



STUDY: PROTECTING MEDICAL SERVICES AND FORCE HEALTH IN A COVID ENVIRONMENT: AN ASSESSMENT OF USNS COMFORT OPERATIONS IN NEW YORK CITY

The U.S. Navy hospital ship USNS *Comfort* admitted **182** patients during its 30-day mission to New York City in the spring of 2020. Almost **70 percent** of those patients tested positive for COVID-19. Both the ship's doctrine and its open-bay wards suggest that the vessel is not set up to control the spread of infectious disease. And yet, only six crewmembers tested positive for COVID-19 over the course of the one-month mission, with **12** more testing positive after the ship left New York.

Commander, U.S. Second Fleet asked CNA to assess how a hospital ship with over **1,200** crewmembers was able to return home from a national pandemic epicenter with just **1.4 percent** of the staff testing positive for the virus. What lessons from that experience might inform further missions involving infectious disease, including biological weapons?

We concluded that the simple answer to why so few personnel contracted the virus is that everyone aboard — civilian and military — took the issue of viral containment seriously. They worked extremely hard to implement engineering and administrative controls that helped minimize hazards. Among several recommendations, we advise that U.S. Second Fleet and Military Sealift Command should integrate most of the mitigation strategies implemented in New York into a new a playbook for pandemic and infectious disease events. We recommend that responsible commands incorporate this playbook into quarterly hospital ship exercises.


BACKGROUND

In mid-March of 2020, when early epidemiologic models indicated a doomsday scenario for pandemic epicenters such as New York City, Seattle, and Los Angeles, a Northern Command fragmentary order activated **USNS *Mercy*** and **USNS *Comfort***, the Navy's two hospital ships. *Comfort* arrived in New York City on March 30, just as COVID-19 hospitalizations were peaking in the region. At that point, city officials reported over **38,000** total COVID-19 cases and **914** deaths. By the time the ship left New York, the incidence of the disease was over **4 times** higher and deaths had increased 14-fold.

Given the fact that the hospital ship had limited infrastructure to isolate patients, its original mission was to provide treatment to non-COVID-19 patients, allowing regional medical facilities to concentrate on more numerous and serious COVID-19 cases. Within several days of its arrival, the ship's mission changed to the care of any patient regardless of COVID status.

STUDY AND FINDINGS:

Analysts from CNA's Health Analytics and Medical Readiness program interviewed *Comfort* crewmembers, including Military Sealift Command crew, military leadership, and key medical and engineering staff. We collected further qualitative data from military and civilian personnel who led activities at Second Fleet, Task Force-129. We also examined engineering and administrative changes, modeled the use of personal protective equipment (PPE), and conducted a review of literature focused on infectious disease and previous CNA studies on domestic disaster response.



We found that *Comfort* crewmembers put into place every engineering control they could possibly use, considering the age of the ship and its systems. For example, they created airlocks wherever possible at Red Zone entrances using portable HEPA filtration systems to draw air from the Red Zone, filter the air, and pressurize the airlock. However, crewmembers made the greatest impact on controlling viral spread by establishing effective administrative controls: reliable standard operating procedures, training, and supervision to encourage people to work safely. The emphasis was on minimizing contact with patients, but crewmembers employed numerous other controls concerning appropriate donning and doffing of PPE and the use of disinfectants.

The ship produced policies and conducted training to reinforce its mitigation strategies, but it appears that some of these same controls lacked the necessary monitoring to ensure effectiveness. In addition, the lack of compliance monitoring raises the question of whether the ship's infection rate would be higher in a longer mission with more patients aboard.

RECOMMENDATIONS:

- Establish medical liaison officer teams early in the mission to deploy with the advanced echelon team prior to the ship's arrival.
- Embed a Task Force Health Support Cell into the task force commander's staff.
- For patients deemed unacceptable for admission, indicate a specific reason: staffing, supplies, environment, equipment, etc. Emphasize capabilities, not liabilities.
- Establish and communicate monitoring controls to ensure effectiveness of infection control and personnel policies and actions.
- Improve documentation of all real-time PPE usage by using an electronic inventory management system.
- Implement an electronic health record system to improve patient documentation and personnel utilization.
- Ensure hospital ships participate in all major wargames and exercises to assess training, demonstrate required medical capabilities, and plan assumptions for required holding capability. These should include events and scenarios both inside and outside the Continental U.S., as well as pandemic influenza and infectious disease (PI/ID) events.
- Develop a playbook for PI/ID events that integrates most, if not all, of the mitigation strategies implemented for the New York mission. Incorporate the playbook into quarterly hospital ship exercises.

ABOUT CNA

CNA is a nonprofit research and analysis organization dedicated to the safety and security of the nation. It operates the Center for Naval Analyses — the only federally funded research and development center (FFRDC) serving the Department of the Navy — as well as the Institute for Public Research. CNA is dedicated to developing actionable solutions to complex problems of national importance. With nearly 700 scientists, analysts and professional staff, CNA takes a real-world approach to gathering data. Its one-of-a-kind Field Program places analysts on carriers and military bases, in squad rooms and crisis centers, working side-by-side with operators and decision-makers around the world. CNA supports naval operations, fleet readiness and great power competition. Its non-defense research portfolio includes criminal justice, homeland security and data management.

For additional information, please contact: Patricia H. Netzer, netzerp@cna.org or Keith W. Zirkle, PhD, zirklek@cna.org