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# Tap water scalds among seniors and the elderly: Socio-economics and implications for prevention

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## Abstract

## Introduction

Tap water scalds among those  $\geq 60$  years old are often attributed to physical impairments with aging. This study assesses socio-economics associated with tap water scalds among seniors and the elderly.

## Methods

Charts of patients admitted to an urban Burn Center between 7/00 and 6/04 for treatment of tap water scalds were reviewed. Demographics, injury details, co-morbidities, surgical interventions/critical care requirements, length of stay (LOS), disposition and related economics were reviewed.

## Results

During the study period, 68 patients  $\geq 60$  years were hospitalized for treatment of these scalds. Mean age and burn size were  $78 \pm 1$  years and  $7 \pm 0.9\%$  TBSA. Over 98% of patients were admitted with pre-existing co-morbidities; 60% required ICU care for  $40 \pm 5$  days; 22% required mechanical ventilation and 71% required surgery. LOS was  $34 \pm 4$  days. Most patients received government assistance income. Pre-injury, 32% resided alone. Post-injury, 10% of patients returned home alone; mortality was 22%. Per patient hospital costs approximated \$113,000.

## Conclusion

These findings report that tap water scalds result in significant morbidity, mortality and health care costs for local seniors and the elderly. Socio-economic factors play a significant role in these injuries and must be assessed when planning prevention efforts.

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# Introduction

Understanding burn epidemiology requires close examination of the many factors which contribute to the occurrence and prevention of these injuries. Recently, attention has been focused upon relationships between pre-injury co-morbidities, circumstance of injury and burn patient outcomes [1], [2], [3], [4]. The resultant data showed that specific health conditions such as neurological impairments, diabetes and other conditions are associated with circumstances leading to the injury and patient outcomes. That older populations are at high risk of burn injury and suffer worse prognoses than younger patients is well documented [5]; much of the existing data attributes these findings to the compromised physical health status of this cohort, many of whom live with chronic, debilitating conditions that can increase risk for the burn, exacerbate the extent of the injury, or impair recovery. Practically applied, these findings lead to advances in clinical management and burn prevention programming targeting specific, special needs populations such as the elderly, many of whom were included in the study groups [1], [2], [3], [4], [6].

While the impact of pre-morbid status upon burn trends has become better delineated, the relationship between socio-economics and burn epidemiology is less understood. Growing evidence suggested that housing, educational attainment, income and racial/ethnic status influence injury patterns, but these findings were limited to populations such as children, victims of house fires, or residents of specific geographical regions [6], [7], [8], [9], [10]. The influence of such factors upon burn trends among other sub-groups has not been well studied.

As data suggests, burns from hot liquids continue as a common source of injury, and adults  $\geq 60$  years old (hereto referred to as seniors and the elderly) disproportionately suffer these injuries [11], [12], [13], [14]. Among all sources of scald burns, tap water scalds can be especially devastating as these injuries occur within seconds during routine activities of daily living, often involve large body surface areas, and are the most common source of scald related deaths [11]. Several studies provided in-depth analysis of these scalds and found that compromised physiologic status contributes to the frequency and severity of these injuries among adults at least 60 years of age [6], [11]. However, some hypothesized that other factors such as demographics, economics and culture may also influence the trends associated with these injuries. In order to investigate the role of these factors in burn and prevention education, an analysis of tap water scalds among patients at least 60 years of age who required hospitalization at this burn center was undertaken.

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## Section snippets

### Methods

A review of records of patients admitted to this center between July 2000 and June 2004 was undertaken using the Burn Center's National Trauma Registry of the American College of Surgeons (NTRACS) database. Case records were queried by Ecode 924.2 ("tap water") and age minimum age of 60 years and were included into the study group upon meeting these criteria. Demographic data including age at time of injury, self reported race, gender, primary language spoken, income source, household...

### Results

During the study period, 68 patients at least 60 years of age were hospitalized for treatment of tap water scalds and included into the study group. This group represented 24% of all tap water scalds and 17% of all

acute burns among this age group admitted during the 5-year period.

Fifty-six percent of the victims were male. Forty-seven percent of the study group identified themselves as racial or ethnic minorities. Fifty-three percent of patients in the study group spoke only English while 26%...

## Discussion

These findings report that tap water scalds remain a significant source of morbidity, mortality and financial burden among seniors and the elderly. Over a 5-year period, 68 senior and elderly patients – almost all of whom suffered from pre-existing co-morbidities – required inpatient treatment of tap water scald burns at this institution's burn center. Sixty percent of patients required intensive care, and over 70% of patients required surgical closure of the burn wound. Although the average...

## Acknowledgements

Nicole Alden, RN MPH initiated collaborative effort, performed much of the data collection, and led the writing of the paper. Angela Rabbitts, RN MS assisted with data analysis and authorship. Dr. Philip J. Hyden conceptualized the idea, reviewed the data, and contributed to the analysis. Dr. Palmer Q. Bessey contributed to data collection and analysis. Dr. Roger W. Yurt supervised all aspects of the project. Each author contributed to the data analysis and manuscript revisions....

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