

US Navy's Hospital Ships: The Right Solution for the Right Price?

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Abstract

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US Navy's Hospital Ships: The Right Solution for the Right Price?

Hospital ships provide afloat, mobile, acute surgical medical facilities when called upon to the United States Military¹ The US Navy is maintaining two hospital ships, the USNS MERCY (T-AH-19) and USNS COMFORT (T-AH-20). Each has a limited shelf life until decommissioning, at which point the plan for their replacements, if in fact they will be replaced, is unclear. Are the ships ever utilized for their primary purpose (Support of Military Combat Operations) or as a valuable soft power tool in support of the DIME (Diplomacy, Information, Military, and Economic) and our Nation's Grand Strategy? Are they the right platform for Humanitarian Assistance/Disaster Relief? Are they the right investment of taxpayer dollars at a time when the US desperately needs to address its Federal budget deficit and its national debt? Can we afford to lose this strategic soft power asset from service when its employment strengthens relationships with allies in need? If we do, will other nations, such as China fill the void and with that assume the relationship benefits we had previously received?

History of US Navy Hospital Ships

The US Navy obtained its first purpose-built hospital ship during the Civil War and has operated 21 hospital ships since then. They have historically provided much needed hospitalization and surgical capability in proximity to the fight that would otherwise not have been available. The specific application of hospital ships began as a form of "floating ambulance", a means of removing the wounded from the theater of battle for treatment elsewhere.

At the outset of WWII, the Army was congressionally approved but not funded to have its own hospital ships, so it looked to Navy to provide this much needed function. The Navy's preferred approach, however, was to use medically augmented Tank

Landing Ships (LST), which would initially drop off marines and their equipment and supplies, then collect wounded and depart. These ships, however, were gray-hulled combatants not marked as hospital ships and as such were not protected from attack under the Geneva and Hague Conventions. As such the Army would not accept them to meet their requirement.

The need for hospital ships was evident during the Guadalcanal campaign when land-based medical facilities were receiving artillery and air attacks on a regular basis. While the requirement for these ships was clear, positioning them was difficult because the risk of attack extended even hundreds of miles out to sea. Poor communication between Evacuation Control Boats and the beach added to the ineffectiveness of the use hospital ships, as it was difficult to place them accurately. It was clear that the solution required more than the assets, but also a truly joint environment with good command and control, and interoperability between services.

During the Philippine campaign hospital ships were brought into the combat zone during the day and removed at night. Hospital ships were not always welcome as part of a battle group if they were lit up at night, as they could divulge the location of the combatants. As such the Navy continued with employment of medically equipped Landing Tank Ships LST(H) to remove casualties from the beach. Since they had a dual purpose of delivery of personnel and equipment along with removing and caring for the wounded, they were poorly suited for quality medical care. A more ideal solution for the appropriate application of afloat medical care was subsequently offered by Admiral William Halsey in the Pacific theater.

Admiral Halsey's approach was to cycle hospital ships through in series to load 500-600 casualties at a time then depart, immediately replaced by the next ship. The hospital ships were complemented by medically augmented Landing Tank Ships LST(H), designated as Evacuation Control Ships, which would assess the requirements of patients during transit and transfer the most serious cases to the hospital ships. The rest were treated on the Evacuation Control Ships and returned to battle if possible.

During the Korean war, hospital ships were used extensively, again in conjunction with Evacuation Control Ships, where the most serious casualties were treated on the hospital ships, then moved to land-based hospitals in Japan via other transports, keeping the hospital ships in theater. This in effect established the hospital ships as providers of theater hospitalization and raised them from their former role as floating ambulances. It was during this period that hospital ships were first equipped to receive patients by helicopter.

During the Vietnam War, patients were removed from the battlefield primarily by helicopter and delivered directly to hospital ships, an effective relationship. The wounded would be treated and then assessed onboard and either flown to Danang for the trip home or flown back to the fight. To illustrate the effectiveness of one hospital ship of the era, USS *Repose* AH-16, of 22,600 patients admitted on board from March 1966 to October 1969, over 58% of them were returned to full duty. After the war ended, the Navy's two hospital ships were sold and with them went Navy's capability to "employ highly mobile, definitive-care combat hospitals in direct support of the Fleet and Fleet Marine Force—a capability that had evolved in the final amphibious campaigns of World War II, was refined in Korea, and was perfected in Vietnam."²

Definitions and Requirement

Per OPNAVINST 3501.161D, hospital ships are required to provide a role 3 capability in support of major combat operations. The medical Role system is defined as follows:

- Role 1 is immediate, lifesaving steps that do not require a physician, but rather, a combat medic. It is the first medical care received. It includes DNBI prevention and care, combat and operational stress prevention, patient location and acquisition. Treatment at this level is normally provided by combat medics.
- Role 2 provides advanced trauma and emergency medical treatment including continuation of resuscitation started in Role 1. Role 2 provides a greater capability to resuscitate trauma patients than at Role 1. Role 2 has limited hold capability (i.e., no bed capacity).
- Role 3 the patient is treated at a medical treatment facility (MTF) that is staffed and equipped to provide care to all categories of patients, to include resuscitation, initial wound surgery, and post-operative treatment.³

Afloat Theater Hospitalization Capabilities Study

To assess the requirements for an Afloat Theater Hospitalization Capability (Afloat THC), the Afloat Theater Hospitalization Capabilities Study was conducted for OPNAV N81H.

What impact does Afloat THC have on the lives of injured US personnel? As part of the Afloat Theater Hospitalization Study, an IT solution known as Tactical Medical Logistics (TML+) was employed to assess the effectiveness of the entire theater medical chain in five different scenarios. The objective was not only to analyze the

impact of the Afloat THC, but also to right-size the Afloat THC platform with the ideal equipment setup and manning levels to support the high-end of required capacity.

The scenario was based upon a seabased Major Combat Operation (MCO) forcible entry set in 2024. The Afloat THC platform was set as MV-22 capable, with at least two MV-22s supporting medevacs to the ship's flight deck. The afloat THC platform and the shore THC would have unlimited support of MV-22s. OPNAV N81H provided the casualty set to be consistent with other studies, and the casualty stream supported the sea basing capabilities-based assessment developed using the Integrated Theater Engagement Model (ITEM) and casualties generated using Army's Advanced Warfighting Simulation (AWARS) model. The casualties were divided into five locations, and the first 1235 casualties in the sample were played out under five different configurations of health care availability. In each situation the injury or disease began in a remote location and proceeded from the Point of Injury (POI) through a First Responder (RSP) through various health nodes, including Forward Resuscitation Surgery Systems (FRSS), Casualty Receiving and Treatment Ships (CRTS—typically a combatant), and Afloat THCs or Ashore THCs. The study identified that when an afloat THC is added to a CRTS in the process, the number of casualties who died of their wounds (DoW) was reduced by 8%. When the afloat THC replaced the CRTS, the reduction in DoW was 24%. The most favorable results occurred with afloat or ashore THC employed without the use of a CRTS. This would suggest that the use of a CRTS in general should be a last resort, in the event afloat or shore-based THC is not available. ⁴ Other results of the model included a recommended afloat THC flight deck capacity to support two MV-22s simultaneously, and a 900-peak bed capacity (if no

patients evacuated). The model did not measure the expected improved outcomes for survivors due to the quality of the medical care provided by the THC, and the ensuing improved quality of life. Based on the assessed casualty stream, a hospital ship with 20 operating rooms (ORs) could support a seabased forcible entry operations, but that requirement could also be met without the afloat THC if an Amphibious Task Force (ATF) consisting of five LHD/LHAs and five LPD-17s were available. Modeling indicated more ships would reduce the requirement for one afloat THC. The model showed that in the case of a CRTS without a THC, if the LHA-6 in the ATF is focused on Joint Strike Fighter operations and not on casualties, the number of DoW increases by 15%.⁵ Clearly, an afloat THC in this scenario is a force multiplier which enables the combatants to focus on the mission.

The Afloat Theater Hospitalization Study not only identified the utility and benefits the afloat THC offers, but it identified attributes necessary for the effectiveness of the HSR, shown below and in Table 1:

- Operating Rooms: 12 if the afloat THC is augmenting an ATF, or 20 if the ship is providing medical support independently.
- Hospitalization Capability—requirement for support of Major Combat Operations and Defense Support to Civil Authorities (DSCA).
- Ship motions/stability: hull design and/or stabilization systems to ensure ship's motion does not inhibit the ability to conduct surgery.
- Throughput capability from surface not needed for afloat THC function but a requirement for Foreign Humanitarian Assistance (FHA), Defense Support to

Civilian Authorities, and Theater Security Cooperation (TSC). Surface access via LCAC not a requirement.

- Flight Deck Spots: two, and must support MV-22 operation. Additional flight deck capability would be needed to embark organic aircraft if air support from an ATF is not available.

Table 1. Mission/Platform Attributes ⁶

Attribute	MCO		FHA (DR)	DSCA	TSC
	T-AH &	T-AH			
Medical Capacity					
-Casualty Receiving/triage beds			Yes	Yes	No
- ORs	12	20	Yes	Yes	No
- Post OP Beds			Yes	Yes	No
- Hospitalization Capability	Yes	Yes	No	Yes	No
- Ship motions/stability	Yes	Yes	Yes	Yes	No
Throughput					
- Surface (LCAC)	No	No	No	No	No
- Surface (Displacement)	No	No	Yes	Yes	Yes
- Air	Yes	Yes	Yes	Yes	No
Aviation					
- Flight Deck Spots	2	2	Yes	Yes	Yes
- Hangar	No	No	No	No	Yes
Hotel Services (Berthing & support)	No	Yes	Yes	Yes	Yes
C4I	Yes	Yes	No	No	No
Speed	No	No	Yes	Yes	No
Equipment Stowage	No	No	Yes	No	Yes
Access	No	No	Yes	Yes	Yes

If necessary, the cost of these replacement vessels could be lowered by (a) Extending the service life of the current vessels, (b), removing the welldeck capability, or (c) by repurposing existing ships such as MSC T-AKX, or LSD-41s. Additional cost savings could be realized through augmenting medical manning through Non-Government Organizations (NGO)⁷. It should be noted from Table 1 that the ability to support organic aviation is key to the success of independent Theater Security Cooperation operations.

Hospital Ships as Projectors of Soft Power

In addition to US Navy hospital ships' primary purpose of providing afloat hospitalization capability in support of major combat operations, it is urgent that we not lose sight of their importance as creators and projectors of soft power. The 2015 National Military Strategy prioritizes the US conducting Humanitarian Assistance and Disaster Response (HA/DR), a role in which hospital ships excel. US relations with our allies have benefitted tremendously from the results of US HA/DR delivered from hospital ships.

Hospital ships have several unique advantages over other aid-delivery mechanisms. Most importantly, hospital ships are highly visible. The appearance of several hospital ships with a whole host of American doctors and state-of-the-art medical technology is soft power's version of shock and awe. Healing the sick and treating the wounded may win more hearts and minds, especially in the short run, than putting up an electric grid or building a road⁸

While our hospital ships lay largely dormant until 2001, the mid 2000s saw much better utilization, and after the last deployment supporting major combat operations in 2003, the ships have been used entirely in support of HA/DR. The 2017 National Security Strategy declares that the US "will continue to lead the world in humanitarian assistance. Even as we expect others to share responsibility, the United States will continue to catalyze international responses to man-made and natural disasters and provide our expertise and capabilities to those in need."⁹ The US hospital ships support and project this value visibly and tangibly to the world. The National Security Strategy also states "we learned the difficult lesson that when America does not lead, malign actors fill the void to the disadvantage of the United States. When America does lead, however, from a position of strength and confidence and in accordance with our

interests and values, all benefit. ”¹⁰ USSOUTHCOM reflected most favorably on USNS

COMFORT’s impact during Continuing Promise 2015:

The continuation of this mission and the growth of our partnerships have created a lasting, tangible, positive impact on local communities while also improving the Unity, Security, and Stability of the region. This mission demonstrates U. S. values and our enduring commitment to citizens in Central and South America, and the Caribbean. These positive developments are COMFORT’s enduring strategic legacy.¹¹

Positioning of Afloat THC: COMFORT’s quick response to the earthquake in Haiti under Operation Unified Response was due primarily to the proximity of the ship’s berthing location in Baltimore, MD—COMFORT arrived on the scene a mere four days after the quake. Since natural disasters are typically unpredicted, I recommend a review of the locations of natural disasters in recent decades and forward deploy afloat THCs to areas hardest hit by seaborne disasters. For example, a hospital ship forward deployed to Singapore, or even Diego Garcia, could have provided a prompter response to the 2004 Indian Ocean Tsunami than USNS MERCY under Operation Unified Assistance, arriving a full ten days after the disaster. To her credit, in providing long-term Disaster Response, MERCY served as the face of US diplomacy in the region for a full six months.

China’s Use of Their Hospital Ship for Soft Power

Just as our hospital ships serve an important role as projectors of soft power, China has clearly recognized this role as well. China is now operating a 584-foot hospital ship called the Peace Ark. She is a “well outfitted symbol of Beijing’s growing ‘soft power’”.¹² Features and equipment of the Peace Ark include:

- Eight operating rooms
- 300 hospital beds

- 20 intensive care unit beds
- Two triage areas.
- X-ray room.
- Ultrasound room.
- CT Scanner.
- Embarked helicopter: Z-9 “heli-ambulance”.¹³

Peace Ark “conducts medical services during peacetime, as well as humanitarian assistance operations. She also acts as a platform for medical staff to conduct research and training.”¹⁴ Peace Ark’s HA/DR missions include providing medical care on stops in Djibouti, Kenya, Tanzania, Seychelles, Bangladesh, in addition to stops in South American and the Caribbean including Cuba, Jamaica, Trinidad, Tobago and Costa Rica. Following Super Typhoon Haiyan, she was dispatched to the Philippines to provide medical care. China has fully recognized the soft power this ship provides. Her presence at RIMPAC was meant to show a “gentler side of China’s military”¹⁵, to counter the reputation China has garnered through its aggression and island-building in the South China Sea. Soft power visits such as these complement the infrastructure investments China is making in countries such as these, and the end result is likely to be a diminished level of US influence and access if we don’t successfully reach out to these countries ourselves.

Hospital Ships as a Means Toward Positive Interaction with China

The FY15 National Security Strategy sought to “develop a constructive relationship with China that delivers benefits for our two peoples and promotes security and prosperity in Asia and around the world.”¹⁶ The December 2017 National Security

Strategy departs from the previous soft approach with a much more direct one in several statements such as this one: “For decades, U. S. policy was rooted in the belief that support for China’s rise and for its integration into the post-war international order would liberalize China. Contrary to our hopes, China expanded its power at the expense of the sovereignty of others. China gathers and exploits data on an unrivaled scale and spreads features of its authoritarian system, including corruption and the use of surveillance.”¹⁷ The FY 18 Summary of the National Defense Strategy also departs from the theme of cooperation, instead identifying China as a “strategic competitor using predatory economics to intimidate its neighbors while militarizing features in the South China Sea.”¹⁸ I argue that in light of the nature of the current posturing, our two nations need to find areas in which they can work together for good—more critical to peace now than it has ever been. China’s one-belt-one-road program is creating alliances that could well reduce US influence and access throughout Asia and beyond, and the money China is investing in infrastructure is giving them the upper hand over the nations where the money is being invested. These sites may be ripe for soft power visits from the US Navy. Ideal considerations for these exercises could include Kyaukpyu, Myanmar, Hambantota, Sri Lanka, or Djibouti (which would be ideal due to US and China both having bases there). The US Navy’s Hospital Ships would be an ideal platform for exploration of a bilateral medical outreach capability to provide HA/DR to allies in need throughout Asia and even the Americas. We should propose bilateral exercises that simulate post-earthquake, post-tsunami, post cyclone/hurricane in which ship’s crews are used to simulate traumatic injury or illness, after which a bilateral medical availability could take place to provide medical care to the host nation.

The purpose of these bilateral exercises is twofold. First, to provide an objective that our two nations can work on together. Second, to create a capability to respond to real-world problems. USNS Mercy and the Peace Ark have worked together in the past—during RIMPAC 2014 these ships both participated and conducted Subject Matter Expert Exchanges (SMEE). In my discussions with Military Sealift Command’s Jim Herbst, he reflected: “we’ve worked with China—we had an exchange program during RIMPAC 2014, [enjoyed] great success with Vietnam, success during Continuing Promise 2015...Our ambassadors loved it--they were so excited. . . 11 countries, 22,000 surgeries. A robust mission. But we vacated. . . now nothing is going down there. . . but no one is talking about how China went down there.”¹⁹ It would be tragic to lose that momentum in our relations with China as well as the countries we’ve visited now due to the current posturing taking place. The HA/DR mission capability, the focus on healing the sick and injured, is a purpose that can also keep the healing process from stopping between our two countries. This interaction needs to happen despite the current rhetoric from Washington. While I support facing the overarching issues realistically and openly, we should never completely turn our backs on China—especially if they will participate in an activity that will keep the hope of good future relations alive. The world needs us. If our Navies work together, we can create a template for prompt response to future disasters. As the relationship between our medical communities builds, there may well be opportunity to bring other nations’ hospital ships into the picture—a real force multiplier, similar to the “thousand ship navy” concept, but with a completely different product—healing, whose reach would expand over a much larger area—with potentially global impact.

Current Hospital Ships

Navy's current hospital ships, the USNS MERCY T-AH 19 and USNS COMFORT T-AH 20 began as San Clemente-Class supertankers, originally built in 1975, were converted to hospital ships in 1986, and delivered to Military Sealift Command in 1986 and 1987, respectively. Navy's selection of these platforms was the outcome of a study conducted by the CNO in the late 1970's called "Feasible Alternatives to Dedicated Hospital Ships" (ADHOS). The study provided characteristics of an effective medical platform, and compared alternative platforms. The study also detailed space requirements to provide definitive levels of medical care under various casualty-flow scenarios. Navy planners initially considered acquisition of the ocean liner SS United States for conversion to a hospital ship but ultimately decided the ship was inadequate for that purpose, and from that point the Navy focus was to convert tankers. The Navy approached the US shipbuilding industry with this information and solicited proposals. In 1982 the Navy budgeted \$560M to acquire and convert two tankers, ultimately resulting in Navy's current afloat hospitalization capability.²⁰

COMFORT and MERCY each claim a 1,000-bed capacity, made possible through use of bunk beds. In actual practice, the top bunks are difficult to use, giving the ship effectively a 500-bed capacity^{21 22}. Additional features of the current ships include:

- Flight deck capable of receiving world's largest helicopters (but not the V-22)
- 1,000 patient beds to include 80 intensive care unit (ICU); 20 post anesthesia care unit (PACU); 400 acute care and 500 limited care
- 12 operating rooms
- Four X-ray rooms plus mobile radiology

- CT scanner
- Dental clinic including two dental operating rooms
- Optometry lab
- Two oxygen-producing plants plus a TRIM system which pipes oxygen directly to all medical spaces
- Fresh water plant capable of making 300K gallons per day
- Full laboratory to include DoD's largest capacity blood bank (5,000 units)
- Physical therapy
- Satellite lab
- Pharmacy
- Morgue^{23 24}

These ships provide a scalable capability enabling partial manning as warranted.

In a non-operational status, each retains a minimal daily crew of 61 active duty personnel, maintaining the ship in "Ready 5 Day" activation cycle while the remaining 1153 personnel assigned to Military Treatment Facility billets aboard are loaned to Naval Hospitals delivering health care to the Tricare beneficiary population.²⁵ These ships can receive patients in port, under way or at anchor, with throughput maximized underway through the use of helicopters and each ship's two tenders. These tenders can hold up to 66 (ambulatory) people, including crew, and when they reach the ship the tenders can be hoisted with passengers aboard, to the ship's main deck (as shown in Figure 1), where the patients can be easily disembarked and brought to the MTF. These ships meet a longstanding requirement for afloat hospitalization in support of

major combat operations.



Figure 1. Deploying COMFORT's Tenders

COMFORT's support of Puerto Rico. USNS COMFORT's primary mission is to provide an afloat, mobile, acute surgical medical facility to the US military that is flexible, capable and uniquely adaptable to support expeditionary warfare. COMFORT's secondary mission is to provide full hospital services to support US disaster relief and humanitarian operations worldwide. ²⁶ Recent Disaster Relief provided to Puerto Rico by COMFORT put all her capabilities to the test and provided a useful point of reference to any question of the need for these assets. When given the order to provide disaster relief, COMFORT flew 241 critical core personnel from 18 MTFs around the country, 529 personnel under the Full Operating Status (FOS)-Tailored manpower package (these medical personnel are shipboard billets, but they are embedded in other medical facilities until they are needed on the ships), loaded necessary medical consumables and 98 pallets of food²⁷, all in less than 48 hours, well under the five-day maximum required under OPNAVINST 5440.75B. She also embarked two organic MH-60S helicopters²⁸, their pilots and maintenance personnel from Helicopter Sea Combat Squadron (HSC) 22, the "Sea Knights"²⁹, from as well as their aviation pack up kit (parts). USNS COMFORT worked in conjunction with the Kearsarge Amphibious

Readiness Group and the 26th Marine Expeditionary unit, who had spent the previous month in the region airlifting food, water, and other supplies to the island. ³⁰

COMFORT was there to assist Puerto Rico's hospitals due to loss of electricity on the island. COMFORT partnered with Centro Medico and primarily took care of critical gaps in coverage at Centro Medico that were especially time sensitive, and could be done without long-term follow-up. While they anticipated and prepared to use 250 of the ship's beds, that turned out not to be necessary. All patients treated on board were referred by Centro Medico's MOC (Medical Operations Center). Some of the services COMFORT did provide included:

- 32 ICU patients, (note: this is more than twice the capacity of the ICUs at Balboa and Portsmouth, and the ship can support up to 80)
- In coordination with TF MED MOC, COMFORT's Interventional Radiography (IR) Suite was used to place access hardware in patients who had been unable to begin chemotherapy. After this outpatient procedure, patients returned to their oncologists to start treatment.

In all, COMFORT helped over 6,000 patients over 50 days. Most did not require admission and were treated on an outpatient basis.

There have been some negative media reports about the utilization of COMFORT's capabilities in Puerto Rico, such as from the Wall Street Journal³¹. But she did what she was tasked to do, and asked to do, and did it well, responding significantly earlier than the five days' notice she has from notification to leaving port en route to the afflicted area.

New Designs

Navy has two different designs available to replace the MERCY class: the Hospital Ship Replacement concept and the Common Hull Auxiliary Multi-mission Platform.

The 2011/2014 Hospital Ship Replacement Concept

In anticipation of the need to replace USNS COMFORT and MERCY, NAVSEA and BUMED worked through Carderock to create the 2011 Hospital Ship Replacement (HSR) document, and later the 2014 document. Based on the LPD-17 class as parent hull form, the HSR is the product of the study's focus on current hospital ships' shortcomings, including excessive draft, limited oxygen and freshwater production, and limited modularity of key medical spaces. The 500-bed HSR, with its lower draft of 23 feet (MERCY class is over 30 feet), is designed with an anticipated future emphasis on Humanitarian Assistance/Disaster Response (HA/DR), where an ability to operate in the littorals is advantageous. Patient throughput by air is superior to current MERCY class configuration, with land/launch spots for 2 CH-53s, 2 MV-22s, or 4 CH-46s as compared to one land/launch spot on MERCY, which cannot currently accommodate the MV-22.³² Patient throughput by sea was analyzed by NSWC, considering several amphibious vehicles. The HSR report endorses air cushion vehicle (ACV) GriffonTD hovercraft, which can transport 29 patients from shore without requiring port facilities.³³ HSR can store 16 ISO medical containers, providing additional flexibility to deliver capability ashore. Finally, some of HSR spaces are designated as reconfigurable, flexible spaces which can be used for patient care, holding, storage, or berthing for additional medical staff if necessary.³⁴ ³⁵ It should be noted that while the primary purpose of the Mercy class ships is to provide mobile medical and surgical services to support forces

deployed ashore, the second objective, planned Humanitarian Aid and Disaster Relief (HA/DR) are expected to become the most common utilization of these platforms and as such this objective is of primary consideration in the design of the HSR.³⁶

Common Hull Auxiliary Multi-Mission Platform (CHAMP)³⁷

The CHAMP study, which is still in progress, produced a concept multi-purpose platform that can embark tailored mission packages to accomplish several different missions. Missions included in proposed capability would include Sealift, Aviation Support, Submarine Tending, Hospital Services, and Command and Control. This study produced two proposed ships, one which could accommodate two V-22s, and one accommodating four V-22s. Despite being deep-draft vessels like the MERCY class, both CHAMP concepts offer exceptional flexibility for multiple missions. It should be pointed out, however, that in order to be considered hospital ships with Geneva Convention protection, the ship must be white and marked with a red cross³⁸, and “may not be used for acts considered harmful to the enemy, such as for transporting able-bodied combatants for used to carry ammunition to combat forces.”³⁹ Additional concerns: some medical systems would need to be fabricated into the CHAMP, such as O2/N2, information technology for telemedicine, radiology, and blood bank; and the ship would require a separate power auxiliary system for medical equipment.^{40 41} As such, the ship can be derived from a ship class with multiple options, but should not be considered adaptable for other missions on short notice.”⁴²

Recommendations

From my perspective, Navy has four potential courses of action to consider.

COA 1. Non-Replacement of USNS COMFORT.

Allowing USNS COMFORT to reach the end of her service life in 2021 without replacement and make do with one hospital ship and medical facilities on gray-hulled vessels is an unacceptable option. First, we can't use gray-hulled ships to serve that purpose because (A) their capability is substantially less, and (B) the ship could lose its combatant status. The Hague Convention of 1907 stipulates that hospital ships must be clearly marked and lighted as a hospital ship, should give medical assistance to wounded personnel of all nationalities, must not be used for any military purpose, must not interfere with or hamper enemy combatant vessels, is subject to search by belligerents to investigate violations of the above.⁴³

Second, when MERCY is undergoing maintenance, a one-ship capability becomes a gap. We should not underestimate the requirement for this capability in the future. Since current policy makers with boots-on-ground experience in Iraq likely received treatment in medical facilities ashore, they may not recall that these ships were utilized in both Operation Desert Shield/Desert Storm and Iraqi Freedom⁴⁴ before ground based facilities could be established in theater. Big Navy needs to consider that in the current pivot to Asia, there are no guarantees that the next war theater will offer needed hospitalization capability in land-based facilities. In light of today's tensions with North Korea and China, this is not a good time to let this important capability lapse from existence.

COA 2. LPD-17

The LPD-17-based HSR is in many respects the perfect platform for providing medical support to major combat operations. While the cost figures are not available to me at the time of this writing, it is reasonable to expect that the cost of a brand new

purpose-built hospital ship is going to be extremely high in comparison to the other COAs. The cost can be brought down by removing the well-deck from the design, but still would cost dramatically more than the other COAs. The welldeck offered by the LPD-17 class would offer some utility perhaps, but at an extreme opportunity cost in terms of the space devoted to that feature that could otherwise be utilized for medical purposes, or to house medical personnel.

And while the LPD-17 offers more flexibility to operate in the littorals, making it better suited for HA/DR, I recommend focusing on the primary purpose of hospital ships in deciding which avenue to take. HA/DR is a vital projection of US soft power, but in the current financial environment, I don't consider the construction of purpose-built hospital ships to be good stewardship of taxpayer dollars.

COA 3. CHAMP

I do not recommend the CHAMP as hospital ship above COAs 2 and 4 for two reasons: (1) The need for the ship to bear hospital ship markings (painted white with red cross) and the unique systems that need to be built into the ship make it less than ideal to be converted to another role as intended, and (2) The ship's deep draft makes it less suited for conducting HA/DR operations than the LPD-17.

COA 4. Extension of USNS COMFORT's Service Life

USNS COMFORT's current service life is scheduled to terminate in 2021. USNS MERCY's service life expires in 2035. During my visit to USNS COMFORT, her acting Chief Engineer pointed out that as USNS ships, COMFORT and MERCY have been meticulously maintained in accordance with US Coast Guard standards, and as such, COMFORT is in suitable condition to have her service life extended for another ten years or more. COMFORT is an extremely capable platform. If this COA is selected, her

utility could be improved further, however, from an aviation perspective. Her flight deck needs to be enlarged (as suggested in Figure 2) to provide space for a proper helicopter hangar to better enable her to embark and maintain organic helos AND still have room to receive additional helicopters delivering patients.

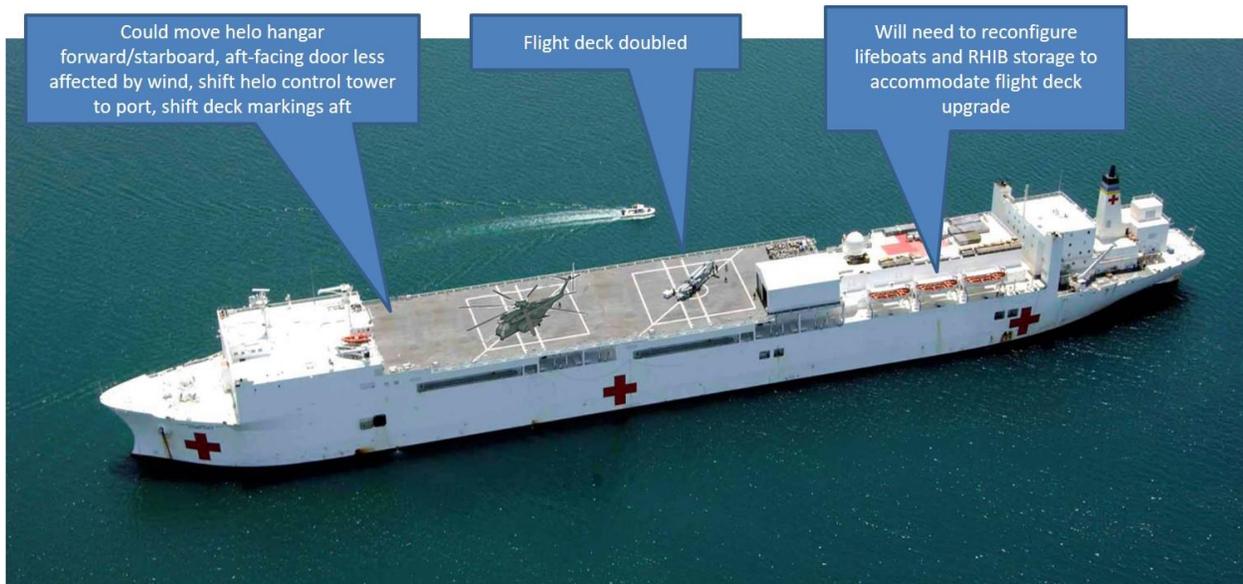


Figure 2. Proposed Flight Deck Upgrade

Under the current configuration the flight deck is too crowded to do both. Another necessary upgrade would be providing the heat resistance necessary for V-22s to land on board, currently estimated at \$8M for the current flight deck⁴⁵. This would better equip her to receive wounded personnel aboard during major combat operations, or to provide HA/DR in conjunction with a Marine Amphibious Readiness Group. The cost of these upgrades would be minor in comparison to building an entirely new ship for this purpose. While her deep draft, in like manner with CHAMP, makes her less suited for HA/DR than LPD-17, the fact that these ships are paid for makes them a sensible approach to meet their primary mission, and an acceptable (if not ideal) platform for HA/DR.

Conclusion. Why We Need Afloat Theater Hospitalization Capability

As highlighted in The Afloat Hospitalization Capabilities Study, there are several issues that suggest the requirement for Afloat THC:

1. Uncertainty will dominate future events.
2. It is anticipated that the US will not have the access it has previously enjoyed which enabled use of expeditionary medical facilities ashore.
3. Engagement activities will be an increasingly high priority, while the need to reduce US visibility and footprint will also increase.
4. DoD's deployable medical capability will be increasingly important to the Nation's "whole of government" approach to international relations.
5. Demographic shifts and climate change will enhance emphasis on the littorals for crisis response and engagement.
6. Increasing threat of pandemic disease and use of Weapons of Mass Destruction will increase the need for Theater Hospitalization Capability.⁴⁶

Maintaining and utilizing Afloat THC not only for support of Major Combat Operations, but for Foreign Humanitarian Assistance, Defense Support to Civil Authorities, and Theater Security Cooperation, brings the Defense element of national power into the whole-of-government realm, providing vital assistance to partners in need, enhancing relationships while embodying and improving US influence wherever this capability is applied.

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