



Farewell to the Golden Hour: Marines Adopt New Battlefield Medical Technologies

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For decades, combat medicine and casualty management doctrine have rested on a fundamental pillar: the concept of the **"Golden Hour"** (the golden hour). During operations in Iraq and Afghanistan, the highest priority was to transfer a wounded soldier from the point of engagement to a field hospital or trauma resuscitation facility within 60 minutes. Unquestioned air and logistical superiority ensured that medical evacuation (MEDEVAC) helicopters could respond rapidly.

However, global geopolitical scenarios are changing dramatically. In the context of a potential conflict with near-peer competitors (*near-peer competitors*) — where distances are vast, as in the Indo-Pacific theater, and air or maritime space is heavily contested — relying on immediate evacuation becomes unrealistic.

To close this operational gap, the **U.S. Marine Corps** is **fielding a new generation of medical and power-support equipment designed to extend care directly at the point**

of wounding.

The challenge of distributed combat: goodbye to the Golden Hour

As senior Marine Corps officers explained during a recent press roundtable, the current battlefield environment requires abandoning the illusion of a rapid evacuation chain.

*"We are moving beyond the 'Golden Hour' toward much longer patient hold and care times", said Colonel **Paul Gillikin**, program manager for Combat Support Systems.*
"Recognizing the nature of future conflict across vast geographic areas such as the Pacific, we know we will not have structured forward operating bases or the massive logistics apparatus of the past at our disposal."

In an environment of electronic warfare, advanced surveillance, and long-range missile systems, **sending a helicopter to rescue a casualty could expose the crew and the entire unit to unacceptable risks.** Commanders in the field will be forced to make complex tactical decisions, **stabilizing casualties in place for hours or even days before they can authorize evacuation.**

New technologies supporting rescuers

Since the leading cause of preventable death on the battlefield remains **severe bleeding**, the ability to stop hemorrhaging and administer blood transfusions in remote, hostile environments is the top priority. Technological solutions currently being fielded include:

1. Portable blood refrigeration and warming (EMRU and MEQU)

Maintaining a cold chain for blood products without relying on heavy, noisy generators has long been a logistical obstacle. The **mobile refrigeration support** ([*Expeditionary Medical Refrigeration Unit*](#) - **EMRU**) and the **MEQU portable blood warmer** make it possible to keep blood refrigerated and warm it to body temperature within seconds before transfusion. This prevents causing hypothermia in the patient.

The system was successfully tested this year under the jurisdiction of U.S. Central Command (CENTCOM), where field units maintained a dynamic, self-sustaining blood bank.



2. Point-of-care pocket ultrasound (KOSMOS)

Knowing whether a patient is suffering from internal bleeding that is invisible to the naked eye is critical to survival. The Marines are equipping medical teams with the **KOSMOS** diagnostic device, an artificial intelligence-guided portable ultrasound system. It enables **medics and physicians to rapidly assess cardiac, pulmonary, and abdominal trauma directly at the point of injury**, providing critical data to determine when it is strictly necessary to risk an evacuation asset.



3. Power Supply Module (Squad Power Manager)

All of these **digital diagnostic and therapeutic devices require a constant, lightweight power source**. To ensure operational capability without access to the power grid or heavy fuel-powered generators, the medical variant of the **Squad Power Manager (SPM)** is used. This smart, compact power hub can manage, recharge, and harvest energy from multiple sources (solar panels, portable batteries, or vehicles) to keep the entire medical suite operating.

A New Paradigm for Troop Survival

The integration of these tools is not merely an equipment upgrade, but a genuine paradigm shift in tactical medicine (Prolonged Casualty Care - PCC).

As Brigadier General **Tamara Campbell**, deputy commander of the Portfolio Acquisition Executive Marine Corps, emphasized, the objective is to ensure high standards of care over extended periods in isolated environments:

"We expect Marines to operate in highly distributed environments, where evacuation will be delayed or contested", General Campbell stated. "The equipment we are introducing is designed to ensure that any soldier, sailor, or Marine can receive an advanced level of care, regardless of how long it takes to get them to safety."

The era of dependence on rapid medical evacuation is giving way to an era of **advanced frontline diagnostic and therapeutic autonomy**. By combining blood storage, intelligent ultrasound, and integrated energy management, U.S. troops are preparing to ensure the survival of their warfighters even in the most extreme conditions of the 21st century.