

The Burn Model Systems

National Institute on Disability and Rehabilitation Research

An estimated one million Americans sustain a burn injury each year, out of which 45,000 are hospitalized. Severe burns are one of the most complex forms of trauma injury and often require long-term rehabilitation. A person with a burn injury often suffers from a wide range of physical and psychosocial problems that can affect their ability to function.

The Burn Model Systems (BMS) Program began in 1994 with funding from the National Institute on Disability and Rehabilitation Research (NIDRR), U.S. Department of Education, to improve care and outcomes for individuals with burn injuries.

Currently, there are four BMS centers: University of Washington, Johns Hopkins University, University of Texas Medical Branch - Galveston, and University of Texas Southwestern Medical Center. Each center provides a coordinated and multidisciplinary system of rehabilitation care including emergency medical, acute medical, post-acute, and long-term follow-up services to persons with burn injuries. In addition to providing direct services, these centers play a pivotal role in building the national capacity for high quality research and treatment to improve physical, functional and psychosocial outcomes for persons with burn injuries. For BMS contact information and resources go to: <http://burnmodelsystems.org/>.

Research

Each BMS center conducts research and contributes follow-up data to the BMS Data Coordination Center (<http://bms-dcc.ucdenver.edu>) located at the University of Colorado, Denver.

- The BMS Data Coordination Center collects and analyzes data on the course of recovery and outcomes of individuals who were admitted to BMS centers for medical care. This database has information on over 4,000 individuals with burn injuries including data on pre-injury, injury, acute care, rehabilitation, and outcomes at 6, 12, and 24 months post burn injury.
- Eight site-specific and one multi-center studies are currently underway. Examples include long-term survivor needs, efficacy of innovative exercise programs, children with acute and/or post traumatic stress disorder, and biomechanical properties of burn scars.

Accomplishments

Efficacy of custom-fit pressure garments after burns - Based entirely on anecdotal data, custom-fit pressure garment therapy has been used to treat/prevent scarring after burns since the mid 1970s. Studies by the BMS have established that pressure garment therapy is effective.

Impact of immersive virtual reality on range-of-motion - Pain following burn injuries is a major issue for survivors. Immersive Virtual Reality is a new method of pain reduction and BMS projects have established the value of the method, which is now used across North America, Australia, and the United Kingdom.

Development of an animal model for scar research - Scarring after burns has a substantive impact on outcome. One major reason for limited treatment/prevention is the historical lack of an animal model. Studies by the BMS have established the Duroc/Yorkshire porcine model of scarring, which may lead to effective treatment/prevention.

Dissemination

The BMS program disseminates evidence-based information to patients, family members, health-care providers, educators, policymakers and the general public. Centers do this in a variety of ways:

- Peer-reviewed publications.
- Presentations at national professional meetings.
- Newsletters that update patients on BMS research and center events.
- Outreach satellite clinics for patients living in rural areas.
- Burn peer support groups.

The BMS program also collaborates with the NIDRR-funded Model Systems Knowledge Translation Center (<http://msktc.washington.edu/>) to promote adoption of research findings by rehabilitation professionals, policy-makers, persons with burn injuries and their family members.

BMS Partnerships

The BMS program has established partnerships that serve to increase the overall impact of research, information dissemination, and training of clinicians, researchers, and policy makers. Current collaborations include:

- The Pacific Institute for Research and Evaluation to determine QALY (quality adjusted life years) after thermal injuries.
- The Safety and Health Assessment and Research for Prevention (SHARP) program to identify high-risk industries for future research and prevention efforts.
- The American Burn Association (ABA) and the Phoenix Society to ensure that NIDRR funded research addresses issues relevant to persons with burn injuries.