



Army medics assigned to the South Carolina Army National Guard conduct combat medical training 16 August 2018 during a sensory deprivation exercise at McCrady Training Center, Eastover, South Carolina. The medics were finishing a twelve-day sustainment course to remain proficient in providing care to a casualty from the point of injury to the evacuation site in a combat area. (Photo by Sgt. Jorge Intrigo, U.S. Army National Guard)

# Rethinking Combat Medic Training

## The Critical Changes Needed to Prevent Death in Future Conflicts

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**T**here is no way to translate the incredibly high combat trauma survival rates we enjoyed during the Global War on Terrorism (GWOT) to large-scale combat operations (LSCO) without a change in how we currently do business forward of our deployed hospitals and small surgical teams. A 95 percent survivability rate (once the patient arrives at the hospital), as was the case during the GWOT, requires a system leveraging an incredible number of resources to treat and move a limited number of casualties to a required surgical capability as quickly as possible. The goal is to get the wounded off the battlefield and into a hospital within one hour while providing the highest level of enroute care possible. In this low-intensity environment, combat medics focus on critical interventions required during the first hour of care (e.g., stop the bleeding), flight paramedics focus on advanced interventions and basic resuscitation (e.g., put some blood back in), and far-forward surgical facilities focus on damage control resuscitation and surgery (e.g., give more blood and quickly stop the blood loss). Despite this well-thought-out system, there were 976 soldiers killed in action that might have survived given better prehospital care or faster surgical care (25 percent of the total prehospital deaths from 2001 to 2011).<sup>1</sup>

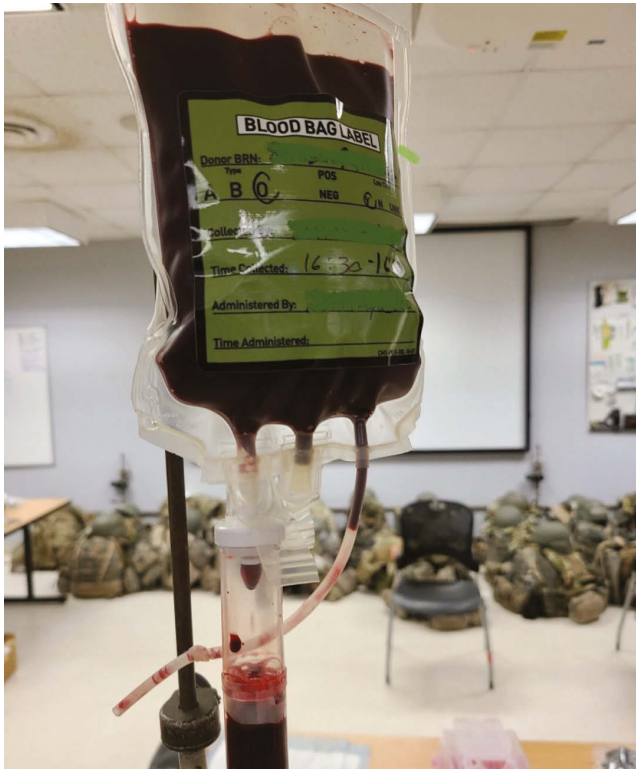
How do we improve on prehospital preventable deaths and sustain the gains in survivability we achieved in the past twenty-plus years without the ability to evacuate every patient to higher levels of medical care within an hour? To paraphrase retired Col. Russ Kotwal, MD, we need a way to extend the time to a required surgical capability; in other words, a way in which taking longer to get to surgical care does not necessarily lead to death, disability, or prolonged time to return to duty.<sup>2</sup>

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The most impactful solution is to improve the effectiveness of the combat medic by increasing prolonged care skills for all medics.

Currently our combat medics are trained to provide excellent care in the first hour after injury, but they lack the skills, knowledge, and tools required to hold/monitor/treat casualties afterward. This is not a novel problem. This requirement was identified in a medical capabilities-based assessment in 2017 that determined there is a gap in our combat medics' ability to provide prehospital care beyond that first hour (prolonged care). Despite this gap, there have been delays in adding it to training by constraints in available training time during advanced individual training. We need time added to the 68W Combat Medic Program in order to train medics on how to provide basic nursing care and how to provide critical resuscitation in the form of whole blood transfusions.<sup>3</sup> With limited modifications to the Combat Medic Specialist Training Program, medics would be introduced to some of the critical skills required to provide care far beyond the first hour, and limit the inevitable increases in morbidity and mortality our military will otherwise have when the operational environment forces casualties to stay forward of surgical teams for extended periods of time.

The Army currently has over thirty-three thousand combat medics. About 80 percent of these are stationed in support of brigade combat teams/divisional units. There is absolutely no other medical specialty in our force closer to the fight than combat medics, who are the only medical specialists to earn the Distinguished Service Cross (four times), and almost all Silver Stars in the Army Medical Regiment during the GWOT.<sup>4</sup> With this quantity of medics and their proximity to the point of injury, there is a real opportunity to impact survival in combat. The quantity of medics is also the reason that technical knowledge and quality management required for this military occupational specialty has grown steadily in the past thirty-plus years. For example, the combat medics of 1992 were taught ninety-two separate tasks in nine weeks, with the option to challenge the National Registry of Emergency Medical Technicians test. They were without any real requirements to prove their knowledge to anyone outside of their immediate chain of command once they were at their



The first unit of blood taken and infused by a combat medic trainee in the history of the Combat Medic Specialist Training Program. On 19 April 2022, Pvt. Kaleb Setliff used a “walking blood bank” blood transfusion set to take one unit of blood from a fellow trainee and then gave the blood back to the same soldier using a different arm. This was the final validation of protocols needed to propose the permanent inclusion of this task into Combat Medic Training. Capt. John Maitha, officer in charge of Whiskey 3, Combat Medic Specialist Training Program, supervised as the trainees safely took and then transfused thirty-two units of blood. Whole blood will play an outsized role in improving prehospital mortality in large-scale combat operations. (Photo by Capt. Tony Eshoo, Fox Company 232nd Medical Battalion)

assigned units. Those same soldiers would return to the institutional environment as staff sergeants (E-6) for additional training to become paramedic-level providers, and they would again return to the force without a centralized system to guarantee the quality of these providers.<sup>5</sup> There were multiple issues with this system. The most critical was that the bulk of the needed knowledge was at the wrong level (with a staff sergeant at the battalion aid station or further to the rear as opposed to in the fighting unit farther forward). Today medics are trained on 146 separate tasks (over eighteen weeks of material) in sixteen weeks of available training time.<sup>6</sup> The combat medic has grown from a soldier trained in very basic skills

(and hopefully sustained through whatever system his or her individual unit devised), to soldiers trained as experts in prehospital trauma care and in everything required to save a life in the initial hour after a combat injury. They are validated every two years through a centralized system charged with quality control of our prehospital medical force.

Though there are far fewer flight paramedics in the Army (about one thousand), this is an area wherein change has been well studied and impactful. Flight paramedics have ten months of training in addition to combat medic training, and the impact of their higher training has been proven multiple times over. A 2013 study demonstrated a clear difference in survival for casualties transported by critical care flight paramedics from the National Guard versus active-duty combat medics.<sup>7</sup> Other studies demonstrated that providers with higher levels of knowledge would attempt and complete more life-saving interventions.<sup>8</sup> And thanks to the British medical response team, which was composed of emergency medicine doctors, nurses, anesthesia providers, and medics, we also know that within specific patient subcategories (casualties with severe but survivable injuries), the higher level of care available in those aircraft would actually improve survivability for that subset of patients.<sup>9</sup> Training to provide high-quality prehospital medical care centered on effective access to blood vessels, providing whole blood products, good airway management, and keeping patients warm makes a difference in combat. To improve our ability to provide something close to the flight paramedic level of care in the prehospital environment and mitigate the inevitable delays in required medical and surgical care of LSCO, all combat medics will require a broader breadth and depth of knowledge than the one currently provided in their initial training.

Knowing that the skills and abilities of our combat medics must increase, the Combat Medic Specialist Training Program is adding an additional nineteen skills and bits of knowledge (total of 165) that focus on prolonged care beyond the “Golden Hour.”<sup>10</sup> Combat medics can achieve this training goal with a course expansion of as little as five to seven days to ensure they retain current critical tasks while adding basic level exposure to prolonged care concepts necessary in future battlefields. But the Combat Medic Specialist Training Program is at a crossroad where the quantity (over five thousand





medics a year), quality (academics, fitness, discipline), and consistency in skills and abilities of the medics they are producing is challenged by the volume of knowledge (nineteen-plus weeks of material) they try to impart and by the amount of time they must do the training mission (sixteen weeks). For context on how this compares to other clinicians in the brigade combat team area of operations, the combat paramedic receives ten months of training in addition to the four months as a combat medic; the practical nurse (MOS 68C) receives twelve months of training; and the physician associate (a commissioned officer) completes two years of undergraduate work, and two and a half years of graduate work (four and a half years total). As part of this small expansion, combat medics will receive a higher-level certification, such as Advanced Emergency Medical Technician, that encompasses all their training, which they can use when applying for positions in the military or as civilians. This contrasts with the current practice of certifying medics on the first six of their sixteen weeks of training.

The next higher level of care in forward resuscitative and surgical teams provides definitive care for the

A student in the Special Operations Combat Medic Course at the U.S. Army John F. Kennedy Special Warfare Center and School checks an intravenous bag during field training at Fort Bragg, North Carolina, 24 March 2020. Enlisted service members who completed the course specialize in trauma management, infectious diseases, cardiac life support, and surgical procedures. They qualify as highly trained combat medics with the skills necessary to provide initial medical and trauma care to sustain a casualty for up to seventy-two hours. (Photo by K. Kassens, U.S. Army)

worst injuries. Most leaders understand that getting to this resuscitative and surgical capability within one hour matters. A 2015 retrospective analysis focused on the effects of the mandate by then Secretary of Defense Robert Gates on combat casualty survival, after he directed that all casualties must arrive to surgical care within one hour of injury.<sup>11</sup> The authors found that post-mandate, there was a decrease in killed in action from 16 percent to 9.9 percent as well as an increase in return to duty rates from 33.5 percent to 47.3 percent pre- versus postmandate, respectively.<sup>12</sup> However, the relationship between time of injury to the chest and abdomen versus

survival actually goes beyond the “Golden Hour.” Remick et al. queried the Pennsylvania Trauma Outcomes Study database, which includes 412,768 patients, for all patients that died within four hours of injury (27,679).<sup>13</sup> The study sorted the data to determine what the “time to death” was after either blunt or penetrative traumas to the body, with a goal of determining how much time a casualty has after an given set of injuries (chest, abdomen, pelvis) before they succumb to the trauma.

The findings are sobering and have huge implications to the way we provide care in combat. If our goal as a military medical system is to save 95 percent of penetrating trauma deaths in combat (those that usually die within four hours of a penetrating injury), we need to have those patients on an operating table within nineteen minutes from injury. If the goal is to save 50 percent of those same casualties, then the time only increases to thirty-nine minutes.<sup>14</sup> These findings are not based on grossly different populations as compared to our service members. The subpopulation in the study had a median age of thirty-three years and was made up of 90 percent males.

Given those facts, there is a temptation to add more surgical teams to the battlefield as a mitigating tool to the prehospital mortality problem in lieu of increasing the skills and equipment available to medics. Conceptually, this is a great idea. But there are plenty of limits that prevent this, including manning surgical teams and maintaining their critical trauma skills. However, detailed arguments on the subject are beyond the scope of this paper. At a minimum, it should be mentioned that the limited number of surgeons in the Army and the basis of allocation for these surgeons to brigade combat teams (roughly one per one thousand soldiers in LSCO) make it impractical if not impossible to put a surgical team within one hour of every soldier in a LSCO battlefield.

This brings us back to our combat medics, and how they can extend the minimum time required to that

surgical capability for some patients. Patients that become immediately hypotensive and who are unlikely to survive in the absence of plentiful resuscitation resources (blood, warming capability, and surgical teams) will be lost within certain periods of combat maneuver in LSCO. These patients, previously salvageable during the GWOT, must be considered expectant. However, there is a second salvageable category of surgical patient, even if evacuation is delayed—given proper care is provided. These are patients that would never stay on the GWOT battlefield and includes those with penetrating wounds to the chest or abdomen who are not immediately hypotensive (not dying right now). They, by nature of untreated infection or prolonged metabolic imbalance or dehydration, will die in days to weeks, or for whom recovery will be seriously delayed by the lack of prompt care in the absence of a hospital. This category did not exist during the GWOT (again, everyone was promptly evacuated), and will fall squarely in the hands of the brigade medical companies, the battalion aid station, and battalion assigned combat medics. Their ability to provide basic nursing care, keep patients warm, and give whole blood transfusions to casualties in LSCO is the only feasible way to save them from certain death and disability at rates not seen in recent history.

Efforts to improve on the required knowledge, skills, and abilities of combat medics will undoubtedly make a positive impact on combat survival. In addition, near-future leveraging of technologies for continuing education by the U.S. Army Medical Center of Excellence holds incredible promise in knowledge sustainment and progression for all combat medics in the total force, toward the goal of eliminating preventable deaths in combat. This medical support, like all forms of support to fighting forces, will strive to never constrain the reach of maneuver elements, and improved combat medic training is the perfect way to achieve overmatch without sacrificing the survivability of our wounded. ■

## Notes

1. Russ S. Kotwal et al., “The Effect of a Golden Hour Policy on the Morbidity and Mortality of Combat Casualties,” *JAMA Surgery* 151, no. 1 (2016): 15–24, accessed 22 March 2022, <https://jamanetwork.com/journals/jamasurgery/fullarticle/2446845>.

2. Col. Russ Kotwal, retired, in discussion with the author, 2017.

3. “Prolonged Care in Support of Conventional Military Forces: Capabilities Based Assessment” (Joint Base San Antonio:

Capability Development Integration Directorate-US Army Medical Department Center and School, 2017).

4. “AMEDD Awards for Valor,” Army.mil, accessed 21 January 2022, <https://achh.army.mil/regiment/root-valor>.

5. Author's experience, 2022.

6. Johnny Paul (Director-Combat Medics Specialist Training Program), in discussion with the author, December 2021.





# FUTURE WARFARE WRITING PROGRAM

## Call for Speculative Essays and Short Works of Fiction

*Military Review* calls for short works of fiction for inclusion in the Army University Press Future Warfare Writing Program (FWWP). The purpose of this program is to solicit serious contemplation of possible future scenarios through the medium of fiction in order to anticipate future security requirements. As a result, well-written works of fiction in short-story format with new and fresh insights into the character of possible future martial conflicts and domestic unrest are of special interest. Detailed guidance related to the character of such fiction together with submission guidelines can be found at <https://www.armyupress.army.mil/Special-Topics/Future-Warfare-Writing-Program/Future-Warfare-Writing-Program-Submission-Guidelines/>. To read previously published FWWP submissions, visit <https://www.armyupress.army.mil/Special-Topics/Future-Warfare-Writing-Program/>.



7. Seth R. Holland et al. "MEDEVAC: Survival and Physiological Parameters Improved with Higher Level of Flight Medic Training," *Military Medicine* 178, no. 5 (2013): 529–36, <https://doi.org/10.7205/MILMED-D-12-00286>.

8. Joseph K. Maddry et al., "Combat MEDEVAC: A Comparison of Care by Provider Type for En Route Trauma Care in Theater and 30-Day Patient Outcomes," *Journal of Trauma and Acute Care Surgery* 81, no. S5 (2016): S104–10, <https://doi.org/10.1097/ta.0000000000001119>.

9. Philip Calderbank et al., "Doctor on Board? What is the Optimal Skill-Mix in Military Pre-Hospital Care?," *Emergency Medicine Journal* 28, no. 10 (2011): 882–83, <https://doi.org/10.1136/emj.2010.097642>.

10. Paul, discussion.

11. Kotwal et al., "The Effect of a Golden Hour Policy on the Morbidity and Mortality of Combat Casualties."

12. Ibid.

13. Kyle N. Remick et al., "Defining the Optimal Time to the Operating Room May Salvage Early Trauma Deaths," *Journal of Trauma and Acute Care Surgery* 76, no. 5 (2014): 1251–58, <https://doi.org/10.1097/ta.0000000000000218>.

14. Ibid.