



THE FIRE PROTECTION RESEARCH FOUNDATION

The Impact of Home Fire Sprinklers in Reducing Fire Injuries Project Statement

Background

Since the widespread introduction of home fire sprinklers, a significant amount of statistical data has been collected and analyzed showing their impact in reducing rates per fire of fire deaths and property damage. However, the same analysis has not shown reductions in rates per fire for fire injuries. This aggregated analysis may mask significant sprinkler impacts for certain types of injuries and certain victim and fire characteristics (for example, victim proximity to fire origin, fire size). There may be opportunities to apply the significant body of statistical and experimental research studies that demonstrate the impact of fire sprinklers on fire growth and development, combined with data on injury costs relative to injury type, size and severity, to a more detailed model of sprinkler impacts on injuries.¹

Research Objective

Evaluate the impact of home fire sprinkler protection on the frequency, severity and related costs of fire injury, as a function of various fire and victim characteristics.

Tasks

1. Literature review, compiling and analyzing the fire and public health literature providing quantitative results on:
 - The relationship between frequency and severity of injury, by type of injury, and fire size,
 - The relationship between frequency and severity of injury, by type of injury, and victim location,

¹ For analysis showing sprinkler impacts on deaths per fire, damages per fire, and fire size, see Hall, John R., U.S. Experience with Sprinklers, National Fire Protection Association, May 2011; for analysis relating cost of injury to type and severity of injury, see Miller, T.R. et al, The Consumer Product Safety Commission's Revised Injury Cost Model, Public Services Research Institute, December 2000.

- The impact of sprinklers on fire size, and
- The cost of injury, by type and severity of injury.

This review will also draw on burn injury data and case studies provided from selected North American burn injury treatment centers.

2. Development of a statistical model of injury frequency, severity and cost, based on fire sizes and other factors, using the results of the literature review and built around factors that are reported in the National Fire Incident Reporting System.
3. Using NFIRS-based national fire statistics and the model developed in Task 2, estimation of the aggregated effect of home fire sprinklers on the cost of injuries in North America.
4. Development of short narratives on selected actual fire injuries illustrating the relationship of fire injury to fire size and victim location so as to support the statistical findings.
5. Prepare an interim report of findings of each of Tasks 1-4, and draft and final reports.

Implementation

The research program will be conducted under the auspices of the Fire Protection Research Foundation and will be guided by a Project Technical Panel who will provide input to the project, review periodic reports of progress and research results, and review the final project report. NFPA's Fire Analysis and Research Division will serve as the primary contractor for this project except for Task 4, which will be supported by project panelists from the burn center community, who will also provide data for the Task 1 review.

Project Milestones and Approximate Schedule

Initial Project Panel Meeting	January, 2012
Task 1 Report	May 31
Task 2 Report	June 30
Task 3 and 4 Reports	August 31
Draft Final Report	September 30
Final Report	October 31