

# Eight Pandemic Lessons for Small Unit Leaders

What we can learn from the U.S. military's experience with Spanish Influenza  
by 1stLt Patrick Cirenza

“Infectious diseases that formerly carried off their thousands, such as yellow fever, typhus, cholera, and typhoid, have all yielded to our modern knowledge of their causes and our consequent logical measures taken for their prevention,” proclaimed Navy Surgeon General William C. Braisted on 18 October 1917. His speech was roughly six months before Private Albert Gitchell, a cook in the U.S. Army at Fort Riley, KS, became the first recorded case of Spanish Influenza in the United States on 4 March 1918. Over the next two years, the disease would infect 500 million, one-third of the world's population, and kill 50 million. The disease took a considerable toll on the U.S. military,

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which at the time was deeply engaged in the First World War. More than a million of the U.S. Army and Navy became infected, roughly 20 to 40 percent of the force, the Army lost 8,743,102 working days, and the Spanish Influenza ultimately killed more troops both in the United States and abroad than the enemy did in the First World War. (See Figure 1.)

A number of factors make militaries more vulnerable to infectious disease:

close living quarters, harsh environments, physical exertion, sleep deprivation, inadequate sanitation and hygiene, psychological stressors, and immunologically naïve personnel. Historically, diseases have had devastating impacts on military operations. The Antonine, Cyprian, and Justinian Plagues repeatedly decimated the Roman Army and contributed to the collapse of the empire. Pneumonia, typhoid, and dysentery killed so many in the American Civil War that disease became known as the “third army.” Louse-borne typhus hobbled both Napoleon's and Hitler's winter invasions of Russia. Over time, however, militaries have gained the necessary medical knowledge and experience to make themselves harder targets for infectious diseases. As Dr. Murray and Dr. Horvath of the Brooke Army Medical Center (Fort Sam Houston, TX) note, this has led to a dramatic decrease in

the ratio of disease-associated to battle-associated deaths in the US military, from 10:1 during the Spanish-American War, to 1:1 in World War I, 0.14:1 in the Vietnam War, and <0.01:1 in the Persian Gulf War.

Defying these downward trends are novel infectious diseases that turn into global pandemics, like COVID-19, which require quick and extraordinary measures to defeat. Small unit leaders in the U.S. military are essential for the rapid and successful implementation of higher-level decisions on COVID-19

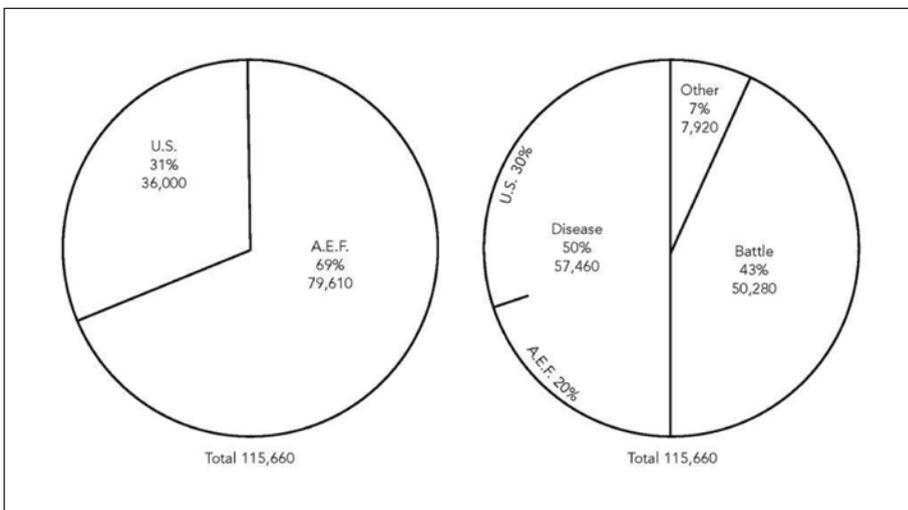


Figure 1. Total U.S. military deaths in World War I broken down by location and cause of death. (Figure provided by author.)

prevention, treatment, and management in the many different places where the military operates. They are also critical in providing responsive feedback of information that drives the decision-making process on how best to flatten the curve while maintaining a mission-capable force.

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cal supplies, and physicians and nurses because of the demands of the ongoing First World War. For the American Expeditionary Force during the Meuse-Argonne Offensive, the disease clogged transportation, hospitals, and either killed personnel or made them non-combat effective. Just like in Bergamo, Italy, Army trucks carried out bodies once mortuaries ran out of room in the United States, struggling to provide dignity to the mounting dead. As

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leaders in the bigger picture to ensure a unified and effective response to COVID-19. The Spanish Influenza Pandemic of 1918-1919 is analogous to COVID-19 (zoonotic origins, highly infectious, transmissible by droplets in the air and on surfaces, no cure at the time for the disease) but has notable differences (incubation periods, lethality rate, victim profiles, relative global peace, and larger and older populations at the present, modern means of travel). While it is not a perfect analogy, the U.S. military experience with Spanish Influenza provides the following relevant eight lessons that small unit leaders can utilize for combatting today's pandemic.

**Lesson One: Current Infrastructure Is Never Ready for A Novel Disease**

Infrastructure operates based on the enemy's most likely course of action, not its most dangerous, in order to most economically allocate resources. To do otherwise would be inefficient—except in the time of a pandemic. In 1918, the rapidity of the spread and lethality of Spanish Influenza quickly overwhelmed hospitals, training depots, logistics trains, troopships, crematoriums, and mortuaries. In the United States, there were shortages of coffins, medi-

cal supplies, and physicians and nurses because of the demands of the ongoing First World War. For the American Expeditionary Force during the Meuse-Argonne Offensive, the disease clogged transportation, hospitals, and either killed personnel or made them non-combat effective. Just like in Bergamo, Italy, Army trucks carried out bodies once mortuaries ran out of room in the United States, struggling to provide dignity to the mounting dead. As

The morgues were packed almost to the ceiling with bodies stacked one on top of another ... We didn't have the time to treat them. We didn't take temperatures; we didn't even have time to take blood pressure.

Military medical leadership took drastic measures to counter the disease. They began using specialists such as ophthalmologists to treat influenza symptoms, utilizing non-traditional buildings for hospitals, and creating unconventional partnerships with the private sector to conduct testing for the disease. Over the course of six days, the military expanded hospital capacity at Camp Grant, IL, from 10 beds to 4,102 by recalling military personnel from on leave to provide additional labor. Small unit leaders today can assist by taking on unconventional crisis response missions such as building additional hospital capacity and triaging patients to free up medical personnel. Internal to their unit, these leaders can prioritize resources such as facemasks and sanitizing equipment as they become available for personnel most likely to come in contact with the disease or be susceptible to its effects.

**Lesson Two: Commanders Must Balance Risk to Mission vs. Risk to Force**

Infectious disease is only one of many external factors that cause friction for a commander seeking mission accomplishment. The enemy, weather, terrain, logistics, and civilian considerations get a vote as well. Medical personnel made many recommendations to commanders during the Spanish Influenza to protect the force, ranging from increasing space to reduce crowding at training camps to suspending troopship movements to the front in Europe. How commanders received and acted upon the recommendations varied with clear results. At Camp Humphreys, VA, one regiment provided 78.5 ft<sup>2</sup> per person and had a 2.5 percent infection rate. Another regiment at the same camp provided only 45 ft<sup>2</sup> and correspondingly had an infection rate of 26.7 percent.

In response to the recommendation to suspend troop movements to Europe, Army Chief of Staff Gen Peyton March agreed to a pre-boarding physical screening and a ten percent reduction in crowding on the troopships but would not halt movements altogether. When President Woodrow Wilson asked him to justify this decision, Gen March cited, "the psychological effect it would have on a weakening enemy to learn that the American divisions and replacements were no longer arriving." The President agreed with him. The demands of the war meant that Gen March could not afford to stop the troopship movements even as he risked exposing the force to a higher chance of infection.

Small unit leaders serve a critical role in explaining to subordinates why certain actions have to be taken while at the same time providing bottom-up refinement so that commanders can make concessions to improve health conditions when possible.

**Lesson Three: Partial Quarantines Slow, But Do Not Contain Infectious Diseases**

The second, more lethal wave of Spanish Influenza arrived at Camp Devens, MA, on 8 September 1918. Experts went to study the disease, but before they could quarantine the camp,



**American Expeditionary Force Soldiers return from France on the troopship USS Agamemnon in 1919. Photo provided by the author.**

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**Sign enforcing hygiene procedures at a naval aircraft factory in Philadelphia, October 1918. (Photo provided by author.)**

a group of soldiers travelled from there to Camp Upton, NY. Within 40 days of their arrival, 6,131 men had been hospitalized for influenza at Camp Upton. Col John Mallory, the Commander at Camp Upton, restricted movement in and out of the camp except “for the most urgent business” in order to prevent the spread of disease. However Dr. Carol Byerly, a former research scholar of military medical history for the office of the U.S. Army Surgeon General, observes, “In wars and epidemics there is much urgent business and people get through.” It took just one month from the time of the first infection at Camp Devens for every training camp in the United States to become infected. The Army Medical Department admitted at the time,

The best result to be expected from any or all of these measures is a slowing of the progress of an epidemic rather than any considerable diminution in the number of cases.

Any movement of personnel, be it troops going to or leaving the front, logisticians, prisoners, or civilians was a vector for the disease. Only a handful of completely quarantined populations, such as American Samoa, escaped all deaths from influenza.

To date, only Antarctica has seemed to pull off a similar feat with COVID-19. With this in mind, unit leaders need to take a hard look at who really needs to get in and out of quarantine and monitor their own subordinates for symptoms to separate the healthy from the unhealthy.

#### **Lesson Four: Hygiene and Sanitation Culture Must Be Fostered and Enforced at the Lowest Level**

Once infrastructure and procedures do catch up to the disease, provision of the necessary equipment such as masks, gloves, and hygiene equipment to small units is only effective if the personnel employ it. At the Great Lakes Naval Training Station in Rockford, IL, only 96 out of 674 hospital corpsmen wore masks and consequently had a higher rate of infection than those who did wear masks.

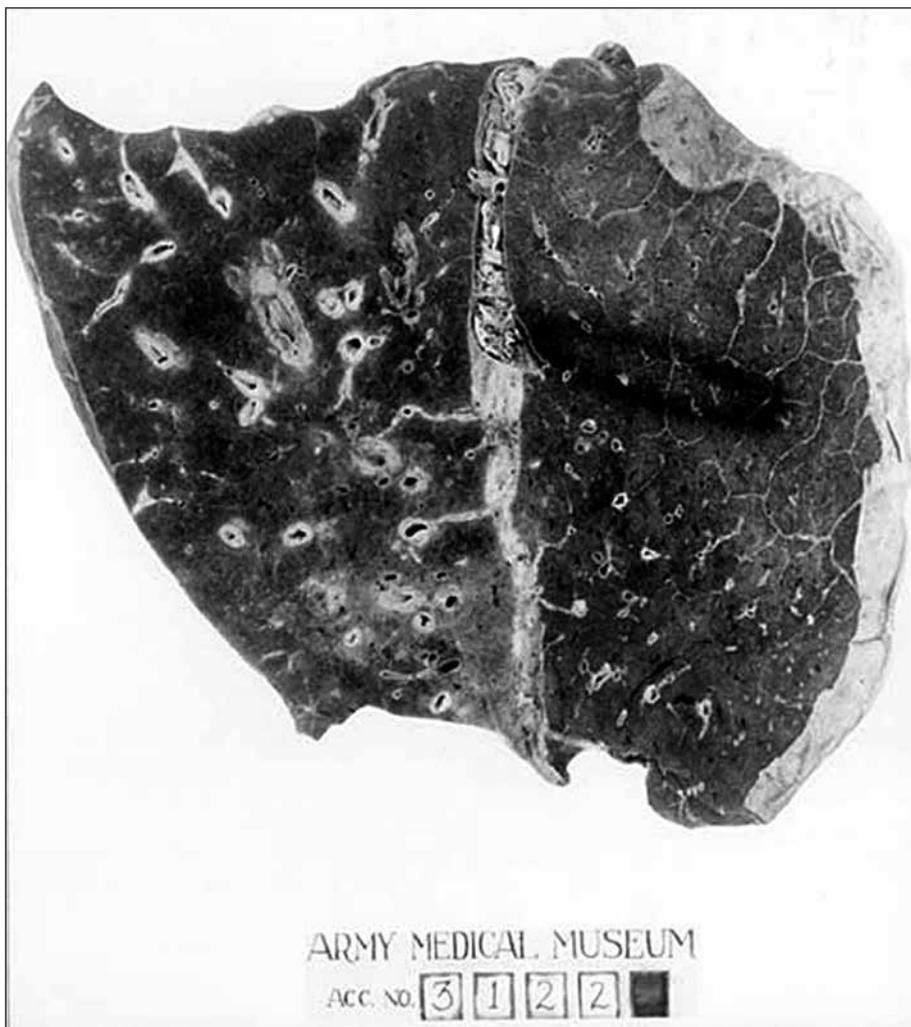
This has been an enduring problem with the modern military units

combatting malaria in Afghanistan, Liberia, Côte d'Ivoire with preventative drugs, application of DEET, and using bed nets. On average, it takes 66 days to form a new habit. For large organizations, it takes years to change culture. Pandemics require tremendous changes to many habits and organizational cultures. Small unit leaders play an essential role in developing the right habits and changing the organizational culture. They do this by encouraging, enforcing, and inspecting for proper and continuous usage of personal protective equipment and hygiene, sanitation, vaccination, and chemoprophylaxis (the use of drugs to prevent disease) procedures.

**Lesson Five: Smooth Communication and Robust Institutional Memory Prevents Avoidable Spread of Disease**

In a military where units and individuals are constantly rotating in and out of areas of operations and billets, and are also siloed by command relationships, information flows, and services, the smooth communication of best practices and knowledge is a consistent challenge. This problem is exacerbated with an issue as narrow and specialized as infectious disease, where only a few full-time experts have the requisite knowledge to recognize a pandemic and recommend prevention measures. In 1918, the few experts who went to investigate the beginning of the second wave of the disease rapidly understood the danger Spanish Influenza posed to the U.S. military, but the disease travelled more quickly than they could communicate their knowledge to military leadership and for that leadership to take actions to contain the disease. Even once actions had been taken, the ongoing First World War made it hard to focus solely on prevention and treatment of disease. A study of the British military's experience with infectious diseases concluded,

Preventive measures such as hygiene, sanitation, infection control, vaccination and chemoprophylaxis are invaluable, but history shows that these can become neglected over time and disrupted or overwhelmed during the early or most intense stages of military operations.



**Lung from a 1918 influenza service member victim similar to sample used in the 1999 Test.**  
(Photo provided by author.)

Smooth communications and institutional memory is a challenge under normal circumstances, and doubly hard during a pandemic, which is why small unit leaders must invest time and effort

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into both producing and consuming after action reviews, reliefs in place, and cross-unit coordination to achieve optimal knowledge as soon as possible.

**Lesson Six: Careful Documentation of the Present Will Provide Helpful Lessons Later**

The etiology, or cause of disease, of the 1918-1919 Spanish Influenza was not known at the time of the pandemic. Scientists believed that Pfeiffer's bacillus, or *Haemophilus influenzae*, was the cause because it was often found in the bodies of patients. Through a combination of detailed reports, articles, clinical findings, and preserved samples of patient's tissues, scientists and doctors were able to better understand the virus decades later. It was not until 1933 that doctors isolated influenza viruses and until 1999 for military doctors to reconstruct the disease from preserved lung tissue of service members killed by Spanish Influenza. Small unit leaders can play an

essential role in methodically documenting COVID-19 and cooperating with medical authorities so that in the future doctors and scientists can answer the questions that we are unable to now.

### Lesson Seven: Censorship Both Protects Operational Security and Obscures The Bigger Picture

Spain was a neutral country without strict press censorship restrictions during the First World War, giving the world unvarnished reports of the suffering the disease was causing in the country. The concentration of news reports gave the impression to the

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public that the pandemic had started in Spain, which is why the disease is called Spanish Influenza. Other countries also suffered from the disease but censored the information because of the need for operational security during the First World War. Enemy military leadership studiously tracked the impacts of disease on U.S. military readiness. Gen Eric Ludendorff, First Quartermaster General of the German Army, noted on 17 October 1918, "The fighting power of the Entente [Allies] has not been up to its previous level ... the Americans are suffering severely from influenza." Small unit leaders must ensure that their subordinates treat information relating to the disease as an important matter of operational security. At the same time, they should be skeptical of COVID-19 numbers coming out of China, Russia, North Korea, and Iran—just as they would of any government statistics from these countries and educate their personnel accordingly.

### Lesson Eight: Newest Members of the Military Are The Most Immunologically Vulnerable

After the first wave of Spanish Influenza, mutated strains of the virus resulted in two more lethal waves of the disease. Recent studies of seasoned troops in five U.S. Army training camps found that exposure the first wave of Spanish Influenza provided 49 to 94 percent protection against clinical

illness during the second wave and 56 to 89 percent protection against death. Military personnel who had not been exposed during the first wave saw disproportionately high infection and mortality rates. At Camp Lee, VA, 77 percent of Spanish Influenza deaths were from personnel with less than three months in service. A study of the Australian Army found that the death rate of the 1918 recruiting class was nine times higher than it was for the class of 1917 and fourteen times higher than the classes of 1916, 1915, and 1914. There are at least eight strains of coronavirus at the moment. Dr. Anthony Fauci of the National Institute of Allergy and Infectious Diseases predicts a second wave of COVID-19 in the fall, but that victims of COVID-19 who recover will likely have immunity from it. Military medical research centers have already

## SPANISH INFLUENZA--A NEW NAME FOR AN OLD FAMILIAR DISEASE

Simply the Same Old Grip That Has Swept over the World Time and Again—The Last Epidemic in the United States Was in 1889-90.

**ORIGIN OF THE DISEASE.**  
Spanish influenza, which appeared in Spain in May, 1918, swept over the world in numerous epidemics as far back as history runs. Hippocrates refers to an epidemic in 412 B. C. which is regarded by many to have been influenza. Every century has had its attacks. Beginning with 1541, this country has had five epidemics, the last in 1889-90.

**THE SYMPTOMS.**  
Grip or influenza as it is now called, usually begins with a chill followed by aching, feverishness and sometimes nausea and dizziness, and a general feeling of weakness and depression. The temperature is from 100 to 104, and the fever usually lasts from 3 to 5 days. The germs attack the mucous membrane, or lining of the air passage—nose, throat and bronchial tubes—there is usually a hard cough, especially bad at night, oftentimes a sore throat or tonsillitis, and frequently all the appearances of a severe head cold.

**THE TREATMENT.**  
Go to bed at the first symptoms—take a purgative, eat plenty of nourishing food, remain perfectly quiet and don't worry. Nature herself is the only "cure" for influenza and will throw off the attack if only you conserve your strength. A little Quinine, Apsin or Dover's Powders may be given by the physician's directions to allay the aching. Always call a doctor, since the chief danger of grip is in its weakening effect on the system, which allows complications to develop. These are chiefly pneumonia and bronchitis, sometimes inflammation of the middle ear, or heart affections. For these reasons, it is very important that the patient remain in bed until his strength returns—stay in bed at least two days or more after the fever has left you, or if you are over 50 or not strong, stay in bed four days or more, according to the severity of the attack.

**EXTERNAL APPLICATIONS.**  
In order to stimulate the lining of the air passages to throw off the grip germs, to aid in loosening the phlegm and keeping the air passages open, thus making the breathing easier, Vick's VapoRub will be found effective. Hot, wet towels should be applied over the throat, chest and back between the shoulder blades to open the pores. Then VapoRub should be rubbed in over the part until the skin is red, spread on thickly and covered with two thicknesses

heat of the body liberates the ingredients in the form of vapors. These vapors, inhaled with each breath, carry the medication directly to the parts affected. At the same time, VapoRub is absorbed through and stimulates the skin, attracting the blood to the surface, and thus aids in relieving the congestion within.

**NO OCCASION FOR PANIC.**  
There is no occasion for panic—influenza or grip has a very low percentage of fatalities—not over one death out of every four hundred cases, according to the N. C. Board of Health. The chief danger lies in complications arising, attacking principally patients in a run down condition—those who don't go to bed soon enough, or those who get up too early.

**HOW TO AVOID THE DISEASE.**  
Evidence seems to prove that this is a germ disease, spread principally by human contact, chiefly through coughing, sneezing or spitting. So avoid persons having colds, which means avoiding crowds—common drinking cups, roller towels, etc. Keep up your bodily strength by plenty of exercise in the open air, and good food.

**KEEP FREE FROM COLDS.**  
Above all, avoid colds, as colds irritate the lining of the air passages and render them much better breeding places for the germs.

Use Vick's VapoRub at the very first sign of a cold. For a head cold, melt a little VapoRub in a spoon and inhale the vapors, or better still, use VapoRub in a benzoin steam kettle. If this is not available, use an ordinary tea-kettle. Fill half full of boiling water, put in half a teaspoon of VapoRub from time to time—keep the kettle just slowly boiling and inhale the steam arising.

Note—Vick's VapoRub is the discovery of a North Carolina druggist, who found how to combine, in salve form, Menthol and Camphor with such volatile oils as Eucalyptus, Thyme, Cubeb, etc., so that when the salve is applied to the body heat, these ingredients are liberated in the form of vapors. VapoRub can be had in three sizes at all druggists. While comparatively new in certain parts of the North, it is the standard home remedy in the South and West for all forms of cold troubles—over a million jars were sold last year. VapoRub is particularly recommended for children's croup or colds, as is externally applied and can.

St. Paul Pioneer Press on October 22, 1918 erroneously asserted that Spanish Influenza "appeared in Spain in May." (Photo provided by author.)

established that "military trainees and newly mobilized troops are at particularly high risk for respiratory disease epidemics." Small unit leaders should focus their efforts on protecting and monitoring the newest to service in the unit, along with the elderly and the immunologically compromised.

### Conclusion

The stakes for COVID-19, which targets the elderly and immunologically deficient, may not seem as high to small unit leaders in a mostly young, healthy

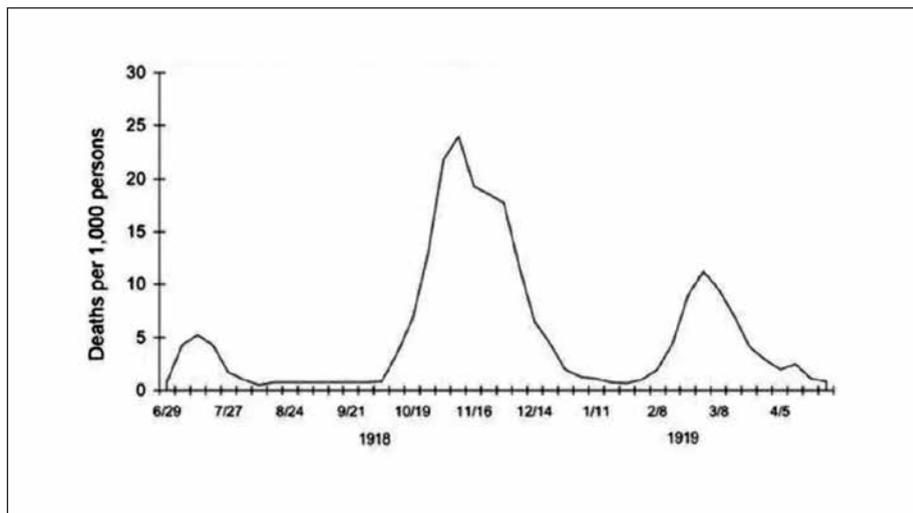


Figure 2. The Three Waves of Spanish Influenza 1918-1919. (Figure provided by author.)

military population during relative peacetime as they were for their wartime predecessors experiencing Spanish Influenza. The stakes also seemed low

after the first wave of Spanish Influenza. In late July of 1918, just months before the highly lethal second wave, the *Weekly Bulletin* of the Medical Service

of the American Expeditionary Force in France published, “The epidemic is about at an end ... and has been throughout of a benign type, though causing considerable noneffectiveness.” Of course, the Spanish Influenza-COVID-19 analogy is far from prophecy. COVID-19 may ultimately (and hopefully) look nothing like Spanish Influenza. However, as Mark Twain reputedly once said, “History doesn’t repeat itself, but it often rhymes.” As small unit leaders, our focus needs to be on protecting our personnel so that we can carry out our mission regardless of the friction imposed by infectious disease.

>Author’s Note: The views expressed here are those of the author and do not reflect the official policy or position of the United States Government, the Department of Defense, or the Marine Corps.

