

Title: The economic burden and potential years of life lost from fire deaths in residential homes

Introduction

Fire deaths in residential homes are devastating and preventable. The objective of our study was to describe the potential years of life lost (PYLL) and the cost of fire deaths in residential homes.

Methods

We conducted a retrospective cohort analysis of all adults (age ≥ 16) who died in homes without fire sprinklers between 1998-2012. Patient demographics and injury characteristics were collected from coroner investigation statements and autopsy reports. PYLL was calculated by subtracting age at death from age 75. The number used for the value of statistical life was \$6.5 million.

Results

Of 1,640 coroner investigations reviewed, 1,176 were included in the study and the medical cause of death was smoke inhalation in 846 (72%) cases. There were 984 (84%) postmortem examinations performed. The location of death was at the scene for 644 (55%) people and the remaining 532 (45%) patients were admitted to at least one institution. In 1,114 (95%) cases, deaths occurred within one day after injury. The average age was 56 ± 20 (SD). There was a loss of 24,051 years of life and the cost of PYLL due to residential fires totaled \$7,644,000,000.

Conclusions

This study indicates that deaths due to residential fires result in significant economic loss. It also demonstrates that the overwhelming majority of deaths after a fire occurred either on scene or within one day. These deaths result in numerous healthcare costs and costs incurred from the coroner investigation process. Continued increases in fire prevention combined with advances in burn injury treatment have led to fewer life years lost over time; however, this study shows that considerable measures still need to be taken in terms of fire prevention strategies.

Applicability of Research to Practice

Decreasing the burden of burn injuries is a challenge and these data suggest a continued need to implement effective fire prevention strategies to in residential homes. Implementing these strategies can reduce the potential years of life lost and economic burden.

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