

Burn Research Studies Funded by DOD



ABRUPT2

Acute Burn Resuscitation Prospective Multicenter Observational Trial 2

Study: Continued to evaluation the role of albumin (which is a major component of national disaster stockpile) in resuscitation.

Background: We have been performing the ABRUPT study which looks at the fluid resuscitation practices of burn centers of North America by looking at the use of salt water or albumin for the treatment of burn patients in the first 48 hours after injury.

Deliverable: This study will use the data obtained from the first ABRUPT study to **demonstrate the value of using albumin to reduce acute burn resuscitation.**

\$3.47 Million

7 Burn Centers

2019–2023

STAT

STAT: Standard Therapy Plus Active Therapy to Improve Mobility, Long-Term Activity, and Quality of Life for Severely Burn-Injured Patients After Skin Graft Surgery

Study: Systematic evaluation of the safest and most effective methods of implementing early rehabilitation for patients with severe burn injury in order to establish benchmarks and best practice guidelines.

Background: There is a present need for evaluation of the safest and most effective methods of implementing early rehabilitation for patients with severe burn injury in order to establish benchmarks and best practice guidelines. It is believed that a greater emphasis on implementing active therapy early in burn recovery can improve overall outcome for the burn survivor.

Deliverable: Improved outcomes of burn injured soldiers and civilians in multiple levels of health by establishing a new standard of active physical therapy following a severe burn injury.

\$2.84 Million

15 Burn Centers

2019–2023

ABRUPT

Acute Burn Resuscitation Prospective Multicenter Observational Trial

Study: Evaluating role of albumin (which is a major component of national disaster stockpile) in resuscitation.

Background: There has been a debate as to whether the use of salt-containing fluids are adequate for fluid replacement or whether a fluid that contains albumin (a natural protein produced by the liver and normally found in the body) is better. Albumin solutions are thought to help reduce the amount of fluid leakage and swelling after a burn whereas salt-containing fluids may be more likely to leak out and create more swelling. **There has been a debate for decades as to whether albumin or salt solutions should be used in the treatment of burn patients.**

Deliverable: Information gathered should provide enough information to design a future study that will **answer this debate while also improving the care of patients**

\$1.9 Million

21 Burn Centers

374 patients
enrolled

2016–2020

Burn Navigator

Evaluation of the Effectiveness of the Burn Navigator in Improving Resuscitation Outcomes

Study: Using computer algorithm (artificial intelligence) to help guide fluid resuscitation after burn injury.

Background: People that suffer a severe burn injury often require intravenous fluid replacement for stabilization. Fluid loss begins immediately following a burn injury, and can continue for up to three days, but the first 24–48 hours following a burn injury are a critical period for fluid replacement. However, complications can arise from administering an insufficient or excessive amount of fluid.

Deliverable: Computer-assisted fluid replacement resulted in a **reduction in the number of days spent in the intensive care unit, and a decrease in patient mortality. Will help with prolonged field care.**

\$1.99 Million

5 Burn Centers

232 patients
enrolled

2016–2020

Propranolol

Optimizing Outcomes for Soldiers with Burn Injury: Protective Effects of Propranolol in Adults Following Burn Injury—A Safety and Efficacy Trial

Study: Evaluation the use of propranolol to improve strength, decrease muscle loss after burn injury.

Background: Severe burn injuries produce profound hypermetabolic stress responses in patients. Preliminary studies have

indicated that propranolol can mitigate morbidity and mortality. A safety and efficacy trial is needed in order to help determine the safety of propranolol treatment in adult burn patients and to identify propranolol dose levels that are not only safe but potentially effective

Deliverable: Determine a safe and effective dose for propranolol in adults following burn injury that can be used to guide future propranolol intervention studies

\$3.9 Million
18 Burn Centers
156 patients enrolled
2011–2020

Multicenter Studies Utilizing the American Burn Association National Burn Repository (NBR) (2 studies)

Study: Leverages the largest collection of burn data in the world (>300,000 records) to develop models for outcomes after burn injury.

\$3.5 Million
2010–2017

Deliverables: Developed a triage protocol based on outcomes from the national data set that guide our forces in triage during mass casualty incidents. Incorporated into disaster protocols nationwide; models for predicting hospital length of stay; demonstration of relationship between volume of burn admission and pediatric burn outcomes;

With the increasing incidence of IAD and explosive injuries, combined burn/traumatic brain injury is increasingly impacting our war fighters. Supported research is developing more effective treatment models to address this deadly combination of injuries and to **reconcile competing treatment priorities in such a way as to minimize or eliminate any adverse consequences.**

Combat Casualty Care Grant: 5 studies

Background: In military conflicts, severe burn is a common injury comprising 5-10% of evacuated combat casualties. In addition, over 1.2 million people are burned in the United States every year of which 50,000 are moderate to severe and require hospitalization for appropriate treatment. In 2008, the burn surgeons at the United States Army Institute of Surgical Research (USAISR) were queried to what were the principal problems facing the burned combat casualty and requests for research in these areas were announced.

1. ABA RESCUE TRIAL: The American Burn Association Randomized controlled Evaluation of high- volume hemofiltration in adult burn patients with Septic shock and acute renal failure **Deliverable:** Demonstrated that **hemofiltration (renal replacement therapy)** can help in the treatment of infection in burn patients.
2. Rapid, Quantitative, PCR-based detection of Staphylococcus aureus in burn sepsis patients **Deliverable:** Utilization of modern technology (polymerase chain reaction) to **accelerate diagnosis of infection** from the traditional **3-5 days to less than 12 hours**. Early identification and treatment of infection decreases morbidity and mortality.
3. Effects of a community-based exercise program in adults with severe burns **Deliverable:** Demonstrated that a simple exercise program (in a traditional gym setting) improves strength and return to duty after burn injury.
4. RE-ENERGIZE Trial: Effects of enteral glutamine supplementation on mortality and infectious morbidity in severely burned patients **Deliverable:** A multi-center trial to decrease infection using a dietary supplement. Has led to a larger trial supported by Canada (ongoing).
5. Development of an inhalation injury scoring system to predict severity of inhalation injury **Deliverable:** Inhalation injury major source of mortality after burn injury. **Developed earlier and more accurate diagnosis of smoke inhalation injuries.**

\$7.95 Million
2009–2019

The Relationship of Rehabilitation Therapy Time to the Prevention of Burn Scar Contracture (ACT)

Background: Burn patients with weakness, restriction of mobility due to scarring; no data on value of rehabilitation

Goal of therapy: Return patient to functional life, return military service members to duty

Method: Examine the importance of therapy in achieving optimal outcomes after burn injury

Deliverables: Demonstrated that range of motion, return to duty directly linked to the amount of therapy received. **Supported increasing therapy in burn recovery.** Two papers written.

\$2.1 Million
14 Burn Centers
307 patients enrolled
2008–2015

Comparison of a Restrictive Versus a Traditional Blood Transfusion Policy after Major Burn Injury: A Multicenter Randomized Prospective Trial

Background: Burn patients need a lot of blood products. The goal of the project was to test a method of decreasing blood utilization in burn patients.

Study: More than 9,000 blood product transfusions. Largest number of transfusions per patient of any transfusion trial.

Deliverable: Safely **decreased blood utilization by 50% using** hemoglobin threshold of 7 g/dL in burn patients compared to traditional standard. **Potential cost savings of \$37 million/year** in blood transfusion costs in burns alone. Successfully identified the most effective use of blood transfusion after burn injury, which will cut the mean transfusion volume in half, saving millions of dollars and decreasing utilization of a valuable resource, blood.

\$2.3 Million
18 Burn Centers throughout the US, Canada, New Zealand
2008–2016