

Investment in research saves lives and money



facts about:

Burns

"If you think research is expensive, try disease."

- Mary Lasker 1901-1994

Today:

- Each year, nearly 500,000 Americans receive treatment for burns, including 40,000 hospitalizations and 3,400 deaths.¹
- The average American faces a 1 in 1,442 chance of dying from exposure to fire or smoke.²
- Sixty-two percent of scald burns are sustained by children under five years of age.³
- Inhalation burns, burns to the throat and lungs, are associated with as much as a 20% increase in mortality compared with burns to the body's surface. Patients who develop pneumonia as a result of inhalation burns face up to a 60% increase in mortality.⁴
- On average, each 1% of total body surface area (TBSA) affected by a burn equates to one day of inpatient hospitalization; for patients with inhalation burns the average length of stay is four

The Cost:

- In the U.S., burn-related medical costs exceed \$1.5 billion per year.⁶
- Indirect costs associated with burns in the U.S. exceed \$5 billion per year.⁶
- The average cost of a burn-related hospital stay is \$24,000, more than double the cost of non-burn related stays.⁷
- The total cost of burn-related emergency department visits for children ages 4 and younger is more than \$300 million per year, the highest among all age groups.⁸

1 GIBRAN, N. ET AL. J BURN CARE RES, 2013. 34(4):361-85
 2 AMERICAN BURN ASSOCIATION <WWW.AMERIBURN.ORG>
 3 NATIONAL SCALD PREVENTION CAMPAIGN WWW.FLASHSPASH.ORG
 4 DRIES, D. AND ENDORF, F. SCAND J TRAUMA RESUSC EMERG MED. 2013. 21:31
 5 TAYLOR, S. ET AL. J. BURN CARE RES. 2016. 37(5):E476-E482
 6 HEALTHCARE COST AND UTILIZATION PROJECT <HCUP-US.AHRQ.GOV>
 7 MCDERMOTT K.W. ET AL. HCUP, 2016. STATISTICAL BRIEF #217
 8 WEB-BASED INJURY STATISTICS QUERY AND REPORTING SYSTEM (WISQARS) DATABASE <CDC.GOV>

SAVING LIVES
SAVING MONEY

HOW RESEARCH IMPROVES AND SAVES LIVES:

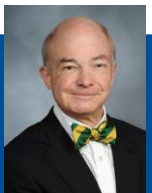
- A University of North Carolina lab conducted the largest long-term study on the effectiveness of lasers in treating burn scars. The study indicated that after 30 months of treatment, patients showed a 68% improvement in scarring and a significant improvement to their quality of life.¹
- A study in severely burned children showed that over a 12-week period, rehabilitation training improved function and increased muscle mass. This training program helps counter hypermetabolism, a dramatic increase in how much fuel the body uses, that often accompanies severe burns and can last for up to two years following the injury.²

HOW RESEARCH SAVES MONEY:

- Researchers have shown that home-based vacuum assisted therapy improves the effectiveness of skin grafts for patients recovering from burns. This home-based treatment also reduces costs by nearly 74% compared to in-hospital treatment.³
- Research has shown that the presence of sprinkler systems in homes leads to a 27% reduction in burn-related injuries, a 53% reduction in the medical costs of treating burn injuries, and a 41% reduction in total cost associated with burn injuries.⁴

perspective:

NAME: Palmer Bessey, M.D.
 TITLE: Aronson Family Foundation Professor of Burn Surgery; Associate Director, William Randolph Hearst Burn Center; Department of Surgery, Weill Cornell Medical College



Dr. Palmer Bessey's desire to understand the biology that helped seriously injured patients get well led him to research. He started in a basic science lab and went on to clinical research as his medical career developed. He focused on injured and critically ill patients and has become one of the nation's most prominent burn surgeons. Throughout his career he has seen how research can lead to better patient care and improvement in clinical outcomes of grievously injured patients.

Dr. Bessey has seen the benefits of research across the continuum of medical and surgical care. Both the survival rates and quality of life for burn victims has improved markedly over his career. His collaborative efforts with other researchers and clinicians expanded the understanding of the physiology of patients recovering from burns and trauma, especially the role of hormones and neuroendocrine alterations. That led to strategies of more effective nutritional support for critically ill patients.

Dr. Bessey sees a broad range of prospects for research as the field move forward. There is a clear need to understand how to control the nature of scarring to minimize deformity and debility. Potential new technologies, such as 3D-printed skin, may provide new opportunities for progress. Dr. Bessey looks forward to the ways future research may improve the long-term outcomes for victims of trauma and burns.

1 HULTMAN C.S. ET AL. ANN SURG, 2014. 260: 519-529.
 2 HARDEE, J.P. ET AL. MED SCI SPORTS EXERC, 2014. 46:1710-1716.
 3 MUSHIN, O. ET AL. BURNS.2017. 43(3):490-494
 4 NATIONAL FIRE PROTECTION AGENCY <WWW.NFPA.ORG>

facts about: } Burns

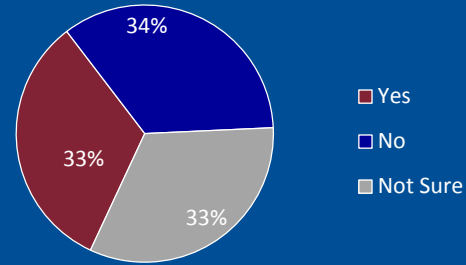
Hope for the Future:

- ❑ The Wake Forest Institute for Regenerative Medicine is leading a multi-organization collaboration to develop “biolinks” to print replacement tissues and organs. This would allow physicians to 3D print skin to replace skin lost due to burn wounds.¹
- ❑ Harvard School of Medicine-led researchers have created a model that allows physicians to identify burn patients at increased risk for multiple infections. This model, which utilizes biomarkers to assess risk, allows researchers to predict a patient’s likelihood of future infections weeks before they take hold with nearly 85% accuracy. Refining this model and putting it into practice could dramatically reduce complications associated with burn wounds, reduce the length of costly hospital stays, and save lives.²
- ❑ Researchers at PolarityTE have developed a novel treatment that has been shown to fully regrow functional skin tissues that have been destroyed by burns in preclinical studies. This technique improves on existing skin grafts because it replaces not only the surface layer of skin cells but also the deeper layers of skin, along with hair follicles and sweat glands, and may significantly reduce visible scarring.³

1 WAKE FOREST BAPTIST MEDICAL CENTER <WWW.WAKEHEALTH.EDU>
 2 SHUANGCHUN, Y. ET AL. ANL SURG. 2015. 261(4):781-792.
 3 LOUGH, D., ET AL. PLAST RECONSTR SURG. 2016 FEB;137(2):495-507.

National Survey: Opinions Split on Whether Health Care is Based on Most Recent Research

Do you believe the health care services you personally receive are based on the best and most recent research available?

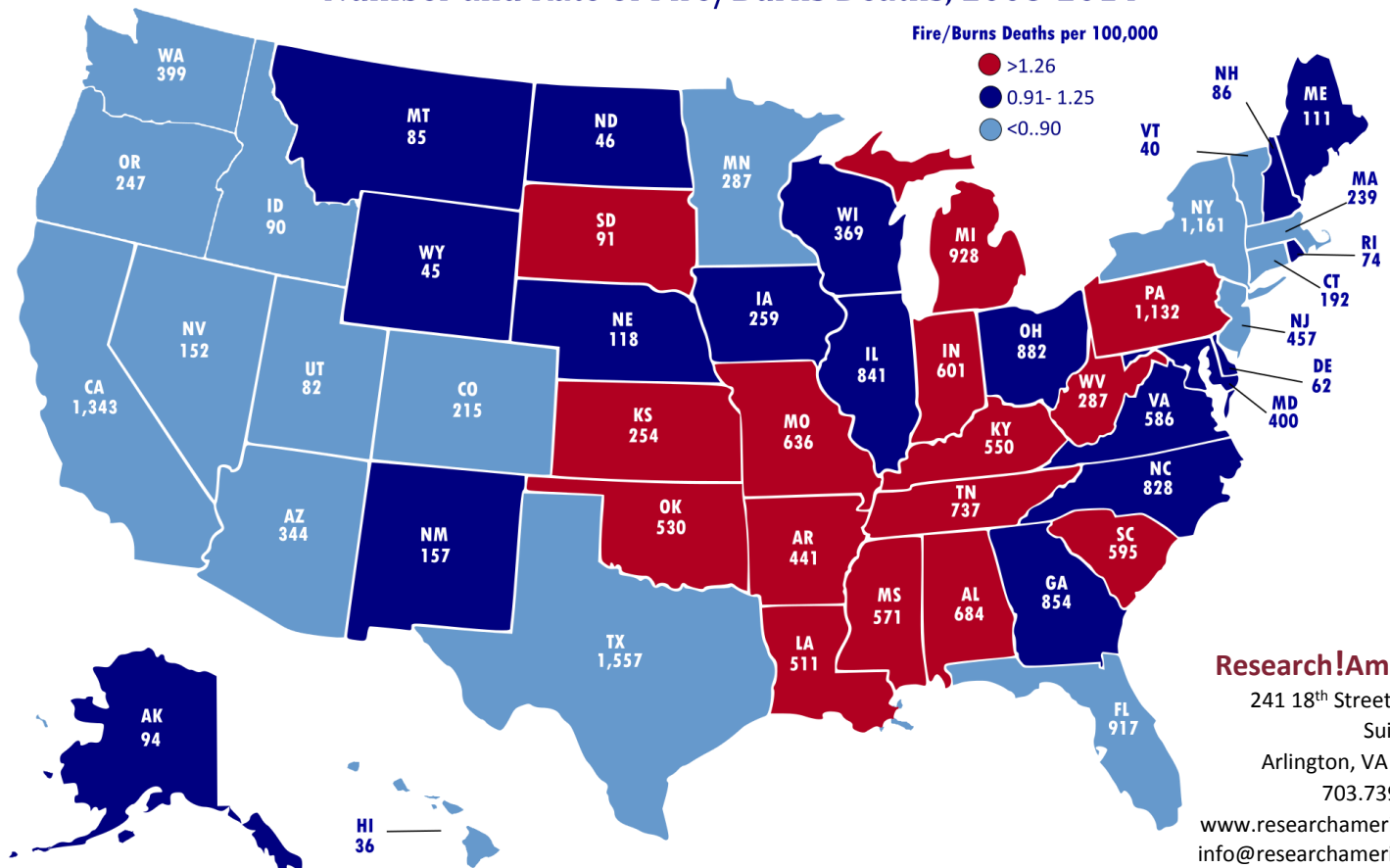


SOURCE: A RESEARCH!AMERICA SURVEY OF U.S. ADULTS CONDUCTED IN PARTNERSHIP WITH ZOGBY ANALYTICS IN JANUARY 2018.

The Bottom Line:

Burns are among the most common and debilitating injuries. Burn care is expensive, complex, and often cannot fully repair damaged tissue. Research into better ways to prevent and treat burns could significantly reduce the suffering of those inflicted with these terrible injuries and could reduce the high cost burden that many patients with burn injuries bear.

Number and Rate of Fire/Burns Deaths, 2008-2014



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SOURCE: CENTERS FOR DISEASE CONTROL AND PREVENTION

The Albert and Mary Lasker Foundation is a founding partner in this series of fact sheets. www.laskerfoundation.org
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