

Research shows that innovative transfusion approach has the potential save to lives

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The University of Maryland School of Medicine is part of a new nationwide, multi-site study that may help save hundreds of lives among trauma patients with major bleeding. The study, which was published earlier this month in *JAMA*, compared two different methods of blood transfusion, and found that one approach gave patients a significantly better chance of survival within the first 24 hours.

"This study is an important milestone in [trauma care](#)," said Thomas M. Scalea, M.D., who is the Francis X. Kelly Professor of Trauma Surgery as well as Physician-in-Chief of the R Adams Cowley Shock Trauma Center at the University of Maryland Medical Center. Dr. Scalea oversaw the school's participation in the study. Scalea was part of the committee that designed and oversaw the study. The Center enrolled approximately 40 patients. "These results will allow doctors to provide better, more effective care for trauma patients, whose lives often hang in the balance."

The study compared two [transfusion](#) techniques: One gave patients equal ratios of plasma, platelets, and red blood cells; the other gave patients a ratio that had equal numbers of plasma and platelets, but twice as many [red blood cells](#). The study was led by John B. Holcomb, MD, of the University of Texas Health Science Center in Houston. The research, which began in 2012, included 680 severely injured patients who received treatment at one of 12 Level I trauma centers around the country, including the Shock Trauma Center in Baltimore. The patients were randomly assigned to receive one of the two transfusion mixtures

during their treatment.

The study found that subjects in the equal-ratio group were more likely to stop bleeding, and had a better chance of surviving, in the first 24 hours, compared to patients in the other group. The two groups had the same overall level of survival at 30 days.

Death from loss of blood within the first 24 hours is a common cause of mortality for such patients. This cause of death significantly decreased in the equal-ratio group: 9.2 percent, compared with 14.6 percent in unequal-ratio group. In addition, bleeding stopped in 86 percent of patients in the equal-ratio group, compared with 78 percent in the unequal-ratio group.

Loss of blood plays a key role in 20 percent to 40 percent of trauma deaths that occur after the patient is at the hospital. It may be possible to avoid some of these deaths with equal-ratio transfusion. The new approach was first developed by trauma surgeons in the U.S. military treating soldiers injured in the Afghanistan and Iraq Wars. This technique is now used by most military and civilian hospitals in the U.S. Observational studies had offered evidence that the protocol was more effective than the older approach, but the two techniques had not been studied in a large prospective trial.

Some researchers have expressed concern that the equal-measure blood would cause increased inflammation, and might lead to problems such as organ failure, infection and blood clots. However, the study found no evidence that equal-ratio patients had any more inflammation-related problems. Overall, the study looked at 23 complications that can occur with transfusion and found that the risks of the two approaches were not significantly different.

In the article, Holcomb and the other authors recommend that healthcare

providers should consider using the equal-ratio [blood](#) when giving transfusions to [trauma](#) patients.

"This impressive collaboration has the potential to yield immediate benefit for [trauma patients](#)," said Dean E. Albert Reece, MD, PhD, MBA, who is also the vice president for Medical Affairs, University of Maryland, and the John Z. and Akiko K. Bowers Distinguished Professor and Dean of the School of Medicine. "Dr. Scalea has spent his career trying to improve the care of these [patients](#), and this is just the latest example of his hard work in this essential area."

Provided by University of Maryland

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