

NIDRR Model Systems for Burn Injury Rehabilitation Adult Facts and Figures

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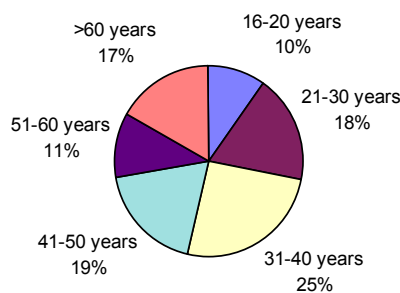
Since May of 1994, five burn centers have participated as Model Systems for Burn Injury Rehabilitation funded by the National Institute of Disability and Rehabilitation Research in the Department of Education (NIDRR). Four Model Systems are currently collecting data: the University of Washington (1994-2003), the University of Texas Southwest (1994-2003), Johns Hopkins University (1997-2003) and Shriners Burn Hospital in Galveston (1997-2003). The University of Colorado Health Sciences Center also contributed data from 1994 to 1997. Each center collects data on both adults and children, although the largest contributor of subjects under 16 is the Shriners Burn Hospital. Data presented here were collected through February 1, 2003 and include 2692 adult patients (ages 16 and older). In order to be eligible for the study, Model Systems patients must consent to follow-up for at least two years, and must meet the American Burn Association criteria for a major burn injury. The ABA defines a major burn injury as a burn covering at least 5%, 10% or 20% of the body (depending on burn severity and age), a burn causing a functional or cosmetic threat, an electrical burn, a burn with inhalation injury, or a circumferential burn.

Demographics

Age

Of our entire combined burn population, 68% are adults (16 and older), and 32% are children (under 16). The mean age at injury for adult subjects (16 and older) is 43 years. The breakdown of adult subjects by age groups is shown below in Figure 1. The largest number of subjects (25%) were ages 31-40 at the time of injury, and the second largest group (19%) were in the 21-30 when injured.

Figure 1: Age at Injury



Gender

Seventy-five percent of all adult subjects in the Model Systems are male. When examined by age group, the gender distribution varies from a low of 61% male in patients over 60 years old, to a high of 80% male in the 21-30 year old age group.

Employment Status

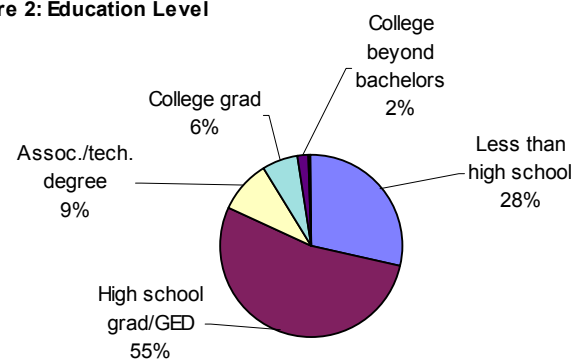
Over half (59%) of adult patients were working prior to their burn injury. Twenty-seven percent of the subjects reported being unemployed at time of injury and the remaining 12%

were retired, working as homemakers, or doing volunteer work.

Education Level

The distribution of highest level of education attained is shown in Figure 2 below. Over half (55%) of the Model Systems patients had received a high school diploma or GED at the time of their injuries. Twenty-eight percent have less than a high school education. Most of the remaining subjects (18%) have some schooling beyond high school.

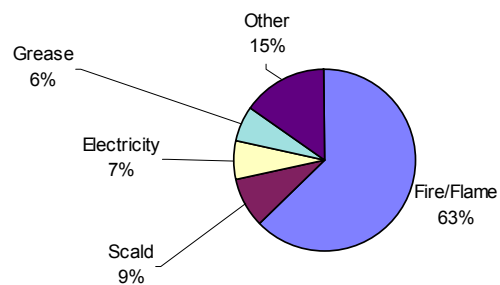
Figure 2: Education Level



Primary Etiology of Injury

Fire/flame was the most common cause of injury for Model Systems patients; 63% of injuries were caused by fire or flame. Scalds accounted for 9% of burn injuries in our population and electricity caused injury in 7% of patients. A chart displaying the most common burn etiologies is shown in Figure 3. The 'Other' category in the figure consists of flash burns (5.0%), contact burns (3.9%), tar burns (1.8%), chemical burns (2.2%), skin disease (1.6%), and other causes (<1%).

Figure 3: Primary Etiology of Burn Injury



Alcohol or Drug Use at Time of Injury

Some burn injuries are associated with substance abuse. For 55% of adult Model Systems patients, alcohol and/or drug tests were conducted upon admission. Thirty-three percent of those tested were positive for either drugs, alcohol or both. Of those tested for alcohol, 22% were positive and of those tested for drugs, 19% were positive.

Residence

Most patients (70%) lived in a house at the time of their burns. Eighteen percent lived in an apartment; 7% were living in a mobile home. Almost two percent (1.9%) were homeless at the time of injury. Just over one percent (1.2%) were living in an institution when the burn injury occurred.

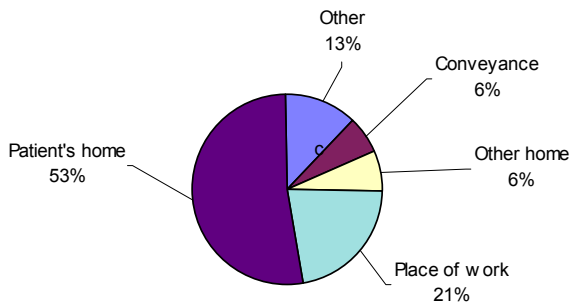
Indoor/Outdoor Location

Sixty percent of burns occurred indoors in an enclosed space, where the chances of suffering an inhalation injury are much greater.

Geographic Location

The breakdown of geographic location of burn injury is shown in Figure 4 below. Over half (53%) of the patients in the Model Systems were burned in their own homes. Approximately one fifth (21%) of all burns occurred at work.

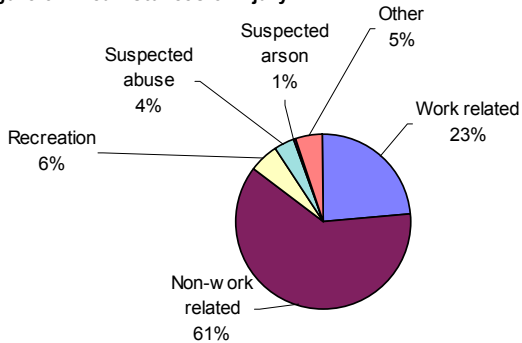
Figure 4: Where Injury Occurred



Circumstances

Twenty-three percent of all burns were work-related. Six percent of burns occurred during recreational activities. Abuse was suspected in 4% of patients. Patients whose injuries were classified as 'non-work related' made up the majority of the adult subjects. These percentages are shown below in Figure 5.

Figure 5: Circumstances of Injury



Etiology by Location

When primary etiology of burn injury is broken down by where the injury occurred, one sees a different distribution of cause of burn than shown above in Figure 3. Of burns occurring at work, only 29% involved fire or flame, while 23% involved electricity. For burns occurring on an automobile, train, or plane (conveyance), 82% were a result of fire or flame.

Severity of Injury

When measuring the severity of a burn injury, one needs to consider factors such as total body surface area burned

(TBSA), whether or not skin grafting was required, and whether the patient suffered an inhalation injury. The mean TBSA for all adult patients is 23%, and of all burn etiologies, skin disease had the highest mean TBSA (45%). Table 1 lists the mean and standard deviation for TBSA by burn etiology. Seventy-seven percent of adult patients required grafting on some area of their body (this calculation excludes patients surviving fewer than 3 days). Burn patients sustaining inhalation injuries have a significantly reduced chance of survival than those without inhalation injury. Fifteen percent of the adult Model Systems patients suffered an inhalation injury.

Table 1: Total Body Surface Area Burned

Burn Etiology	Mean	Standard Dev.
All burns	23%	20
Skin Disease	45%	36
Fire/Flame	27%	21
Flash	22%	14
Scald	17%	17
Chemical	16%	15
Abrasion	14%	14
Electricity	12%	13
Grease	11%	10
Tar	8%	7
Contact with Hot Object	6%	8
Frostbite/Cold	6%	2
Other	17%	27

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