THE IMPERATIVE TO FUND TRAUMA RESEARCH

Medicine and technology have advanced considerably in the last decade, and some of the most dramatic innovations can be attributed directly to wars in Afghanistan and Iraq. It is clear that war brings urgency to traumatic injury research. With large numbers of service men and women sustaining serious injuries, military surgeons are compelled to find better treatments; and Department of Defense funding for research and trauma system improvements is more readily available in order to quickly improve mortalities.

Treatment of injury in the civilian setting has been strongly influenced by the battlefield experiences of military trauma surgeons, medics and nurses—who return to civilian practice and bring new techniques with them. Innovations developed during the wars include new tourniquets, new wound dressings, new resuscitation techniques and better methods of managing shock, using limited blood. Damage control surgery that are now saving the lives of large numbers of severely injured veterans has been achieved.

It is clear that traumatic injury takes an extraordinary toll across civil society, following cancer and heart disease as the third most expensive category of medical treatment. It relates to the research support provided for other conditions, but trauma continues to adversely impact our society.

THE NATIONAL TRAUMA INSTITUTE

In the absence of a unified national effort, civilian and military trauma surgeons formed the National Trauma Institute (NTI) in 2006 to address the problem and to create by means of science a force to manage research funding and to disseminate research results to the entire community. The National Trauma Institute, with its connections to both civilian and military medical establishments, is the natural centerpiece for a national trauma research agenda and the translation of advances between military and civilian communities, whether during war or peacetime. NTI’s model of combining research and educational resources has proven to be a high-investment, high-impact strategy.

NTI accomplishments

Since its establishment in 2006, the National Trauma Institute has become the nation’s leading voice for trauma research funding. With an agenda focused solely on advancing trauma care, NTI has implemented the following:

• Developed an active national Board of Directors comprising physicians from the fields of trauma, emergency medicine, orthopedics and neurosurgery
• Developed a national Science Committee that to date has evaluated nearly 200 research pre-proposals and made awards of $1.8 million
• Funded 36 studies in 15 sites and 23 studies from examining TBI (the working board in the ICU) to weighing the efficacy of non-surgical treatment for critically ill patients
• Understanding the mechanism for traumatic coagulopathy, all NTI-funded studies have explored priority issues in the field of trauma
• Successfully advocated for an additional $500 million to the FY 12 Department of Defense budget for non-compressible hemorrhage studies
• Successfully advocated for a $15 million addition to the Department of Defense budget for a National Trauma Research Repository, which will aggregate and standardize research data to better use
• Managed the Endovascular Skills for Trauma and Resuscitative Surgery (ESTRIS) communications platform, a program to build skills in the management of critical injuries among general trauma surgeons
• Managed the $7.6 million from the Texas Emerging Technology Fund and matching federal funds to develop and achieve FDA approval of an advanced diagnostic tool to monitor, with a consortium that included private industry, academic and military institutions
• Generated and managed a total of $28.9 million to its establishment

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NTI Board of Directors

Officers

Chair: Jerry Turkoch, MD Denver Health and VA
Vice Chair: Dan Sickles, MD Mayo Clinic
Secretary: Basil A. Pratt, Jr, MD UTHSC San Antonio
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Caryn Fisher, MD Texas Woman’s University
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Frederick Moore, MD Mayo Clinic
Jerry Jurkovich, MD UTHSC San Antonio
Alex Valadka, MD George Wash Univ
Peggy Kozar, MD Mayo Clinic
Ronald Stewart, MD Science Committee Chair:

def ended military hospitals and beds because of the number of Americans killed during the civilian war. Sources:

• Trauma is the leading cause of death of children in the U.S.

• Injury is the leading cause of death for people between the ages of 1 and 44.

• Among people ages 65 and older, falls are the leading cause of injury death and the most common cause of fatal injuries and hospital admissions for trauma, adding significantly to Medicare costs.

• Severe injury is frequently devastating in its impact and often triggers lifetime changes, including dependency or complete disability.

• Injuries occur through a variety of mechanisms: from vehicular accidents to falls to violence.

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Clinical Trials Networks are research partnerships among multiple medical centers that result in consolidated resources, focused priorities and, often, medical breakthroughs. A federally funded Trauma Clinical Trials Network will accelerate the development of evidence-based guidelines for improved treatment of trauma.

Clinical Trials Networks:
- Coordinate priorities—Addressing prioritized research gaps saves time and money spent on redundant and unnecessary studies.
- Consolidate effort—A steady funding stream ensures that multiple researchers and institutions spend less time chasing grants.
- Provide a higher return on investment—Sharing data is an opportunity to expand the significant investment of the clinical trial beyond its original goals at minimal cost.
- Result in studies with higher statistical significance—Multi-site studies enable medical centers to combine patient populations to enroll enough subjects to conduct studies with significant statistical power.
- Increase investigator quality—Coordinated studies are conducted using best practices and seasoned investigators; emerging investigators are exposed to superlative role models.
- Validate findings—Studies encompass different regions and demographics, representing a cross-section of the population; so clinical outcomes have wider acceptance.
- Advance patient safety—Network resources can be used to coordinate timely and comprehensive safety reviews of adverse event data within and across studies.
- Encourage scientific collaboration—Multiple center participation fosters input on key clinical and scientific questions and allows for collaboration among centers with different areas of expertise.
- Decrease health care costs—Networks standardize effective treatments and improve health outcomes; thus, costs are lowered.

Like data registries and other medical databases, a clinical research repository aggregates and standardizes research study data so it can be shared for broader use. Research repositories support secondary analysis through a co-mingling of individual studies with common elements.

A research repository also includes in-depth and detailed clinical information, provides additional informational services, uses a consistent identifier system and engages experts to review the data and ensure its quality.

Once established, the National Trauma Research Repository will provide the means for storage, compilation and analysis of trauma research data, providing a pool of data from more than investigators are able to collect on their own and a much faster route to the large datasets required to draw conclusions to improve trauma care.

**Research Repositories:**
- Promote the publication of new research with effective use of existing data
- Enable replication of findings through re-analysis of pooled data files
- Enable meta-analysis using individual patient data
- Reinforce the principle of open scientific inquiry
- Encourage the development of different theoretical perspectives, especially in an interdisciplinary setting
- Provide additional value at little cost, optimizing the use of financial and human resources
- Minimize the need to recruit individuals for research studies, as fewer studies can potentially answer more questions

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