direction of MG Ireland, “Annual Report of the Surgeon General,” U.S. Army, 1928, 81.

<sup>203</sup> Peitersen, “Department of Defense Biological Threat Response to the 2009–2010 H1N1 Influenza Outbreak: A real world Exercise.”

not only through DOD lines, but also medical resources reinforced transparently amongst all DOD parties. Personnel transparency between DOD officials and ground force Commanders resulted in more accurate unit statuses, increased compliancy and overall, expedited response to the outbreak. These approaches ensured that DOD leaders-maintained personnel readiness under an outbreak condition.

In retrospect the lessons learned from the 1918 Influenza serve as a significant reminder of the U.S. Armed Forces vulnerabilities to novel viruses. As time has uncovered, the influenza virus continues to demand acuity as a major planning consideration for U.S. military forces. Viruses will continue to evolve over time, thus the U.S. military must continue to develop sensible countermeasures to quickly activate and continue mission.

Both influenza pandemics caused significant logistical and tactical delays. Bombardt and Brown identified that the effects from influenza-mandated quarantine stagnated influxes of newly trained forces to the battlefield.<sup>204</sup> Front lines grew weary as reinforcements were delayed and new soldiers lacked proper handovers to apply the same techniques former troops previously applied.<sup>205</sup> These instances attribute to the inability to sustain operational pressure and enabled an already elongated the war.

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<sup>204</sup> John Bombardt and Heidi Brown, “Potential Influenza Effects on Military Population,” Institute for defense Analyses IDA, Dec 2003. 14-16.

<sup>205</sup> Congested lines of effort had significant effects on U.S. military operations. Bombardt and Brown, “Potential Influenza Effects on Military Population,” 101.

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## IV. COVID-19

More than 100 years since the 1918 influenza pandemic, COVID-19 has demonstrated that the military has made significant strides to protect servicemembers and their families—but is the current status enough? According to the CDC, on November 11, 2020, the United States had 46.8 million cases of COVID-19 infections and an estimated 759,000 deaths.<sup>206</sup> As of 13 January 2022 these numbers skyrocketed to 63,397,935 cases and 842,873 deaths within the last 30 days.<sup>207</sup> The U.S. military was no exception, 627,042<sup>208</sup> active military members contracted COVID. Keep in mind, this number does not reflect the number of civilian and contract personnel that directly support and sustain U.S. military operations globally. These cases identify the enduring issue of the permeability of viruses on U.S. national security. With more medical technology and availability of resources, COVID-19's impact is unparalleled.

The *Military Times* published an article warning that “U.S. Northern Command may not have the capacity to effectively support [the U.S. government and partner nations] with the support required [during a pandemic].”<sup>209</sup> But, as Michael Shurkin argues, “It stands to reason that military commanders—with some creativity and flexibility—should be able to protect the force during COVID-19 while minimizing negative effects on readiness.”<sup>210</sup> Shurkin's viewpoint is similar to scholars, epidemiologists, and medical officers alike who insistently call for increased public health efforts to protect U.S. armed forces. For example, Yanzhong Huang insists that the U.S. military cannot afford to be

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<sup>206</sup> Google, “Covid-19 Total Deaths,” Coronavirus disease, [https://www.google.com/search?q=covid-19+total+deaths&rlz=1C1CHBF\\_enUS906US906&oq=COVID-19+total&aqs=chrome.0i512j69i57j0i512l8.7040j0j7&sourceid=chrome&ie=UTF-8](https://www.google.com/search?q=covid-19+total+deaths&rlz=1C1CHBF_enUS906US906&oq=COVID-19+total&aqs=chrome.0i512j69i57j0i512l8.7040j0j7&sourceid=chrome&ie=UTF-8).

<sup>207</sup> “COVID Data Tracker,” Centers for Disease Control and Prevention, March 28, 2020, <https://covid.cdc.gov/covid-data-tracker>.

<sup>208</sup> “United States Coronavirus Cases,” Worldometer, <https://www.worldometers.info/coronavirus/country/us/>

<sup>209</sup> “Military memo from 2017 warned of pandemic's impact on combat readiness and risk of war,” *Military Times*, April 1, 2020, <https://www.militarytimes.com/home/left-column/2020/04/01/military-memo-from-2017-warned-of-pandemics-impact-on-combat-readiness-and-risk-or-war>.

<sup>210</sup> Shurkin, “Pandemics and the U.S. Military: Lessons from 1918.”

immobilized by pandemic influenza given extensive deployments, vast areas of global responsibilities, and the extent of U.S. capabilities.<sup>211</sup> The U.S. military's response to the two aforementioned pandemics in this chapter will be compared to those actions with how the U.S. military is handling COVID-19. Using the same analytical factors amongst these pandemic responses will serve as the comparative basis to assess COVID-19 response measures.

## **A. IDENTIFYING THE VIRUS**

COVID-19 first came to public attention in Wuhan, China, on December 31, 2019.<sup>212</sup> By the new year, WHO had identified where the virus had potentially derived from and activated its incident management system.<sup>213</sup> Simultaneously, China's investigation produced the genetic information of the virus and causative agent of the outbreak. Within three months, COVID-19 spread around the world.

Within the month of January 2020, the virus had (at minimum) reached Japan, Taiwan, and Washington state in the United States.<sup>214</sup> The extent of transmission caused direct and connecting airlines from Wuhan to begin screening passengers for the virus.<sup>215</sup> Conservatively, around January 22, 2020, the WHO declared that coronavirus was not yet a Public Health Emergency of International Concern and reconvened 10 days later to wait for a conditions to improve or worsen.<sup>216</sup> The delay is making COVID-19 an international public health crisis in January perhaps slowed the response of DOD officials to implement decisive actions on travel restrictions and quarantine measures. It would not be until 30 Jan that the DOD issued guidance to personnel on coronavirus<sup>217</sup>- this guidance was vague

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<sup>211</sup> Huang et al., *Pandemics and Security*, 2–7.

<sup>212</sup> “Archived: WHO Timeline- COVID-19,” World Health Organization, 27 April 2020, <https://www.who.int/news/item/27-04-2020-who-timeline---covid-19>.

<sup>213</sup> World Health Organization.

<sup>214</sup> “CDC Museum COVID-19 Timeline,” Centers for Disease Control and Prevention, August 4, 2021, <https://www.cdc.gov/museum/timeline/covid19.html>.

<sup>215</sup> CDC and DHS’ Security customs and Border Protection established health screenings at U.S. highly populated airports to include New York, Los Angeles, and San Francisco. CDC.

<sup>216</sup> “CDC Museum COVID-19 Timeline,” Centers for Disease Control and Prevention.

<sup>217</sup> “CDC Museum COVID-19 Timeline,” Centers for Disease Control and Prevention.

and indifferent contrary to the fact that DOD had simultaneously agreed to provide aid and support to (HHS) evacuees from Wuhan, China. The COVID-19 virus in Wuhan was a warning displayed and clearly visible in the U.S. well before it made its presence known.

Concurrently, while the WHO decided what to make of COVID-19, the U.S. FDA announced that it would take action in the development of a vaccine against the novel coronavirus.<sup>218</sup> By the end of January, the U.S. Department of Health and Human Services (HHS) declared SARS-CoV-2 (formal name of coronavirus) to be a public health emergency and enforced new travel restrictions effective February 2, 2020.<sup>219</sup>

In March 2020, WHO declared COVID-19 a pandemic.<sup>220</sup> On March 13, 2020 then President Trump declared a nationwide emergency and the United States began shutting down schools, restaurants, and bars; a mask mandate while in public places soon followed.<sup>221</sup> By April 2020, the United States had surpassed Italy as the leader of deaths in the world—most U.S. states had reported widespread cases.<sup>222</sup>

The U.S. military infection rates mirrored broad national trends.<sup>223</sup> Unlike the rest of the country, the U.S. military eventually imposed strict quarantine and isolation protocols for all personnel, Department of the Army civilians, and their dependents on federal property.<sup>224</sup> The U.S. military attempted to establish more effective/ restrictive policy guidelines however this attempt was too late to decrease military exposure to community COVID cases. Only after the first wave of the pandemic did the Army, Airforce, Marines, and Navy effect momentary pauses from worldwide deployments and training camps to slow the spread of COVID-19.<sup>225</sup> Once military leaders identified the

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<sup>218</sup> “CDC Museum COVID-19 Timeline,” Centers for Disease Control and Prevention.

<sup>219</sup> “CDC Museum COVID-19 Timeline,” Centers for Disease Control and Prevention.

<sup>220</sup> “CDC Museum COVID-19 Timeline,” Centers for Disease Control and Prevention.

<sup>221</sup> “CDC Museum COVID-19 Timeline,” Centers for Disease Control and Prevention.

<sup>222</sup> “CDC Museum COVID-19 Timeline,” Centers for Disease Control and Prevention.

<sup>223</sup> Mark Cancian, Adam Saxton, and Nidal Morrison, “COVID-19 and the U.S. Military.” *War on the Rocks*. November 10, 2020, <https://warontherocks.com/2020/11/covid-19-and-the-u-s-military/>.

<sup>224</sup> By March, DOD released installation guidelines with strict rules for COVID quarantined and isolation. Cancian, “COVID-19 and the U.S. Military.”

<sup>225</sup> Ibid.

transmission level and exposure rate of the virus. This information is imperative to enforcing timely and accurate working conditions for servicemembers to operate within.

While all military branches were directly affected by COVID-19, the Navy was hit the hardest for COVID infections—nearly three times more infections than the Army.<sup>226</sup> The Navy’s deployed environment (requiring close living and working spaces) increases the chances of a hastened transmission rate.<sup>227</sup> A high-profile example of the challenges facing military forces took place on the U.S. carrier *Theodore Roosevelt* in 2020.<sup>228</sup> The U.S.S. *Theodore Roosevelt* Commanding Officer, Captain Crozier, desperately pleaded for aid as his ship as he stated it was “under attack” by a COVID-19 outbreak.<sup>229</sup> According to Gina Harkins:

At least 550 sailors, more than 10% of the roughly 4,800-person crew, had tested positive for [COVID] the illness as of Monday.”(APR 2020) “The sailor had been removed from the ship and placed in isolation with four other Roosevelt sailors after testing positive for the virus March 30...As health leaders across the U.S. issued warnings that young, healthy people were getting seriously sick from COVID-19, Navy leaders said the first hundred-plus cases on the Roosevelt were “mild or moderate... ‘We believe that their relative health and youth is in their favor,’ said Rear Adm. Bruce Gillingham, the Navy’s surgeon general. “We’re not assuming that they won’t become more ill but, so far, indications are that they will continue to be mildly symptomatic and recover without sequela.”<sup>230</sup>

Roughly 27% of the U.S.S. Roosevelt crew (1,1271 people) would end up testing positive for COVID-19.<sup>231</sup> After a bit of scrambling between U.S.S. Theodore Roosevelt’s

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<sup>226</sup> Ibid.

<sup>227</sup> Ibid.

<sup>228</sup> Matthew R. Kasper, Jesse Geibe, Christine Sears et al., “An Outbreak of Covid-19 on an Aircraft Carrier,” *New England Journal of Medicine* 383, no. 25 (December 17, 2020): 2417–26, <https://doi.org/10.1056/NEJMoa2019375>.

<sup>229</sup> Direct statement from U.S.S. Theodore Roosevelt commander. Gina Harkins, “Soldier from Carrier Theodore Roosevelt Dies of COVID-19,” *Military.com*. 13Apr 2020. <https://www.military.com/daily-news/2020/04/13/sailor-carrier-theodore-roosevelt-dies-covid-19.html> accessed 04Mar21.

<sup>230</sup> Author emphasizes pensive conditions aboard the U.S.S. Theodore Roosevelt and quotes exact words from the Navy’s Surgeon General. Provides a glimpse of a few military leaders toward this specific outbreak affecting thousands of sailors confined to a ship. Harkins, “Soldier from Carrier Theodore Roosevelt Dies of COVID-19.

<sup>231</sup> Kasper et al. “An Outbreak of Covid-19 on an Aircraft Carrier.”

Commanding Officer and officials, the ship was made to stop its mission to receive medical care at a Naval Hospital in Guam—quickly overwhelming hospital staff and supplies.<sup>232</sup> Infected sailors were put into isolation in base hospital while others that tested negative were placed under quarantine at nearby hotels while essential personnel remained onboard the carrier.<sup>233</sup> Those under COVID-19 surveillance were given primary care, pharmacy, and psychiatric services to ensure sailors received well-rounded medical care.<sup>234</sup> Still the outbreak—and its effects on the carrier’s mission and readiness—continued for six more weeks.<sup>235</sup>

Tendentious headlines notwithstanding, the Navy recognized several important points in the Theodore Roosevelt incident—and changed its protocols accordingly. An investigation on the scenario aboard the U.S.S. *Theodore Roosevelt* resulted in an important understanding of crew member exposure to communicable disease. This study identified that, “those working in tighter spaces (e.g., reactor engineering, supply, and weapons departments) appeared more likely to have confirmed or suspected Covid-19 than those working in a combination of open-air and confined conditions (e.g., air and deck crew).<sup>236</sup> The findings of this investigation alluded to the need for countermeasures against communicable diseases.<sup>237</sup>

In contrast, the U.S. Air Force enforced protective measures as early as March 1, 2020, to avoid the transmission of COVID.<sup>238</sup> An example of using identified virus information took place in Basic Training Camp at Lackland Air Force Base, San Antonio Texas. Though it was a location where 10,579 trainees passed through, only five COVID

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<sup>232</sup> Ibid.

<sup>233</sup> Ibid.

<sup>234</sup> Ibid.

<sup>235</sup> Ibid.

<sup>236</sup> Ibid.

<sup>237</sup> Dutton, Combating an invisible enemy: the American military response to global pandemics.

<sup>238</sup> Joseph E. Marcus et al., “COVID-19 Monitoring and Response Among U.S. Air Force Basic Military Trainees – Texas, March-April 2020.” *MMWR. Morbidity and mortality weekly report* vol. 69,22 685–688. 5 Jun. 2020, doi:10.15585/mmwr.mm6922e2

cases were reported.<sup>239</sup> A place that could have easily become another hotbed for disease transmission did not, due to efficient monitoring, detection, and isolating the COVID-19 virus.<sup>240</sup> The approach to apply simple protocols as soon as the virus was identified highly transmissible, ensured a timely response for proper parameters to be emplaced—thereby reducing the number of Airmen exposed to the virus.

## **B. MEDICAL RESPONSE**

Overall, the DOD set a weighted standard testing 40,000-plus personnel on a weekly basis as well as providing personnel as a global response effort.<sup>241</sup> Former Secretary of the Defense Mike Esper’s vision was to create an even more dynamic fighting force decreasing non-deployable numbers to 50%.<sup>242</sup>

Retired Col Mark Cancian, a former Marine now strategic senior analyst, argued that redefining the military’s mission essential tasking by adding “fighting disease and countering domestic emergencies”<sup>243</sup>

Military medical responses during COVID-19 remain a prominent priority and dynamic challenge for military forces as seen in Figure 7.

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<sup>239</sup> Marcus, “COVID-19 Monitoring and Response Among U.S. Air Force Basic Military Trainees – Texas, March-April 2020.”

<sup>240</sup> Article notes that all trainees were tested by their trainer and those that tested positive were sent to a medical officer for additional screening. Marcus, “COVID-19 Monitoring and Response Among U.S. Air Force Basic Military Trainees – Texas, March-April 2020.”

<sup>241</sup> Department of Defense, Secretary Esper Discusses Readiness and Modernization at the Heritage Foundation, October 15, 2020. <https://www.defense.gov/News/Transcripts/Transcript/Article/2384489/secretary-esper-discusses-readiness-and-modernization-at-the-heritage-foundation/>

<sup>242</sup> Defense Secretary Dr. Mark T. Esper, “Secretary Esper Discusses Readiness and Modernization” (lecture, The Heritage Foundation, October 15, 2020) <https://www.defense.gov/News/Transcripts/Transcript/Article/2384489/secretary-esper-discusses-readiness-and-modernization-at-the-heritage-foundation/#:~:text=Secretary%20Esper%20Discusses%20Readiness%20and%20Modernization%20at%20the,Kay%2C%20for%20that%20very%20kind%20and%20generous%20introduction.>

<sup>243</sup> Cancian et al. “COVID-19 and the U.S. Military.”



Figure 7. Maryland National Guard airmen plan a logistical route to drop off COVID therapeutics<sup>244</sup>

Teams such as these airmen improvised efforts to provide more community and humanitarian logistical support of provisional supplies and medical support in both domestic and internationally. Medical teams are utilized not only in military medical facilities but also abundantly as COVID-19 response civilian support assets.<sup>245</sup> The Air Force provided several medical support teams to assist state hospitals across the nation from Washington state (the initial outbreak location) to Maine.<sup>246</sup> These medical teams not only ensured communities could rebound from a contagious outbreak but ensured they

<sup>244</sup> Sara McClanahan, “DOD Making Plans,” U.S. Department of Defense, January 14, 2022. <https://www.defense.gov/Multimedia/Photos/igphoto/2002926981/>.

<sup>245</sup> Upon the request of FEMA, DOD forces efficiently deployed forced Conus to provide medical assistance during the COVID-19 national crisis. Lauren Padden, “ARNORTH supports whole-of-government COVID-19 pandemic response,” *Joint Base San Antonio-DOD*, January 26, 2021, <https://www.jbsa.mil/News/News/Article/2482352/arnorth-supports-whole-of-government-covid-19-pandemic-response/>

<sup>246</sup> Airforce article mentions military medical support was provided to Maine, Maryland, Michigan, Minnesota, Ohio, Arizona New Jersey, New Mexico, Indiana, New York, Pennsylvania, Rhode Island, Texas, Vermont, Louisiana, Oregon, and Wisconsin. MHS communications, “Military Medical Units Support Civilian Hospitals Strained by COVID-19 Surge,” *Health.mil*, February 14, 2022, <https://health.mil/News/Articles/2022/02/14/Military-Medical-Units-Support-Civilian-Hospitals-Strained-By-COVID-19-Surge>.

retained the medical readiness of the nation. Shown in Figure 8, soldiers are welcomed to a Connecticut hospital in need of personnel.



Figure 8. A military medical team is warmly welcomed at a civilian medical center in Hartford, Connecticut.<sup>247</sup>

The U.S. military has become a quick and responsive organization, quickly assembling a distribution plan to vaccinate servicemembers.<sup>248</sup> Prior to FDA approval of the COVID-19 vaccine, a portion of uniformed service members were not voluntarily getting vaccinated. Therefore, what was initially a voluntary action, quickly turned into a mandate enforced by Secretary of Defense, Lloyd Austin.<sup>249</sup> Mandatory vaccinations for

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<sup>247</sup> Source: Elliot Alagueuzian, “Warm Welcome,” U.S. Department of Defense, Feb 10, 2022, <https://www.defense.gov/Multimedia/Photos/igphoto/2002939949/>.

<sup>248</sup> Journal article implies that vaccine hesitancy was the highest among service members. Such as 40% of Marines were reporting that they would decline voluntary vaccination. Jeanne A Krick, MC, USA, Tyler R Reese, MC, USA, Mandating the COVID-19 Vaccine for U.S. Service Members: An Exploration of Ethical Arguments, *Military Medicine*, 2021;, usab369, <https://doi.org/10.1093/milmed/usab369>

<sup>249</sup> Krick and Reese, Mandating the COVID-19 Vaccine for U.S. Service Members: An Exploration of Ethical Arguments”

all service members (unless they provided a medical or religious waiver) enabled servicemembers to continue mission with less severity to COVID exposure.

All service branches reported as little as 2% of the fighting force remained unvaccinated.<sup>250</sup> Uniformed personnel who refuse to be vaccinated against COVID-19 were initially being discharged from service.<sup>251</sup> While the services reconfigure their formations, eliminating contracts with unvaccinated personnel produced gaps within unit hierarchy and organizational structure.

### C. LEADERSHIP POSTURE

Leadership posture during COVID-19 explored two significantly different approaches to pandemic resiliency and military readiness. As guidance derived from an array of resources, social media platforms, family, friends, military leaders, and most notably U.S. presidents. The clear differences in opinion and approach between the two presidents during U.S. dealing with COVID has affected military health policy, not surprisingly.

The COVID-19 pandemic began toward the end of former President Trump's administration. At first, the White House downplayed the legitimacy of the virus, stating that it was a "hoax," and that "the end of the pandemic is in sight"<sup>252</sup> This underplaying of the Coronavirus risk cost months of active planning and preparation.<sup>253</sup> U.S. forces followed the president's lead by not enforcing COVID-19 mitigation parameters until March 2020, the pandemic was in full effect in the U.S.

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<sup>250</sup> Though there are religious and medical waivers for vaccination exemptions, the Army has reprimanded 2,700 Soldiers, Marines 103, and Air Force 27, Navy has just started their separations process. Matthew Schwartz, "U.S. Military Moves to Discharge Service Members Who Refuse to Get Vaccinated," NPR, December 17, 2021, <https://www.npr.org/sections/coronavirus-live-updates/2021/12/17/1065286802/u-s-military-moves-to-discharge-service-members-who-refuse-to-get-vaccinated>.

<sup>251</sup> Author states after several months of warning, the U.S. military has begun to discharge its service members. Schwartz, "U.S. Military Moves to Discharge Service Members Who Refuse to Get Vaccinated,."

<sup>252</sup> Peter Barker and Maggie Haverman, "Trump Tests Positive for the Coronavirus," *The New York Times*, December 31, 2020. <https://www.nytimes.com/2020/10/02/us/politics/trump-covid.html>.

<sup>253</sup> Author notes how President Trump refused to follow CDC guidelines ultimately leading to an outbreak among staff at the White House. Jeff Tollefson, "How Trump Damaged Science-And Why It Could Take Decades To Recover," *Nature* 07October 2020, <https://www.nature.com/articles/d41586-020-02800-9>.

The Trump administration also decided to shut down the National Security Council Directorate for Global Health Security and Bio defense.<sup>254</sup> This council's responsibility was to prepare the White House and the nation for potential disease outbreaks and prevent outbreaks from occurring.<sup>255</sup> The National Security Council Directorate for Global Health Security and Bio defense was a fundamental national asset that successfully handled the Ebola outbreak in 2014. However, by 2017, the NSC was part of a large-scale budget cut placed on the CDC by the Trump Administration that viewed pandemic prevention as a future issue. The White House gave the impression to subordinate officials that the potential for a pandemic was not a concern for American citizens.<sup>256</sup> This leadership decision would affect the DOD's preventative measures: staging and ordering tests could have been conducted before COVID-19 arrived in the United States.<sup>257</sup> The Trump administration did not initially take the potential for COVID-19 to become a pandemic as a serious national security threat.<sup>258</sup>

President Biden took office January 6, 2021, declaring several administration-defining measures, including a 180 degree approach to COVID-19.<sup>259</sup> By September 2021, *President Biden's COVID-19 Action Plan* set out an eight-step approach to decrease the spread of the COVID virus, including requiring civilian workers, federal employees, and

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<sup>254</sup> Speaks to the need depth of threat perception. Not believing a threat of pandemic proportions. Beth Cameron, "I Ran the White House Pandemic Office. Trump Closed It." *The Washington Post*, March 13, 2020. [https://www.washingtonpost.com/outlook/nsc-pandemic-office-trump-closed/2020/03/13/a70de09c-6491-11ea-acca-80c22bbee96f\\_story.html](https://www.washingtonpost.com/outlook/nsc-pandemic-office-trump-closed/2020/03/13/a70de09c-6491-11ea-acca-80c22bbee96f_story.html)

<sup>255</sup> Author speaks on the disorganization of the Trump administration to respond to a pandemic. This office was the pandemic protection asset coordinating resources both domestic and global. Cameron, "I Ran The White House Pandemic Office. Trump Closed it."

<sup>256</sup> Deb Riechman, "Trump Disbanded NSC Pandemic Unit That Experts Had Praised," *AP News*, 14 March 2020. <https://apnews.com/article/donald-trump-ap-top-news-virus-outbreak-barack-obama-public-health-ce014d94b64e98b7203b873e56f80e9a>.

<sup>257</sup> NSC council member states that he would have ordered 30 million COVID test kits to prepare for the on set of COVID-19. Riechman, "Trump Disbanded NSC Pandemic Unit That Experts Had Praised."

<sup>258</sup> Erik Dahl, *The COVID-19 Intelligence Failure: Why Warning was not Enough* (Washington, D.C.: Georgetown University Press, 2023), Chapter 1,

<sup>259</sup> Published COVID plan by the Biden Administration. "National COVID-19 Preparedness Plan," The White House, <https://www.whitehouse.gov/covidplan/>

healthcare workers to be vaccinated or subject to weekly testing,<sup>260</sup> as well as forcing entertainment venues to show proof of vaccination for workers and guests.<sup>261</sup>

A prime example of functional military leadership occurred in South Korea. U.S. and South Korean military leaders devised a plan to protect U.S. military and South Korean forces from the initial spread of COVID-19. The plan included 8 steps to quickly combat COVID-19 which required, “ensuring a sufficient capability and capacity to test, trace and treat, and logistically support with personal protective equipment and sufficient infrastructure for quarantine and isolation.”<sup>262</sup> The decisive action between U.S. and South Korean leaders set an example of how leadership should quickly assemble, plan, and execute under the pretense of a pandemic.<sup>263</sup> The uniqueness of this scenario is further highlighted given the military’s likelihood to dwell outside of the continental U.S. away from normal customs and resources.<sup>264</sup>

The right leadership and guidance posture at the onset of the outbreak was critical. Terry Adirim, acting assistant Secretary of Defense for Health Affairs, agreed that early lessons learned should prompt change within DOD Healthcare.<sup>265</sup> Adirim’s take on military healthcare promotes innovation and practicing what works in the current environment. Adirim is optimistic about the adaptation of military medical care stating, “[the virus] will help us to be more well-prepared.

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<sup>260</sup> Path out of the Pandemic: President Biden’s COVID-19 Action plan. “National COVID-19 Preparedness Plan,” The White House, <https://www.whitehouse.gov/covidplan/>

<sup>261</sup> “National COVID-19 Preparedness Plan,” The White House, <https://www.whitehouse.gov/covidplan>.

<sup>262</sup> Sharon Y Kim, Kenny Lee, Jason B Tussey, et al., Responding to COVID-19 Among U.S. Military Units in South Korea: The U.S. Forces Korea’s Operation Kill the Virus, *Military Medicine*, Volume 187, Issue 1–2, January/February 2022, e138–e146, <https://doi.org/10.1093/milmed/usab013>

<sup>263</sup> Having the first cases of COVID-19 outside of China, by April of 2020 only 24 people were infected with the virus. Kim, “Responding to COVID-19 Among U.S. Military Units in South Korea.”

<sup>264</sup> U.S. military leaders located in South Korea had to quickly respond with a strategy against the virus with little to no initial government support or guidance. Their developed practical measures were established before COVID-19 hit the continental U.S. Questioning information sharing on best methods. Their quick action set the foundation for vital control measures. Kim, “Responding to COVID-19 Among U.S. Military Units in South Korea.”

<sup>265</sup> Jacob Moore, “DOD’s Whole of Government Approach to COVID Is Working, Says Adirim,” Military Health System, August 13, 2021, <https://health.mil/News/Articles/2021/08/13/DODs-Whole-of-Government-Approach-to-COVID-is-Working-Says-Adirim>.

#### **D.     READINESS IMPACT**

COVID-19 continues to have a significant impact on U.S. military readiness even though resources exist. CDC and world news outlets warned a pandemic scenario was rampaging through countries around the world. The U.S. military did not enforce pandemic protocols until the U.S. declared itself in a health crisis.

In retrospect, leadership posturing within the initial phase of pandemic planning proves to be a critical catalyst in the preservation of personnel readiness. Missions like the Theodore Roosevelt crew where more than 1200 sailors contracted COVID-19. The crew finally got approval to stop mission; however, the severity of the outbreak overwhelmed hospitals in the port area. In comparison to the actions taken in South Korea to suddenly stop the expansion of COVID-19 exposure. Technology and medical resources have vastly improved, yet the 2019 reaction to COVID paralleled responses witnessed in 1918. The varying degree of responses to COVID-19, sounds an alarm for pandemic reform within military operating procedures.

The U.S. military cannot afford to repeat the same slow reaction to the next novel virus. U.S. National Defense against another pandemic will occur again, as time has demonstrated. Future pandemics are inevitable, and the U.S. requires its Department of Defense to respond without hesitation—more effectively.

## **V. CONCLUSION**

The pandemic environment is naturally chaotic for all communities; however, the United States military possesses an organizational structure that can quickly adapt and preserve itself. This chapter presents a summary on the role of identifying the threat, responding quickly, and applying the right leadership response. The conclusion of this thesis provides recommendations for future research and development applying the right leadership response for the preservation of military readiness through a pandemic.

### **A. ANALYSIS**

Assessing the 1918, 2009, and 2019 pandemics side-by-side, reveals distinct trends related to factors which either enabled or inhibited military readiness during the pandemic. Each variable established a critical role in either enabling or disabling the military's ability to protect itself.

#### **1. Identifying the Virus**

The timespan between identifying the virus and initiating a medical response depended on the simple act of responding to the viral threat and identifying its impact. If an emphasis was placed on understanding the virus (its transmissibility and symptoms) this foundation provided clarity for military officials to plan and prepare for medical and logistical support. In contrast, a delay in identifying the virus equated to reduced military responsiveness. As seen in Table 1, the United States' reaction to each virus of pandemic capacity varied.

Table 1. Linear view of all reactions to each pandemic while also highlighting the time between virus identification and the initiation of safety protocols; protocols that prove to directly impacted readiness.

|                                                                 | 1918                                      | 2009                                                              | 2019                                                      |
|-----------------------------------------------------------------|-------------------------------------------|-------------------------------------------------------------------|-----------------------------------------------------------|
| <b>Date Virus First Identified</b>                              | Fall 1917                                 | April 2009                                                        | December 2019                                             |
| <b>Date U.S. Initiated Action (enforced pandemic protocols)</b> | Delayed                                   | Followed recommendation by WHO April 2009                         | March 2020                                                |
| <b>Impact on Readiness</b>                                      | Diminished personnel readiness to 26–40%. | Effectively vaccinated 98% of military population. Minimal delays | Mission delays and diversions; vaccination effort strife. |

COVID-19 was identified as early as December in Wuhan, China. Efforts to properly identify the virus were delayed not only by Chinese health officials but also U.S. officials. The same type of disjointed effort to identify the virus in 2019 resembles 1918 identification efforts.

As mentioned in Table 1, the delay in identifying the virus had a positive and negative affect on the military’s ability to prepare equipment, personnel, and missions (home and abroad). There is a significant correlation between the number of months it takes to identify the virus and the ability to enforce protective measures that have an impact in virus transmissibility and exposure.

## 2. Medical Response

COVID-19 military medical responses varied. Some responses clearly showed the strength of maintaining military readiness during a pandemic while certain situations undermined readiness by exacerbating the spread of the virus. This disparity highlights a lack of centralized responses across the DOD seen in Table 2.

Table 2. Linear view of initial reaction and the overall medical responsiveness to each pandemic while viewing its impact to military readiness.

|                                                                 | 1918                                      | 2009                                                              | 2019                                                      |
|-----------------------------------------------------------------|-------------------------------------------|-------------------------------------------------------------------|-----------------------------------------------------------|
| <b>Date Virus First Identified</b>                              | Fall 1917                                 | April 2009                                                        | December 2019                                             |
| <b>Date U.S. Initiated Action (enforced pandemic protocols)</b> | Delayed                                   | Followed recommendation by WHO April 2009                         | March 2020                                                |
| <b>Medical Response</b>                                         | Wait it out; assist symptoms              | Extensive pretraining<br>Global surveillance<br>Mass vaccination  | Logistical scramble;<br>slow vaccine development          |
| <b>Impact on Readiness</b>                                      | Diminished personnel readiness to 26–40%. | Effectively vaccinated 98% of military population. Minimal delays | Mission delays and diversions; vaccination effort strife. |

Due to extensive medical and pandemic protocol training conducted in 2005, an assertive medical response effort was witnessed in 2009. Not only did the number of servicemember illnesses decrease but the amount of vaccinated servicemembers within a condensed time remains a standard still recited in the medical field today. Medical responsiveness in 2009 increased the flexibility of military readiness for military forces.

In contrast to the 2009 medical response, the U.S.’s delay in fully acknowledging the nature of the virus disabled the DOD to take preventative medical precautions against the spread of the virus. The lull in acknowledgement initially decreased military readiness and servicemembers and their families were affected by the COVID-19 virus. Vaccine development was slow. This delay at the federal level subsequently delayed DOD’s response for preventative medical response.

Today’s military force could have directly benefited from pandemic preparedness practices like those executed in 2009—which would have better maintained operational readiness throughout the pandemic and across the nation.

### 3. Leadership Posture

The gravity of decisive leadership (whether good and bad) swayed the military's ability to preserve military readiness (shown in Table 3). When leadership acknowledged a viral threat early, as seen in both U.S. Administrations in 2009 and 2021, it produced a unified response for medical aid and logistical support. The drastic change in leadership and therefore priorities concerned changed in 2020 enabling the military to recover.

Table 3. Linear view of how instrumental leadership shapes pandemic response protocols for military forces.

|                                                                 | 1918                                                                | 2009                                                           | 2019                                                                                                       |
|-----------------------------------------------------------------|---------------------------------------------------------------------|----------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|
| <b>Date Virus First Identified</b>                              | Fall 1917                                                           | April 2009                                                     | December 2019                                                                                              |
| <b>Date U.S. Initiated Action (enforced pandemic protocols)</b> | Delayed                                                             | April 2009                                                     | March 2020                                                                                                 |
| <b>Medical Response</b>                                         | Wait out the virus and treat symptoms                               | Enacted pretraining<br>Global surveillance<br>Mass vaccination | Logistical scramble;<br>slow vaccine development;                                                          |
| <b>Leadership Posture</b>                                       | Claimed wartime effort was more important than stopping the spread. | Legitimized threat; quickly assembled resources                | Initially declared virus to be a hoax; Began resourcing supplies well after U.S. declared COVID casualties |
| <b>Effect on military readiness</b>                             | Diminished personnel readiness to 26–40%                            | Increased vaccinations. Minimal delays.                        | Varied responses= varied effects; unsynchronized efforts provoked a similar impact on readiness.           |

In 1918, the U.S. Officials' priorities negatively affected military readiness. President Wilson repeatedly chose to assume the risk of significant troop losses and diminished U.S. military readiness by ignoring protective measures recommended by his own medical officials. President Wilson clearly had the ability to maintain military readiness as the Commander-and-Chief, however, his leadership postured for combat superiority decreased U.S. military superiority and infected thousands of civilians post war.

Lastly, the leadership posture displayed in 2019 adversely affected military readiness during President Trump's administration. The administration's acknowledge legitimacy of the pandemic threat encouraged precarious behavior from the White House and throughout American communities—much like President Wilson had done in 1918.

The 1918 influenza pandemic called for necessary changes in the way military members and public health officials approach viral outbreaks. More than 100 years since the 1918 influenza pandemic, COVID-19 has demonstrated that the military has made significant strides witnessed from the 2009 H1N1 response but progress still needs to be made to protect servicemembers from the next pandemic threat.

Pandemic preparedness requires progressive innovation. Therefore, this chapter next suggests how academia, the federal government, and U.S. military can work together to foster a more dynamic approach to nurture U.S. military readiness.

## **B. THE WAY FORWARD**

The following recommendations involve reorganizing current responses and institutionalizing pandemic protocols within military ground units. Utilizing these approaches may decrease vulnerabilities of ground units through education and restructuring normal operational practices. Reinforcing unit stability from the bottom up allows leadership time to organize federal aid. These recommendations encourage ground units to know and practice domestic military pandemic protocols thereby ensuring their own responsiveness throughout the U.S. military.

1. Establish permanent billets for epidemiological military personnel within every division with reach-back capability to the CDC. This asset will give ground units a point of contact for disease management and embed epidemiological assessments to deploying units. Epidemiological division assets ensure that DOD personnel have close ties to pandemic protocols and resources. This suggestion will increase DOD identification efforts while creating a solid and rapid platform for a medical response.

2. Recruit outbreak scholars and field agents to help military planners create specific pandemic policy updates. Utilizing this approach will advance medical responsiveness as well as level DOD assets with the latest technology and medical countermeasures.
3. Create robust service-oriented epidemiology surveillance teams. Fusing outbreak intelligence with mission requirements could provide a critical platform for increasing unit readiness. Additionally, internal outbreak surveillance enablers would provide ground commanders with immediate vulnerability forecasts ahead of the front lines of U.S. military formations.

### **C. DOD'S SPHERE OF INFLUENCE**

The DOD could make significant changes by

1. Changing current federal and military policy to reflect a permanent pandemic preparedness plan by expanding upon practices from the 2009 H1N1 response plan, thereby mitigating delays in response timelines. This course of action also encourages drills at the lowest organizational echelons. This measure will encourage a doctrinal reaction to execute pandemic protocols.
2. Prohibiting the dismantling of the U.S. Epidemiology Bio security team. This will enable a change of thinking, keeping biological forecasts at the forefront of military strategy and not an after-thought. Priorities will adjust to support this effort.
3. Integrating, encouraging, and normalizing civil-military relations, fusion drills, and training. Military and civilian operational entities working together will create a more robust dynamic of shared medical practices.
4. Including the public in solution development – this will reinforce buy-in for mandates and shared best practices in pandemic response procedures.
5. Exploring the option to exercise disciplined initiative and let scientifically backed data dictate when DOD forces must increase or decrease their

pandemic posture. Specifically, by immediately adapting formations according to WHO and CDC pandemic protocols until guidance is provided by The President of the United States. Until the military creates an automatic response to global outbreaks, pandemics will continue to be a formidable threat to U.S. national security and military forces.

I began this thesis to understand which factors enabled a strategic response to better preserve military readiness in the face of a pandemic. And more importantly, why the U.S. military was affected by a pandemic. I discovered that even though there were haunting similarities in military readiness between 1918 influenza and COVID-19, the U.S. military is postured to protect military forces while continuing the mission. However, this thesis implores further emphasis on vulnerabilities within U.S. leadership infrastructure. The pandemic threat continues to evolve, therefore U.S. national security must remain ready.

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