National Burn Repository
2017 Report
Dataset Version 13.0

FIRE/FLAME INJURIES REPRESENT 41% OF THE CASES IN THIS REPORT WITH A KNOWN ETIOLOGY

SCALD INJURIES REPRESENT 35% OF THE CASES IN THIS REPORT WITH A KNOWN ETIOLOGY

CONTACT WITH HOT OBJECT INJURIES REPRESENT 10% OF THE CASES IN THIS REPORT WITH A KNOWN ETIOLOGY

ELECTRICAL INJURIES REPRESENT 3% OF THE CASES IN THIS REPORT WITH A KNOWN ETIOLOGY

CHEMICAL INJURIES REPRESENT 3% OF THE CASES IN THIS REPORT WITH A KNOWN ETIOLOGY
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The American Burn Association would also like to thank the members of the National Burn Repository Committee for their commitment, dedication, and expedited review of this year’s report. Their thoughtful analysis of the data guides the membership in their reading of the report and influences future interests and investigations.

The ABA is also grateful for the work of Bart Phillips, Technology Advisor of BData, and his dedicated staff. Their compilation, organization and presentation of this data facilitate its utility into understanding the demographics of burn injury.

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This year’s National Burn Repository (NBR) report represents ten years of cumulative data from 101 United States Burn Centers, four Canadian Burn Centers, and two Swedish Burn Centers. The report contains over 212 thousand entries, with 42,402 new entries submitted by 81 U.S. burn centers for the 2016-2017 call for data, and over 3,700 international entries. This report represents the largest resource on epidemiology of thermal injury for patients admitted to burn centers in North America. It is also the single most useful reference for determining benchmark standards for outcomes such as mortality rate and hospital length of stay.

This year’s report also marks a transition from Version 5 to Version 6 of the burn registry software, which was released to burn centers in 2016/2017, after the release of the National Burn Data Standard (NBDS) in April of 2015. The evolution in data collection brought forward by Version 6 and the NBDS creates a number of reporting and research opportunities as well as the need for key decisions around how to incorporate the Version 6 data with the historical data, previously collected by the American Burn Association. The two biggest changes in the Version 6 software impacting reporting relate to complications and procedures. The number of complication choices dropped from 111 to 33, with a notable drop in reported complications from 10% to 5%, although the change was not uniform at the facility level. For procedures, the difference is that Version 6 allows for ICD-10 coding where Version 5 is strictly ICD-9.

This new data and changes to the Burn Registry Software continue to improve the quality of the NBR data and the ways that it can be used to understand the state of burn care in North America, how care has changed over time, and areas for continued improvement. These changes are good, but there is more to do. While accuracy and participation continue to improve and, resultantly, the NBR continues to improve, the NBR only includes inpatient data, with limited data on isolated inhalation injury, skin diseases, and other conditions commonly treated in burn centers, as well as many records remaining incomplete.

To minimize the number of missing variables; better assess quality, through collection of BQIP quality indicators; and reflect the true scope of burn practice through future inclusion of outpatient data, we will need to have adequately supported burn registries. It is imperative that we support both the manpower to collect this data completely and continue to be thoughtful about the data that is collected if the NBR continues to serve as the single best resource for health care planners within our institutions and our governments. This commitment is labor and cost intensive, but highlights and demonstrates our ability to not only sustain life, but optimize quality of life following burn injury. Thank you to all members of the American Burn Association for your continued support of and belief in the NBR. I hope that you find this report informative and useful.

Michael J. Mosier, MD, FACS, FCCM
Chair, ABA NBR Advisory Committee
The 2017 National Burn Repository Annual Report reviewed the combined data set of acute burn admissions for the time period between 2008 and 2017. Key findings included the following:

1. 101 hospitals from 37 states, and the District of Columbia, contributed to this report, totaling 212,820 records. The majority of patients came from hospitals with 500 or more beds, with the next largest group coming from hospitals with 200-299 beds. Data are not dominated by any single center and appeared to represent a reasonable cross section of U.S. hospitals.

2. In all age categories, except age greater than 80 years old, there are considerably more men than women. There is a bimodal distribution of greatest prevalence in the pediatric age range from 1 to 15 comprising 23.5% of the total burns and the adult age group from ages 20 to 59 years, which makes up 55% of burns. Patients age 60 or older represented 15% of the cases.

3. More than 67% of the reported total burn sizes were less than 10% TBSA and these cases had a mortality rate of 0.6%. The mortality rate for all cases was 3.1% and 5.6% for fire/flame injuries.

4. The two most common etiologies were fire/flame and scalds, accounting for 76% of cases reported. Scald injuries were most prevalent in children under 5, while fire/flame injuries dominated the remaining age categories. 5.4% percent of cases did not designate an etiology of injury.

5. Seventy four percent of the burn injuries with a known place of occurrence were reported to have occurred in the home. Nearly 95% of cases with known circumstances of injury were identified as accidents, with nearly 13% of these reported as work-related. Just over 2% of cases were suspected abuse and 1% was self-inflicted.

6. During the ten-year period from 2008 through 2017, the average length of stay for females declined from 9.4 days to 7.3 days, while that for males declined less significantly from 9.5 to 8.5 days. The mortality rate for females declined from 3.9% to 2.7% and 3.4% to 2.6% for males.

7. Deaths from burn injury increased with advancing age and burn size, as well as presence of inhalation injury.

8. Pneumonia was the most frequent clinically related complication and occurred in 4.7% of fire/flame-injured patients. The frequency of pneumonia and respiratory failure was much greater in patients with 4 days or greater of mechanical ventilation. As expected, with increasing age, the rate of complications increases (with the exception of infants, who have a higher rate than other children).

9. For survivors, the average length of stay was slightly greater than 1 day per %TBSA burned. For those who died, the total hospital days was typically between 2-3 weeks in patients with %TBSA <80%. Eighty seven percent of patients were discharged home and 3% were transferred to rehabilitation facilities.

10. Overall, the charges for patients who died were over 3 times greater than those who survived; however, this was greatly affected by the large number of patients with burns < 10% TBSA. For burns >10% TBSA, total charges for surviving patients averaged $269,523 and charges for non-survivors averaged $361,342.

All cases received from contributing hospitals (both ABA Burn Registry and non-burn registry users) that met the data structure requirements were initially accepted into the NBR. This report includes only cases with an admit year of 2008-2017. Records were excluded from the analysis for this report if the “Admit type” or “Admit status” was:

- Readmission
- Admission for reconstruction/rehabilitation
- Outpatient encounter
- Same patient
- Scheduled/elective admission
- Acute admission, not burn-related
In addition, records were excluded from analysis of this report if they contained missing values for the following:

- Gender
- LOS < ICU days
- Discharge disposition
- Both calculated age and manually entered age
- Both TBSA and etiology

As was done previously, an algorithm was used to identify and remove potential duplicate records from the analysis. Duplicate records can exist in the database if a facility submits the same record during two different calls for data. The algorithm that was implemented identified records that contained identical information on the variables listed below. The more recently submitted record was included in the analysis, while the older record was eliminated as a duplicate.

- Facility
- Admission year
- Age
- Gender
- Race
- Admission type
- Discharge date
- E Code
- %TBSA

Lastly, the records received from our Canadian and International contributors are not included in the body of the analysis, but are presented separately in Section 6.