

Survival rate of combat casualties improves following implementation of golden hour policy

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A mandate in 2009 that prehospital helicopter transport of critically injured combat casualties occur in 60 minutes or less (golden hour policy) has resulted in a reduction in time between critical injury and definitive care for combat casualties in Afghanistan and an improvement in survival, according to a study published online by *JAMA Surgery*.

Minimizing time between critical injury and definitive care has long been a hallmark and metric of trauma systems, particularly in war, where devastating injuries result in death occurring predominantly before hospital arrival. In 2009, Secretary of Defense Robert M. Gates mandated a standard of 60 minutes or less, from call to arrival at the treatment facility, for prehospital helicopter transport of U.S. military [casualties](#) with critical injuries, cutting in half the previous goal of 2 hours.

Russ S. Kotwal, M.D., M.P.H., of the United States Army Institute of Surgical Research, Joint Base San Antonio-Ft. Sam Houston, and colleagues compared morbidity and mortality outcomes for casualties before vs after the mandate and for those who underwent prehospital helicopter transport in 60 minutes or less vs. more than 60 minutes. The analysis included battlefield data for 21,089 U.S. military casualties that occurred during the Afghanistan conflict from September 2001 to March 2014.

For the total casualty population, the percentage killed in action (16 percent [386 of 2,411] vs 9.9 percent [964 of 9,755]) and the case fatality rate ([CFR] 13.7 (469 of 3,429) vs 7.6 (1,344 of 17,660) were higher before vs. after the mandate, while the percentage died of wounds ([DOW] 4.1 percent vs 4.3 percent) remained unchanged. Decline in CFR after the mandate was associated with an increasing percentage of casualties transported in 60 minutes or less, with projected vs actual CFR equating to 359 lives saved.

Among 4,542 casualties with detailed data, there was a decrease in median transport time after the mandate (90 min vs 43 min) and an increase in missions achieving prehospital [helicopter transport](#) in 60 minutes or less (24.8 percent vs 75.2 percent). When adjusted for injury severity score and time period, the percentage killed in action was lower for those critically injured who received a blood transfusion and were transported in 60 minutes or less, while the percentage died of wounds was lower among those critically injured initially treated by combat support hospitals.

"In summary, as transport time decreased and capabilities increased, casualties who would previously have been in the killed in action mortality group survived outright or survived long enough that they shifted to the DOW mortality group, and casualties who would previously have been in the DOW mortality group were also surviving. Decreasing the time from injury to arrival at the treatment facility challenged the full measure of the trauma system with more critically injured casualties who then benefited from the care they received," the authors write.

"Reduction in the percentage killed in action following the 2009 policy change provides evidence of the effect of an enhanced capability during the 'golden hour' after injury," writes Todd E. Rasmussen, M.D., of the U.S. Combat Casualty Care Research Program, U.S. Army, Fort

Detrick, Md.

"Although the notion of a golden hour is not new, this study assembled injury management data from the U.S. Department of Defense Trauma Registry, autopsy data from the Armed Forces Medical Examiner, and previously classified data pertaining to evacuation times to provide insight into what can be accomplished during this acute phase of care. Findings of a reduced percentage killed in action also confirm previous studies suggesting the effectiveness of point-of-injury care and the care provided by enhanced en route platforms."

More information: *JAMA Surgery*. Published online September 30, 2015. [DOI: 10.1001/jamasurg.2015.3104](https://doi.org/10.1001/jamasurg.2015.3104)
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