



Army UH-60L Black Hawk helicopter crew chiefs with Charlie Company, Detachment 2, 1-171<sup>st</sup> General Support Aviation Battalion, 57<sup>th</sup> Troop Command, New Jersey Army National Guard, conduct medical evacuation training with combat medics with 1<sup>st</sup> Battalion, 114<sup>th</sup> Infantry Regiment, 44<sup>th</sup> Infantry Brigade Combat Team, New Jersey Army National Guard, at Joint Base McGuire-Dix-Lakehurst, New Jersey, November 7, 2023 (New Jersey National Guard/Mark C. Olsen)

# What's Old Is New

## LSCO Casualty Evacuation in the 21<sup>st</sup> Century

By Jonathan S. Pederson

An update and integration of our military medical strategy is needed before the next large conflict. In the current lull between

major conflicts, much discussion has been generated regarding the next fight, which is postulated to be quite different than the wars in Afghanistan and Iraq. This predicted large-scale combat operation (LSCO) battle will require different strategies and tactics to adequately evacuate and treat the

large numbers of expected casualties not seen since the mid-20<sup>th</sup> century.<sup>1</sup> It is expected that the next LSCO will generate thousands of casualties in the opening days and stress the U.S. health-care system. Casualty evacuation will present new challenges. The scope and scale of the conflict will

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require a greater level of coordination between military and civilian health-care systems to aid the large numbers of expected casualties. Old lessons can be revamped, however, and innovation is needed. Recognition of our health-care system as a national security asset is required.

The historical “rear area” of past conflicts may not exist in the predicted modern conflict.<sup>2</sup> Long-range munitions and multidomain operations (satellites, long-range reconnaissance) will expand the combat zone where the enemy can be targeted. Casualties will need to be evacuated quickly and for longer distances until they are in a safe zone and definitive care can be rendered. Sustainment (under which medical support falls), logistics, and resupply have always been recognized as vitally important in winning a war.<sup>3</sup> With this being the case, the foe will target these key features if it can. Medical assets may not enjoy the protection they have had in past conflicts.

Casualty evacuation is largely a logistical problem and thus depends on logistic supply lines. If a Servicemember is injured in a conflict at the front line, ideally, he or she would immediately be removed from the line of fire, be triaged, and receive first aid from a medic or corpsman. Casualty collection points right off the front line will be established where more triage, treatment, and casualty movement to higher levels of care will occur—within minutes if possible. If immediate movement is not possible or is constrained, medics will need to provide prolonged care in the field until evacuation is possible. Moreover, recognizing that uncontested air space might not exist during a LSCO fight, “prolonged field care” is being taught and encouraged. This training assumes that a medic will need to take care of a casualty or casualties for potentially days before they are able to be evacuated to a role of care such as a battalion aid station (Role I) or equivalent with more medical and lifesaving capability. However, medics will need to resist the urge to consolidate and congregate with other medics’ casualty collection points to avoid being targeted.<sup>4</sup>

Current numbers of dedicated military casualty evacuation platforms are likely inadequate and would be overwhelmed by the number of casualties in a LSCO conflict.<sup>5</sup> Other means of casualty evacuation will be employed. Necessity will dictate that anything that rolls, floats, drives, or flies will be considered and utilized. Casualties will become an important priority of movement for logistical resupply operations. Supplies will go forward, and casualties will come back. Whether it is an Air Force Air Mobility Command aircraft, Navy Military Sealift Command ship, or Army 5-ton truck, cargo will go out and patients will come in. Any platform used for logistics may be pressed into casualty evacuation service. Medical planners will need to become intimately familiar with an area of operation’s main supply routes, alternate supply routes’ resupply, and retrograde timetables. They will need to know the number and types of vehicles used in the supply convoy.

Medical planners within a fighting unit will estimate the number of expected casualties from a pending battle. They will calculate how many casualties can be evacuated and at what times from preplanned resupply packages and rank them within the priority-of-movement system. Casualties will be loaded on to trucks, flatbeds, and other vehicles coming back from a battle after they drop off their supplies. Casualties will be put on ships, planes, trains, or any other means of transportation being used by logistics. Using these preplanned logistical resupply schedules, medical officers can predict how many casualties could potentially be evacuated from a given area. This medical information gives commanders the ability to compare how many casualties could potentially be evacuated with the estimated casualty numbers from pending battles and help inform decisions on where to attack.

Nonstandard casualty evacuation platforms will be utilized and should be included in our current military exercise scenarios. All civilian modes of transportation should be considered. If a contested area has a robust rail network, medical planners should know how many

casualties could potentially be evacuated using trains and coordinate their use if needed. If a contested area has a system of domestic ferries to move people and supplies in peacetime, medical planners should calculate how many casualties could be moved using these platforms. If there is an extensive network of canals or rivers (for example, in Europe), the number of potential casualties using these evacuation routes should be calculated.

Civilian passenger jets have the potential to be retrofitted to transport casualties as well.<sup>6</sup> The current military medical casualty evacuation system—field ambulances or medical helicopters to a C-17 or C-130 transport aircraft, to a medical ship, or to a fixed medical facility—will be quickly overwhelmed and prove inadequate during a LSCO fight. The Civil Reserve Air Fleet is a Department of Transportation and Department of War (DOW) program in which U.S. civilian airlines volunteer their aircraft during a national defense crisis.<sup>7</sup> It has been activated three times since it was established in 1951 and was last used in 2021 to evacuate U.S. citizens and personnel, Special Immigrant Visa applicants, and other at-risk individuals from Afghanistan.<sup>8</sup>

In regions like the Indo-Pacific, watercraft casualty evacuation may become the primary mode in contested airspace. Navy and Army transport vessels will be pressed into service for casualty evacuation and ad hoc treatment platforms. The Navy, in anticipation of this scenario, is purchasing fast ferries and retrofitting them into medical treatment and transport platforms.<sup>9</sup> These will expand and diversify military medical capabilities as well as increase survivability via speed and agility. The current hospital ships, USNS *Mercy* and USNS *Comfort*, are large, slow, and vulnerable.

Dispersion is key to survival on the battlefields of the future. Any congregations of personnel or equipment will be under threat if they are larger than the enemy’s targeting threshold and stationary long enough for fires against them to be calculated and executed. This expanded area of conflict resulting from the introduction of long-range precision



Army Specialist Jazmyne Wanger, combat medic specialist with Headquarters and Headquarters Company, 56<sup>th</sup> Stryker Brigade Combat Team, Pennsylvania National Guard, tends to simulated wounded soldier while HH-60 Black Hawk helicopter draws near pickup site during air medevac exercise at Grafenwoehr Training Area, October 11, 2024 (U.S. Army National Guard/Leanne Demboski)

munitions will mean that all casualty care will need to be mobile, which means smaller and more mobile than current doctrine dictates.<sup>10</sup>

Role I aid stations, the most far-forward medical capability, will need to be exceptionally mobile and move frequently to avoid being targeted. The larger Role II aid stations will also need to be mobile and frequently moved if they are to provide far-forward medical and surgical capabilities without being targeted.<sup>11</sup> Many of our current Role I and Role II combat medical aid stations are not designed to be agile or mobile. As such, they will need to be set up far outside the much larger combat zones of the future to avoid being targeted. In turn, these stations will become less relevant to their mission of providing intermediate care and salvage surgery en route to the next tier (Role III) medical care facility as they encroach on the safe spaces this next tier occupies as well. During our more recent conflicts, casualties frequently bypassed

Role II forward surgical capabilities and were taken to Role III facilities for more definitive surgery when casualty evacuation was expeditious.<sup>12</sup> Highly agile medical assets will increase survivability and give commanders more options as they perform risk analysis for medical coverage within combat zones. If the appropriate threshold for survivability of precious surgical/medical assets cannot be obtained within the future combat zone, rapid casualty evacuation becomes even more critical.

The tactical realities of the future battlefield need to inspire strategic medical requirements now. Our current tactical battlefield medical structure will likely not survive within the future expanded combat zone without becoming more agile and mobile. Role I may need to become a single tent that can be put up and taken down in minutes, coupled with a 5-ton truck that can quickly move out if needed with everything onboard. Role II may become an expandable 20-foot

surgical suite container on the back of a HEMTT (heavy expanded mobility tactical truck), unlike the current complex of several fixed tents with little organic transportation capability. A modular system, with a small mobile base unit of perhaps 10 beds that can scale up and down quickly, will be more survivable and useful than large immobile Role IIs and IIIs. All three Services have versions of expeditionary hospitalization. A LSCO will put interoperability (not necessarily interchangeability) to the test.<sup>13</sup>

Lines of evacuation will coincide with logistical hubs. As casualties flow back from contested theaters of operation, they will coalesce at large military treatment facilities (MTFs). Casualties from European or Middle East theaters will continue to flow to Ramstein Air Base, then to Landstuhl Regional Medical Center in Germany or to secondary medical facilities in Europe, such as RAF Lakenheath in the United Kingdom, and then on to Walter Reed/National Capital





Air Force 1<sup>st</sup> Lieutenant Erin Patinella and Master Sergeant Brandon Fitch, clinical nurse and medical technician, respectively, with 932<sup>nd</sup> Aeromedical Staging Squadron, treat simulated field casualty during Tactical Combat Casualty Care training for exercise Patriot Medic 25, August 10, 2025, Grissom Air Reserve Base, Indiana (U.S. Air Force/Noah J. Tancer)

Region, with overflow to facilities such as Naval Medical Center Portsmouth. Casualties from U.S. Southern Command will flow to San Antonio's Brooke Army Medical Center. U.S. Indo-Pacific Command casualties will flow through air logistical hubs such as Joint Base Lewis-McChord, where Madigan Army Medical Center is located, and then on to other hubs such as Travis Air Force Base in California, where David Grant USAF Medical Center is located, or to Naval Medical Center San Diego.

Other lines of evacuation may include bases such as Joint Base Elmendorf-Richardson in Anchorage, where the 673<sup>rd</sup> Medical Group is based. Tripler Army Medical Center in Hawaii may become the logistical/casualty line of evacuation hub for those coming by sea. Casualties will be treated, triaged, and dispositioned. Some of these casualties will then be moved and dispersed to their unit's base treatment facility or locations close to their homes of record for

long-term recuperation and be under the care of their local medical facilities. Many of these medical facilities will be civilian. This system already exists on a small scale, such as Army Soldier Recovery Units, but will need to be vastly expanded and jointly applied during a LSCO fight.<sup>14</sup> The Department of Veterans Affairs (VA) will be a major player in the long-term treatment of LSCO casualties.

There will be a large shift in medical providers within the abovementioned areas with large MTFs. Active-duty medical personnel will deploy downrange. Guard and Reserve medical providers will be called up either to deploy directly to the contested theater of operation or to be assigned to backfill those Active-duty medical personnel who are deployed. This Guard and Reserve activation will have a large effect on both the civilian and VA health-care facilities within these population centers. Currently, 55 percent of the Army's operational medical personnel are located within the Guard

and Reserve.<sup>15</sup> Their mobilization will create large gaps in these communities' civilian health-care capabilities. This may accelerate the triage, disposition, and dispersion of casualties to their homes of record more widely distributed across the United States, better sharing the patient/casualty medical care load. Small community health-care centers will be essential to the medical war effort. Every able-bodied medical provider in even the smallest towns will thus become an important contributor to the National Military Medical Care System. National strategies to rectify impending physician shortages deserve greater emphasis within this context of national health security.<sup>16</sup>

The nature of health care as a strategic national asset was starkly revealed during the COVID-19 pandemic. It served as a wake-up call to the type of mobilization and civil-military partnering that is required to provide medical care in times of emergency. During the COVID-19 crisis, state governments mobilized



their respective National Guard units to augment their overwhelmed medical systems. This did not always mean mobilized medical personnel. Nonmedical National Guardsmen were activated and deployed to rural clinics to serve as clerks or nonmedical attendants to alleviate overburdened staff.<sup>17</sup> The USNS *Comfort* and a Department of Defense–manned care facility within the Javits Convention Center were mobilized in New York City. To preserve and sustain these civilian–military relationships, periodic exercises among the civilian, VA, and military health-care systems should be conducted.

Exercises should start with the large DOW MTFs. Conduct tabletop exercises with a scenario that involves the entire military, VA, civilian health care, and support-service sector in the area. What happens if most of the Active-duty medical staff are deployed overseas? What happens when the Guard and Reserve medical personnel are activated and deployed overseas or tasked to backfill for those who deployed overseas? Who is left to take care of the civilian population? What services can safely be curtailed? During the COVID-19 pandemic, health-care services were restricted to essential-only in many areas of the country. In a wartime environment where thousands of casualties are arriving at large MTFs daily, similar health service degradations may occur in the surrounding area as health-care workers tend the wounded. Having periodic exercises within these communities and war-gaming what would happen in this type of scenario could mitigate the impact of such a situation and galvanize the community better when the scenario unfolds.

A strong national health-care system is critical to our national security. DOW should take a hard look at how it can partner better with the civilian health-care system and VA to expand access and capabilities in the event of a large influx of casualties from a LSCO fight. Ensure there is a reliable chain of care from front-line medic/corpsman to hometown provider by having periodic exercises with the entire health-care system within a community. Start with the communities where large MTFs

are located (for example, Puget Sound, National Capital Region, San Antonio, San Diego) and develop the collaborative VA and civilian medical center relationships and muscle memory before the hour of need arises. Additionally, DOW should inculcate rigorous casualty evacuation dilemmas within joint exercises. The use of available non-standard casualty evacuation platforms (for instance, resupply vehicles, trains, ferries, and civilian aircraft) should be encouraged and exercised. Emphasize rapid mobility, dispersion, and medical inter-Service interoperability within the scenario. Drive innovative change by studying the large-scale combat operations of the 20<sup>th</sup> century and adapting them to those in the 21<sup>st</sup> century. JFQ

## Notes

<sup>1</sup> Mason H. Remondelli et al., “Casualty Care Implications of Large-Scale Combat Operations,” *Journal of Trauma and Acute Care Surgery* 95, no. 2 (2023), S180–4, <https://doi.org/10.1097/ta.0000000000004063>.

<sup>2</sup> Jessica J. Sheets, *Army Medical Capacity: Ready to Meet the LSCO Challenge?* (Carlisle, PA: U.S. Army Heritage and Education Center, August 20, 2021), [https://web.archive.org/web/20250331201945/https://ahhec.armywarcollege.edu/documents/Army\\_Medical\\_Capacity.pdf](https://web.archive.org/web/20250331201945/https://ahhec.armywarcollege.edu/documents/Army_Medical_Capacity.pdf).

<sup>3</sup> Mark Sander, “Medical Logistics Sustainment in Multidomain Operations,” *Army Sustainment*, Summer 2023, 30–3, <https://asu.army.mil/alog/archive/pb7002303full.pdf>.

<sup>4</sup> Steven G. Schauer et al., “Opinion: The Risks of Prolonged Casualty Care for Conventional Forces in Large-Scale Combat Operations,” *Task and Purpose*, May 9, 2023, <https://taskandpurpose.com/opinion/risks-prolonged-casualty-care-large-scale-combat-operations/>.

<sup>5</sup> Sheets, *Army Medical Capacity*; Andrew Beck and Eric Alexander, “Transition Planning in Large-Scale Combat Operations,” *Infantry*, Fall 2021, 22–6, [https://www.benning.army.mil/infantry/magazine/issues/2021/Fall/pdf/7\\_Beck.pdf](https://www.benning.army.mil/infantry/magazine/issues/2021/Fall/pdf/7_Beck.pdf).

<sup>6</sup> Matthew Fandre, “Medical Changes Needed for Large-Scale Combat Operations: Observations From Mission Command Training Program Warfighter Exercises,” *Military Review*, May–June 2020, 37–45, <https://www.armyupress.army.mil/Portals/7/military-review/Archives/English/MJ-20/Fandre-Medical-Changes.pdf>.

<sup>7</sup> “Civil Reserve Airfleet,” Department of Transportation, last updated February 23, 2024, <https://www.transportation.gov/mission/administrations/intelligence-security-emergency-response/civil-reserve-airfleet-allocations>.

<sup>8</sup> Ian D’Costa, “This Is the Pentagon’s Not-So-Secret Civilian ‘Ghost’ Aircraft Fleet,” *We Are the Mighty*, March 19, 2021, <https://www.werearethemighty.com/mighty-tactical/civilian-reserve-air-fleet-craf/>; “Department of Defense Activates Civil Reserve Air Fleet to Assist With Afghanistan Efforts,” Department of Defense, August 22, 2021, <https://www.defense.gov/News/Releases/Release/Article/2741564/departement-of-defense-activates-civil-reserve-air-fleet-to-assist-with-afghanis/>.

<sup>9</sup> Army Recovery Care Program, <https://www.arcp.army.mil>.

<sup>10</sup> Fandre, “Medical Changes Needed for Large-Scale Combat Operations.”

<sup>11</sup> Howard Altman, “The Navy’s First Medical Ship in 35 Years Will Be Unlike Any Before It,” *The War Zone*, April 29, 2022, <https://www.twz.com/the-navys-first-medical-ship-in-35-years-will-be-unlike-any-before-it>.

<sup>12</sup> “Department of Defense Activates Civil Reserve Air Fleet to Assist With Afghanistan Efforts.”

<sup>13</sup> Joseph F. Rappold, “FRSS Teams: A Good Idea Whose Time Has Passed,” U.S. Naval Institute *Proceedings* 133, no. 2 (2007), <https://www.usni.org/magazines/proceedings/2007/february/frss-teams-good-idea-whose-time-has-passed>; Air Force Tactics, Techniques, and Procedures 3-42.71, *Expeditionary Medical Support (EMEDS) and Air Force Theater Hospital (AFTH)* (Washington, DC: Headquarters Department of the Air Force, August 27, 2014), [https://static.e-publishing.af.mil/production/1/af\\_sg/publication/afftp3-42.71/afftp3-42.71.pdf](https://static.e-publishing.af.mil/production/1/af_sg/publication/afftp3-42.71/afftp3-42.71.pdf).

<sup>14</sup> Michael F. LaBrecque and Michael Honsberger, “Army Field Hospitals and Expeditionary Hospitalization,” *Army Sustainment*, September–October 2018, <https://alu.army.mil/alog/2018/sepoct18/pdf/210113.pdf>.

<sup>15</sup> Matthew K. Marsh and Ryan L. Hampton, “Army Medicine’s Critical Role in Large-Scale Combat Operations: Enable the Force,” *Military Review*, July–August 2022, <https://www.armyupress.army.mil/Portals/7/PDF-UA-docs/Marsh-and-Hampton-UA.pdf>.

<sup>16</sup> Steven W. Ainsworth and John A. Stokes, Jr., “The Multiple Dimensions of Talent in the Army Reserve Soldier,” *Army Sustainment*, July–August 2018, <https://alu.army.mil/alog/2018/julaug18/pdf/206867.pdf>.

<sup>17</sup> David J. Skorton, “AAMC Report Reinforces Mounting Physician Shortage,” Association of American Medical Colleges, press release, June 11, 2021, <https://www.aamc.org/news/press-releases/aamc-report-reinforces-mounting-physician-shortage>.