Direct Peritoneal Resuscitation in Emergency General Surgery: An EAST Multicenter Trial

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Introduction

Each year, millions of patients worldwide undergo emergency laparotomy for non-traumatic abdominal pathology. In severe intra-abdominal infection, surgical source control is a key component of treatment; however, the mortality rate for these patients remains high, ranging from 23% to 38%. Consequently, any reduction in mortality and morbidity associated with these emergency surgeries has the potential to be impactful.

Prolonged open abdomen following damage control laparotomy is associated with increased risk for complications such as infection, delayed closure, and mortality. **Direct peritoneal resuscitation (DPR)** has emerged as a promising tool in reducing these risks, with prior studies in trauma populations demonstrating improvements in rates of and time to fascial closure, decreased intra-abdominal abscess formation, lower 30-day mortality, fewer ventilator and fewer ICU days. Despite these findings, the use of DPR in emergency general surgery for patients requiring laparotomy has not been well studied. The best existing evidence on DPR in emergency general surgery is from small trials that have limitations, including; being a single center study; lack of generalizability; and lack of statistical power to examine important secondary outcomes (e.g., 30- day mortality).

The objective of this study is to assess the efficacy of direct peritoneal resuscitation compared to conventional resuscitation in improving clinical outcomes, including time to fascial closure, complications, and mortality, in patients undergoing laparotomy for non-traumatic indications without immediate abdominal closure.

Aims and Outcomes

1. The primary aim of this study is to evaluate whether DPR can improve primary closure rates compared to conventional resuscitation methods.
2. The secondary aim of this study is to compare DPR versus conventional resuscitation in the following secondary outcomes:

- Time to closure and number of reoperations.
- Incidence of intra-abdominal complications.
- Mortality.

Hypotheses

It is hypothesized that the use of DPR in nontraumatic emergency laparotomy compared to conventional resuscitation will:

- Improve the likelihood of primary closure.
- Decrease time to abdominal closure and reduce the number of subsequent abdominal reoperations.
- Reduce intra-abdominal complications such as infections, abscess formation, or fistulas.
- Result in improved patient survival rates by reducing systemic inflammatory responses and facilitating faster stabilization.



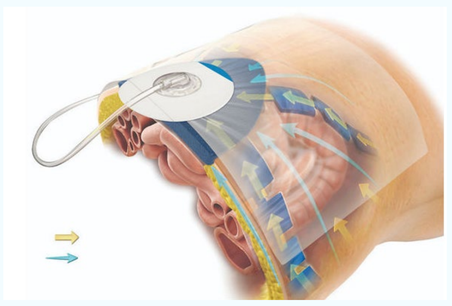
Photo: Temporary Abdominal Closure by David Ray Velez, MD The Operative Review of Surgery © 2026

Study Procedures and Conduct

This is a multicenter, retrospective study conducted by Boston Medical Center in Boston, MA. They developed the protocol and will serve as the coordinating center.

This study will consist of patients who underwent laparotomy for the above indications with temporary abdominal closure with either peritoneal resuscitation or conventional resuscitation. Patients meeting all the inclusion criteria will be identified from each sites operative logs and ICD 10 diagnosis codes and CPT codes within the electronic medical record.





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This study was approved by the Trinity Health IRB and is actively collecting data.

Acknowledgements