

National Fire Protection Association

Urban Fire Safety Project

**Report to the
NFPA Board of Directors and the
Metropolitan Fire Chiefs Association**



National Fire Protection Association

Urban Fire Safety Project

**Report to the
NFPA Board of Directors and the
Metropolitan Fire Chiefs Association**

November 2007

**Robert Adams
Judy Comoletti
Sharon Gamache
John Hall
Pat Mieszala**



Executive Summary

The National Fire Protection Association (NFPA) has worked to reach people in low-income communities throughout the United States through the programs of the NFPA Center for High-Risk Outreach of the Public Education Division. Programs have included educational curriculum, programs for older adults and people with disabilities, smoke alarm installation programs, and the Home Security and Fire Safety Task Force on bars on windows. Programs have been implemented for high-risk populations in southern states, communities in rural areas, and First Nations tribes.

In 2006, NFPA identified a need to reach more effectively high-risk populations in large cities with populations of 250,000 or more. Large city fire departments have particular challenges that include conducting fire prevention programs with limited resources; staffing smoke alarm installation programs; and working in high-crime areas where bars on windows may block exits. Also, leveraging relationships with large city-wide institutions serving preschoolers, school-age children, or older adults; reaching multi-cultural communities in their own languages; and getting community members to focus on fire safety when other issues may seem more compelling are all additional challenges.

To facilitate reaching people in high-risk urban communities, the National Fire Protection Association Board of Directors chose the following corporate goal for 2007:

Partner with fire departments from two major cities in North America to identify and define the causes of fire deaths and injuries among high-risk populations and the unique challenges associated with reducing/eliminating those deaths and injuries. Working with leadership within the departments, develop strategies necessary to address the identified challenges.

The measurement for this goal was to develop a report and distribute through all metro cities and other communities where results may be transferable.

NFPA worked with two cities on the project—Louisville and Milwaukee. Chief Gregory Frederick of Louisville and Chief William Wentlandt of Milwaukee were eager to participate. During 2007, the Milwaukee Fire Department named a new chief, Doug A. Holton, who also assisted the NFPA team in the project.

The project examined challenges in reaching high-risk audiences; surveyed existing public education, smoke alarm installation, and outreach programs; and identified what was working and what could be replicated in urban areas with similar populations and challenges.

The project was not meant to compare and evaluate the efforts being made by two cities. Rather, the purpose was to gather enough information to identify what is working, what efforts are required to reach special audiences, and what lessons may be shared with other communities.

The information gathered from the project came from the following sources

- 1) Individual interviews and group discussions with fire service personnel and community leaders from Milwaukee and Louisville.
- 2) Interviews and discussions with project teams from three cities—Dallas, Texas; Detroit, Michigan; and Bridgeport, Connecticut—all completing their first year of a five-year grant program to fund smoke alarm installation programs funded by the Centers for Disease Control and Prevention.
- 3) A literature review that included studies of urban fire departments and high-risk groups, as well as other studies of individual cities.
- 4) An analysis of the urban fire problem and fire risks among high-risk groups and characteristics of urban areas by NFPA's Research and Statistical Analysis Division.

Challenges

The challenges we identified in this project were, in some cases, unique to large urban areas. Other challenges were similar to those found in less populated communities, as well.

Children in Their Schools In urban areas, getting organized fire and life safety curriculum adapted into and part of a large school system is a challenge. The 2002 federal “No Child Left Behind” legislation has meant that teachers must concentrate on core subjects of English language arts, reading, and mathematics.

Older Adults Fire Service leaders are aware of the growing numbers of people older than 65 in their communities and the fact that older adults are at twice the risk of dying in a fire than the population at large. They found the greatest challenges were reaching those older adults who are unwilling or unable to come to a group presentation. They also found that presenting information to older adults was not difficult but measuring whether or not they understood the information or if they would adopt safer behaviors was difficult. Older adults in poorer communities may not have the resources for upkeep of the home structure or for safety equipment or are long time renters of apartments that landlords have not kept up.

People with Disabilities Cities do not always have educational programs in alternative formats for people who are deaf, visually impaired, or have developmental disabilities. People with mobility disabilities find barriers in access to community fire safety presentations.

In Louisville, officials pointed out that sometimes the person with a disability is hidden from the public because some families did not want anyone to know about a relative with a disability. Two emerging issues in the city included the growing number of obese

people who may have trouble escaping a fire and the fire safety risks of people using oxygen in the home.

Immigrants Fire departments show a great interest in reaching immigrant groups with fire safety education programs. They want to ensure that they reach everyone—regardless of race, country of origin, or ethnic background—with safety education and smoke alarm installation programs. Fire departments face challenges of having translators or interpreters for their programs, as well as people on staff who understand the cultural differences. One community leader pointed out that understanding the individual cultures was actually more challenging than language barriers. Some immigrants may be fearful of anyone in uniform because of immigration status, while others have a negative experience regarding uniformed personnel in their countries of origin.

People in low-income communities Over the past decades a number of statistical studies have tried to relate variations in fire experience to variations in one or more risk factors. Poverty, lack of education, and race consistently rank high in studies related in these issues. In large cities, these factors may not be characteristics of the city's population as a whole, but in certain areas significant numbers of people may be living below or near poverty levels. Many factors increase their fire risk, including lack of alarms, property they cannot keep up, or property that landlords do not keep up. With rising heating costs, they may rely more on space heaters.

Milwaukee and Louisville chiefs both brought up the impact of housing issues related to abandoned homes and the possibility of more overcrowding due to people losing their homes because of the sub-prime lending that has taken place in the past years. When people lose their homes they may move in with friends or relatives making for more crowded conditions and people living in basements or places where there are not two ways out.

Commitment Having a commitment and dedication to fire safety education as part of the firefighters' job is always a challenge. For fire prevention programs to work effectively this commitment is necessary from the chief and the firefighters.

Strategies and Resources

Both Milwaukee and Louisville Fire Departments had effective public education and outreach strategies to face the challenges of providing programs to high-risk groups in urban areas. Other effective strategies were identified from the smoke alarm programs funded by the Centers for Disease Control (CDC) and programs summarized in the literature review of the complete Urban Fire Safety project report.

Leadership

Successful fire safety education and other outreach programs must have a fire chief who supports and values these programs. Both Milwaukee and Louisville have this support.

Both cities also have chiefs who support the smoke alarm installation programs, the public education programs, and the outreach to “high-risk” and “hard-to-reach” populations. Chief Gregory Frederick commented that he has worked his way through the ranks and was involved in the prevention programs. He sees the smoke alarm and public fire and life safety education programs, therefore, as fully a part of a firefighter’s job. Now, as chief, he sees the need to support these programs as an integral part of the firefighter’s job. A multi-pronged approach to fire safety that relies on education, protection, inspection, and emergency response is the standard operating procedure.

Involvement and support from the firefighters union and organizations

The leadership of their individual locals of the International Association of Fire Fighters (IAFF) in both Milwaukee and Louisville strongly support the smoke alarm installation programs. In Louisville, the smoke alarm, home inspection, and fire safety education program is part of the union contract, as is professional development and training for firefighters. The fire department has institutionalized the role of the firefighter in the community outreach programs.

Firefighters who came into the department when outreach programs were part of the job have learned that the role of the firefighter includes outreach. In both departments, the locals of the International Association of Black Professional Firefighters (IABPF) have also supported outreach programs.

Deputy Chief Donald Cummins of the Louisville Fire Department, remarked, “Because of our programs in the neighborhoods, people say that the fire department is great. When the firefighters were negotiating a union contract they got the public’s support because of their relationships in the neighborhoods and because of the service they provide.”

The fire house as a welcoming place for the community

Of all the various factors that contribute to the success of the programs in the cities we reviewed, the one that stands out is that fire service personnel perceive their role as saving lives and that they’ll do that in every possible context. Both cities have made a serious commitment to making the local fire station a welcoming place in the community. The idea is to make the fire department a strong ongoing presence, not just when responding to an emergency. They encourage an “open door” policy, including stations keeping their doors open for community accessibility and presence at community events, especially those aimed at older adults and immigrant groups. The goal is to make firefighters approachable.

Comprehensive smoke alarm installation program

Those at highest risk are most often the residents without smoke alarms. Fire departments providing the service of smoke alarm installations provide a critical means of protection and face-to-face interaction between local firefighters and the people to whose needs they respond. A smoke alarm installation program should provide residents with adequate smoke alarm protection—a smoke alarm in every bedroom, outside each sleeping area, and on every level of the home. Many times, fire departments do not have the resources to install sufficient alarms in each home.

Both Milwaukee and Louisville have implemented smoke alarm programs. Officials used the following principles when conducting the installation programs:

- ◆ Firefighters did not just pass out the alarms, they also installed them.
- ◆ Firefighters provided public fire prevention messages, escape planning information, and hazard identification in their programs.
- ◆ Firefighters from local fire houses reached out to residents in their communities, which resulted in a better understanding of the people and their homes.
- ◆ The programs were year round, allowing people to request an alarm at any time.
- ◆ The firefighters understand the value of the smoke alarm installation programs and do not see them as a threat to their jobs.

Partnerships with schools

Mandating fire safety education as part of the elementary level curriculum has helped firefighters gain access to the schools. Focusing on specific grade levels, as is done in Milwaukee (second and fifth) for visits to the Department's *Survive Alive* house, helps ensure that firefighters reach every child systematically. In addition to fire safety education, the Milwaukee Fire Department incorporates additional health issues, such as anger management for sixth graders, to prevent violence and gang involvement as children enter their teen years.

Older adults

Both fire departments have partnered with older adults organizations to reach the older population through group presentations. They both also found that older adults will be a growing population of need and want to increase their outreach to this group.

Tracking data

In addition to tracking data for the number of smoke alarms installed or fire safety presentations given, tracking the amount of time firefighters spend on prevention, protection, inspection, and education is important. City managers may be tracking the number of fire runs, but the amount of time spent reducing runs is also important.

Outreach to immigrants

Both fire departments had leaders eager to provide fire safety education materials to immigrant groups and to involve them in smoke alarm programs. The departments were involved with local community festivals and ethnic events. In Louisville, residents speak

50 languages, 5 of which are dominant. Fire department interpreters are available for five languages. Knowing the language of the various immigrant populations is not as important, however, as understanding the culture and developing trust with the people.

Community Outreach

Certain, well-tested principles of working with community leaders in geographically targeted areas that lead to success in implementing programs exist. Many of these principles are outlined in the fire departments that have identified and worked with the community leaders in *Reaching High Risk Groups: The Community-Based Fire Safety Program*.^{*} They include 1) Analyzing fire data by census tracts to identify the geographic target areas with the most fires and deaths to determine the main causes; 2) Holding focus groups or individual meetings with people in the community to find community leaders and determine how best to communicate fire safety messages or implement programs; 3) Holding meetings with the leaders of identified community groups; 4) Implementing the program with the cooperation of the community groups; and 5) Evaluating the program by documenting citizen response and analyzing fire data by comparing the number of fires or fire deaths and injuries before and after the programs are implemented.

Recommendations

The following recommendations from the Urban Fire Safety Project team correlate with the challenges and strategies identified with this project. Many ideas used in the recommendations came from the fire department and community leaders from the cities in which we conducted interviews.

In presenting the recommendations, the project team realizes that urban fire departments may not be able to implement all recommendations. And, many urban fire departments are already doing a number of the things we recommend. The project team hopes that departments will choose one or two of the recommendations to put into action.

1. Urban fire chiefs should support public fire and life safety education as an important role for the fire department. Public education and its related programs need to be valued as much as inspections, suppression, and training within the department.
2. Form a fire safety and public education task force in conjunction with the Metro Chiefs. This task force should consist of a diverse group of public educators from the Metro Chiefs member fire departments and would focus on the unique challenges of urban areas and the effective strategies and programs to meet those challenges.
3. Integrate public education and outreach programs into the traditional duties and responsibilities of all members of the department. Include union representation at the highest level of program development, implementation, and evaluation. Work with the IAFF and other fire service groups representing firefighters, such as the IABPFF and the National Association of Hispanic Firefighters, NAHF, to add value to the firefighter's role of focusing on customer service through public education.

4. Open fire houses to the community to meet and greet the neighbors. A presence in the community in a non-threatening role as the public educator will help connect with the community.
5. Smoke alarm installation programs should be a part of the service that urban fire departments provide for their residents. If possible, these programs should be a part of the fire department structure and involve firefighters in the active role of installers. Developing skills and receiving training should be part of the formal firefighter career development.
6. Include fire safety education as part of a child's formal education. The ideal methodology is to use a formal curriculum in the schools taught by classroom teachers. Support from the fire department is important to motivate teachers to include fire safety education as part of their curriculum.
7. Partner with the area agency on aging, community centers, and places of worship to reach older adults. Working with these partners, provide group presentations, home visits through the partner agencies, and smoke alarm installation in the homes of older adults as a part of the overall smoke alarm installation program.
8. Analyze numbers of deaths and residential fires by census tract to identify those areas that should receive special emphasis when delivering fire safety programs. Create a database to answer the questions of who, what, where, when, and how long for public education outreach to help quantify the role of the firefighter in public education outreach activities, as well as inspections and other activities with the mission of preventing fires and saving lives.
9. Every fire department should have a specialist to reach out to the immigrant population. This person must have specific training to allow for immersion in understanding cultural issues. The specialist must be able to reach out to the neighborhoods and become a trusted person.
10. Fire department officials should use proven methods of community outreach to identify the key leaders and organizations that serve the individual targeted communities. Listen to what they have to say regarding effective delivery to their community members. Use this process to reach the diverse populations the fire department serves.
11. Local fire departments and the national fire service should partner both nationally and locally with lending institutions and housing and community organizations to develop strategies to prevent home foreclosures and abandoning of homes.

* C. Rossomando, Rossomando & Associates, *Reaching High Risk Groups: The Community-Based Fire Safety Program*, Washington, D.C., 1996.

Table of Contents

1. Executive Summary	i
2. Table of Contents	ix
3. Introduction and Project History	1
4. Summary of Metro City Fire Problem	5
5. Fire Problem Among High-Risk Populations	7
6. Summary of Characteristics of Metro Cities	11
7. Challenges of Large Urban Areas	13
8. Strategies and Recommendations	21
Appendix	
1. The Metro City Fire Problem	27
2. Characteristics of Urban Areas	37
3. Literature Review	47
4. People Interviewed and Summary of Responses	79
5. Interview Responses by Questions	91
6. Summary of CDC Interviews by City	103

Chapter 1

Introduction and Project History

NFPA Board Goal

The National Fire Protection Association (NFPA) has worked to reach people in low-income communities throughout the United States through the public education programs of the NFPA Center for High-Risk Outreach. Programs have included educational curriculum, programs for older adults and people with disabilities, smoke alarm installation programs, and the Home Security and Fire Safety Task Force on bars on windows. Programs have been implemented for high-risk populations in southern states, communities in rural areas, and First Nations tribes.

NFPA sees a need to reach high-risk populations in urban areas more effectively. Large city fire departments have particular challenges that include conducting fire prevention programs with limited resources; staffing smoke alarm installation programs; and working in high-crime areas where bars on windows may block exits. Also, leveraging relationships with large city-wide institutions serving preschoolers, school-age children, or older adults; reaching multi-cultural communities in their own languages; and getting community members to focus on fire safety when other issues may seem more compelling are all additional challenges.

To facilitate reaching people in high-risk urban communities, the National Fire Protection Association Board of Directors chose the following corporate goal for 2007:

Partner with fire departments from two major cities in North America to identify and define the causes of fire deaths and injuries among high-risk populations and the unique challenges associated with reducing/eliminating those deaths and injuries. Working with leadership within the departments, develop strategies necessary to address the identified challenges.

Work plan

NFPA choose Louisville and Milwaukee as the target cities and contacted Chief Gregory Frederick of Louisville and Chief William Wentlandt of Milwaukee. Both chiefs were eager to participate. (In the middle of the project, the Milwaukee Fire Department appointed a new chief—Chief Doug A. Holton—who also participated in the project.

The NFPA project team and Ernest Grant, member of the Presidential Advisory Committee for the Center for High-Risk Outreach, met with a team of fire service personnel leadership in both departments to explain the project and the work plan. Together they selected the categories of leaders in the fire service and the community to be interviewed by the project manager. Next, NFPA sent out a request for proposal to

potential project managers and divided the workload between a project manager to conduct the interviews and someone to conduct the literature review.

Part of the project consisted of examining challenges in reaching high-risk audiences, surveying existing programs, and identifying what was working and what could be replicated in urban areas with similar populations and challenges. NFPA hoped to reveal “best practices” or “critical success factors” that could be shared, adapted, and used elsewhere.

Certainly, the project was not meant to compare and evaluate the efforts being made by two cities. Rather, the purpose was to gather enough information to identify what is working, what efforts are required to reach special audiences, and what lessons may be shared with other communities.

Literature review and analysis of the fire problem

The literature review includes studies of urban fire departments and high-risk groups, as well as other studies of individual cities. Some of the studies show characteristics of successful outreach to people in urban communities. In many instances, the literature review of national data confirmed what the team was learning from interviews of fire service and community leaders in Milwaukee and Louisville.

NFPA’s Research and Statistical Analysis Division analyzed the urban fire problem and fire risks among high-risk groups and characteristics of urban areas.

Information gathering from fire service and community caregivers

After NFPA formed the partnership with Milwaukee and Louisville, Bob Adams, project manager, interviewed the leadership within the departments and leaders from community organizations, sometimes called community caregivers in this report, to examine challenges and to identify the strategies necessary to address the identified challenges.

Mr. Adams also interviewed project teams from cities completing their first year of a five-year grant to fund smoke alarm installation programs. The Centers for Disease Control (CDC) funded the grants in the cities interviewed, which were Dallas, Texas; Detroit, Michigan; and Bridgeport, Connecticut.

The literature review summarizes a variety of studies on the fire problem in the United States.

The following is a list of the positions and organizations interviewed. See the appendix for a complete list.

Milwaukee Fire Department

Fire Chiefs

Assistant Chief

Public Information Officers

Deputy Chief of Training Academy

Representative - International Association of Fire Fighters Local

Director of Public Education

Director, Survive Alive House

President, International Association of Black Professional Fire Firefighters
Local

Project Manager, Fire 20/20, Cultural Competency Project

Milwaukee organizations

Director, Hillside Community Center

Executive Director, Milwaukee Center for Independence

Program Manager, Repairers of the Breach

Case Worker, United Migrant Opportunity Service, UMOS, Latina Resource Center
(North Side)

Case Worker, United Migrant Opportunity Service, UMOS, Latina Resource Center
(South Side)

Pastor and former Fire Department Chaplain, St. Timothy's Church

Community leader and former firefighter

Louisville Fire Department

Fire Chief

Assistant Fire Chief, Fire Marshal

Public Information Officers

Fire Information Processing Tech

Chief of Investigations

Vice President, Louisville Professional Firefighters Local 345

Louisville organizations

Director of Public Safety and Health, City of Louisville

Vice President, Louisville Professional Firefighters, Local 345

President, Jefferson County Fire Inspectors Association

Representative, Office of Immigration Affairs, Jefferson County

Director, Burn Injury Prevention, state-wide, University of Louisville
Hospital

Coordinator, Office for Disabled Citizens, Metro Office for Aging and
Disabled Citizens

Coordinator, Louisville Office on Aging

After completing the draft report, NFPA presented the results to fire officials and community leaders in Louisville on September 26th and to Milwaukee's new fire chief, public education officer, and head of training on October 5th. NFPA gathered new information from these meetings, as well.

Unique challenges, strategies, and recommendations

Taking all the information from the literature review, the analysis of the fire problem, and the results from the interviews, NFPA identified the unique challenges for fire departments in urban areas and available strategies and resources. NFPA also developed recommendations for fire service leaders conducting prevention programs in urban areas.

Final report

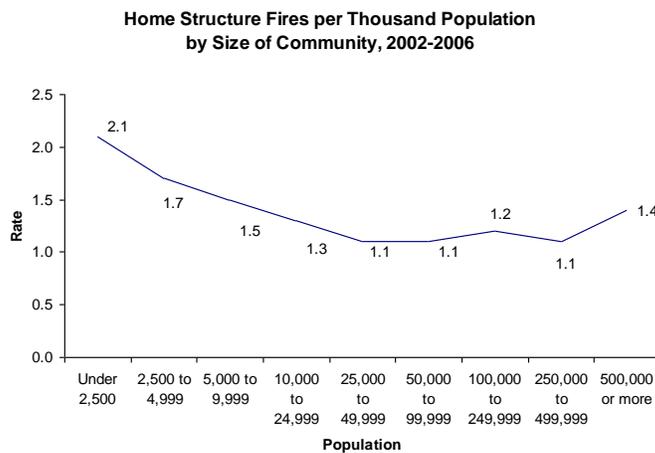
NFPA will present the final report of this 2007 project to its Board of Directors in November and will send it to all the members of the Metro Chiefs.

Chapter 2

Summary of the Metro City Fire Problem

Fire rates

Rural communities have the highest home fire incident rates by far. [1] The largest metro cities have rates that are somewhat higher than the rates for smaller cities but lower than rates for rural communities. Studies of metro city fire rates by census tract have established that many, perhaps most, cities have an “inner city” area in which the fire rates are much higher fire rates than in the rest of the city. The fire rates for these inner cities may be higher than the average rates in rural communities. [2]



Most fire deaths occur in home fires. Fire incident rates relative to population are lower in one- and two-family dwellings than in apartments, while fire death rates relative to population are higher in one- and two-family dwellings. [3]

Metro cities have a lower share of owner-occupied housing units. In 1994, in the United States as a whole, 64 percent of housing units were owner-occupied. Metro cities with populations of 250,000 to 500,000 had a median percentage of 52 percent. Metro cities with populations of 500,000 or more had a median percentage of 48 percent. [4] Some have speculated that renters are less consistent in exhibiting fire-safe behaviors than owners, but (linear regression) statistical studies of factors correlated with fire incident rates have shown a very weak relationship for owner/renter status. [2] Age of building shows an even weaker relationship, while vacancy rates for the community show a somewhat stronger relationship. [3]

Fire causes

The most dramatic difference in fire cause profile between metro cities and other communities is in the absolute and relative importance of the arson—or intentional fire—problem. Larger metro cities have an intentional fire share roughly four times the share for small towns with populations of 2,500 to 4,999. [4]

Home heating fires are not generally a special problem for metro cities but may be a problem in any neighborhood where there is extensive use of space heating, which will typically be for cost reasons. The significance of home heating fires therefore would be worth examining on a city-by-city basis, as part of setting priorities for fire safety programs in that city.

Electrical distribution equipment is the only major cause of fire for which statistical studies have shown a strong correlation with age of the building or system. This suggests that electrical distribution equipment may be worth priority attention in older cities but not so much in metro cities in general.

(For complete analysis see Appendix A, page 27.)

References

1. Special analyses based on the NFPA annual fire experience survey.
2. See, for example, Philip S. Schaenman, John R. Hall, Jr., et al., *Procedures for Improving the Measurement of Local Fire Protection Effectiveness*, Urban Institute and NFPA, 1974, Chapter 4, and other similar studies by Michael Karter.
3. Hall, John R., Jr., *Characteristics of Home Fire Victims*, NFPA Fire Analysis & Research Division, July 2005.
4. Hall, John R., Jr., *Intentional Fires and Arson*, NFPA Fire Analysis & Research Division, forthcoming October 2007.

Chapter 3

The Fire Problem among High-Risk Populations

High-risk groups exist in communities of all sizes. In the Urban Fire Safety Project interviews, fire department leaders were particularly interested in reaching groups at high-risk to fire death. They were also interested in working with immigrant groups who were often described as “hard-to-reach.” Fire death data are available for race and ethnicity, but current systems do not identify immigrants or homeless.

General risk factors

Several general factors make people of all ages at risk to fire. “Poverty (defined as average percentage of the nation’s population in 2000-2002 who were below the poverty line), education (defined as percentage of the population age 12 or older in 2000 and 2002 lacking 12 years of school, smoking (defined as percentage of the population age 12 or older in 2000-2001 who had used cigarettes in the last month),.... are all highly correlated with fire death rates.” [1]

Age

A person’s age can also affect their risk of dying in a fire. Children under age 5 have a fire death risk of 1.5 times the general population. [2] The 1994 Consumer Product Safety Commission’s standard that requires that disposable lighters be manufactured with child-resistant features helped reduce this rate from more than twice the average rate. Children under age 5 still face risk factors due to child fire play with matches and some children being able to outsmart the safety features. When any type of fire occurs, very young children will need assistance to escape.

Older adults represent another at-risk age group. In homes fires during the years 2002 to 2005, people age 65 and older were 2.2 times more likely to die in a fire than the average person, while people 75 and older were 2.7 times at risk and people 85 and older were 3.7 times at risk. [3] Older adults may have physical limitations that further impair escaping a fire. Older adults are also less likely to have had fire safety education growing up. Nor did their children bring fire-safety education materials home to them. They may also be unaware of the need for working smoke alarms. Health conditions that often accompany the aging process can make recovery from fire or smoke exposure more difficult.

People with disabilities

Every year, approximately 230 civilian deaths are related to physical disability. Of these, two thirds are people age 65 and older. [4] Persons with a disability may be at greater risk of dying in a fire because it may be harder for the person to escape. Also, if they are in a fire, they may have a harder time recovering from smoke inhalation and burns. People with disabilities are also much more likely to live in poverty than the general population. Median earnings for people with no disability are \$25,000. The median income for people with a non-severe disability is \$22,000 and \$12,800 for those with a severe disability. [5]

Race

Black individuals face a risk of fire death almost twice, or 1.8 times, that of the general population. The age profile for fire deaths varies by race with children accounting for almost twice the share of black victims than white. [6]

In a study of fire deaths from 1988 to 1992 in metropolitan counties with populations of more than 250,000 people, the authors found that "...areas with a high proportion of African Americans and a low median family income tend to have exceptionally high fire death rates and racial composition appears unrelated to variation in the fire death rate among areas with very high levels of income." [7]

A Centers for Disease Control study on injuries to children by race and ethnicity showed that black children ages 1 to 9 have the highest rates of fire and burn deaths. [8]

Immigrant populations

Fire department leaders saw immigrant populations growing in population and realized that they needed to know how to reach them in the context of their own culture and language. As noted, national fire death data for immigrant groups is unavailable. These groups are often "hard-to-reach," however, and officials need to adapt programs to get the message to them.

A tragic 2007 New York City fire that killed nine children and one woman, all new immigrants from the country of Mali in Western Africa, highlights what can go wrong when people come to the United States with little education and awareness of fire hazards, smoke alarms, and escape planning. One woman in the fire called her husband at

work rather than 9-1-1. The homes smoke alarms had no batteries. And, people tried to put the fire out with pots and pans of water.

Homeless population

Little statistical information regarding fires deaths and injuries among the homeless is available. Nevertheless the homeless population is a significant factor in many large cities. Smaller communities are less likely to have good data on just how large their homeless population is.

Fire safety initiatives are more difficult to pursue for the homeless population. Shelters for the homeless will set a very high priority on adding capacity and they may be less able to provide a fire-safe environment comparable to a typical home. Far worse is the situation of a homeless person in makeshift lodging outside a shelter or any other building designed for lodging.

References

1. Hall, Jr., John R., *U.S. Unintentional Fire Death Rates by State*, NFPA Fire Analysis & Research Division, September 2007
2. Ahrens, Marty, U.S. Fire Deaths by Age, Race and Region.
3. Ahrens, Marty, U.S. Fire Deaths by Age, Race and Region.
4. Hall, John, R., *Existing Data on Who's at Risk in Fires*, Emergency Evacuation of People with Disabilities from Buildings Conference, Rockville, Maryland, October 2004, updated 2006.
5. *More Than 50 Million Americans Report Some Level of Disability*, http://www.census.gov/PressRelease/www/releases/archives/aging_population/006809.html, U.S. Census Bureau, Washington, DC, May 2006.
6. Ahrens, Marty, U.S. Fire Deaths by Age, Race and Region.
7. Hannon, Lance; Shai, Donna, *The Disadvantaged and the Structural Covariates of Fire Death Rates*, *The Social Science Journal* 40, 129-136, 2003.
8. Bernard, Stephanie, Paulozzi, Leonard; Wallace, David; *Fatal Injuries Among Children by Race and Ethnicity –United States, 1999-2002*, Centers for Disease Control and Prevention, May 2002.

Chapter 4

Summary of the Characteristics of Metro Cities

As part of this initiative, we have focused on cities large enough to be eligible for membership in the NFPA/IAFC Metro Chiefs Section, which is limited to fire departments having a minimum staffed strength of 400 fully paid career firefighters, as the Metro membership criteria loosely corresponds to cities having 250,000 or larger populations.” [1]

Among the 64 metro cities of 1994, the 14 with the highest density included 10 of the 23 oldest metro cities, those with a third of their housing units built before 1940 or more than 50 years before the 1990 census from which we took the data. The first step in thinking about metro cities, then, is to think less about the old, tall cities of the northeast and more about the newer metro cities in the rest of the country. The latter are more typical of a metro city. NFPA’s urban fire safety initiative began in Milwaukee and Louisville, one of which has a population of more than 500,000 and one of which has a population less than 500,000. Each has a density reasonably typical for its population group. Both are somewhat older than is typical for metro cities, with more than one-third of their 1990 housing being more than 50 years old.

There are three groups of metro cities. One group, mostly in the northern tier and particularly in the northeast, consists of older cities with small geographic areas that built up because they could not build out, creating a high-density environment favoring apartments, but without a great deal of crowding in the individual housing units. A second group, mostly in the southern tier areas, that have rapidly added people and housing, creating communities that may or may not have high community density but that often have considerable crowding within the housing units. Finally, the largest group of metro cities does not reflect either of these patterns.

For the United States as a whole in 1994, 13 percent of the population fell below the poverty line. For cities with populations of 250,000 to 500,000, the median percentage of population below the poverty line was 17 percent. For cities with populations of 500,000 or more, the median percentage was 19 percent. These percentages are somewhat larger than the national average.

Metro cities do have higher crime rates than the United States as a whole. In 2006, the violent crime rate in metro cities was 88 percent higher than the rate for the entire country, and the property crime rate was 35 percent higher. [2]

Metro city neighborhoods vary considerably in their populations and their experiences, with people, fires, and crimes only rarely spilling from one neighborhood to another.

In 2004, in the United States as a whole, 19 percent of households reported speaking a language other than English at home. For the 25 largest cities combined— a group that

roughly corresponds to cities with populations of 500,000 or more—the percentage was 38, and the median percentage for those cities (using the kind of average less dominated by the largest cities) was 30 percent. [3] In 2004, roughly three out of five, or 61 percent, of people speaking something other than English at home were speaking Spanish or Spanish Creole. Cities with the highest percentages of housing units with more than one person per room were also the cities most affected by immigration, especially immigration from Central and South America.

The second fire service needs assessment conducted by the NFPA and the U.S. Fire Administration in 2005 found that metro cities are more likely to have fire safety and fire prevention programs of all types than are smaller communities. [4]

The percentage of departments protecting communities in which someone conducts fire-code inspections was 100 percent for metro cities (or comparably sized communities) compared to 75 percent for all departments combined.

Fire safety initiatives may depend as much on the resources and capabilities of the school system as on those of the fire department. The resources available to metro city schools do not appear to be significantly less than those available to U.S. schools in general. [5]

(For complete analysis see Appendix B, page 37.)

References

1. Most statistics cited in this chapter are taken from U.S. Census Bureau, *County and City Data Book 1994*.
2. Federal Bureau of Investigation, *Crime in the U.S.*, 2006, accessed online at www.fbi.gov/ucr/cius2006 on October 10, 2007.
3. U.S. Census Bureau, Statistical Abstract of the United States 2007, Tables 52 and 53.
4. U.S. Department of Homeland Security and NFPA, *Four Years Later – A Second Needs Assessment of the U.S. Fire Service*, FA-303, October 2006, Tables 25-26.
5. U.S. Census Bureau, Statistical Abstract of the United States 2007, Tables 229 and 233.

Chapter 5

Challenges of Large Urban Areas

In our interviews, we included questions that probed for the challenges the fire department faced when reaching out to the community, especially among high-risk groups. Representatives of both the Louisville and Milwaukee Fire Departments, as well as representatives of the fire departments and organizations funded by the Centers for Disease Control (CDC) smoke alarm installation grants, discussed many of the same challenges.

Following are some of the challenges raised by interviewees and in the literature review.

Children in their schools

In schools in which fire safety education is not mandated, dealing with the current testing/standards environment is a challenge. The 2002 federal “No Child Left Behind” legislation intended to help students reach proficiency in English language arts, reading, and mathematics has made teachers and school leaders accountable and focused on tests to show they are meeting the goals. The pressure of meeting these goals and the focus on tests in states has made it more difficult to supplement the basic curriculum with fire safety and other injury prevention information.

Teachers are also being asked by other health and safety advocacy organizations to teach health related issues, such as bullying, drug education, and nutrition. Adding fire safety education to an already burdened curriculum is very difficult. Getting programs, such as the Learn Not to Burn® curriculum and the Risk Watch® curriculum, that are largely taught by teachers into schools is more difficult than, say, programs such as the “Survive Alive House” that is used in Milwaukee.

To reach school-age children, the Louisville Fire Department uses a fire safety trailer that simulates a smoke-filled home. Firefighters drive it to schools, as well as malls or other open areas, to teach children how to test alarms, get low and go under smoke, and other fire safety behaviors.

Milwaukee’s school board mandates that every second and fifth grader receive fire safety education. The fire department has a one-level, stationary fire “house” for students to visit. One half of the “house” serves as a classroom, the other is designed to replicate the downstairs of a typical home. Firefighters divide the classes into two groups per session, with one receiving 45 minutes of instruction while the other practices fire escape techniques, such as knowing two ways out, feeling the door, using an escape ladder, and so on. Then the groups switch sides. Each fire station provides staff on a rotating basis. The program’s coordinator schedules each school’s second and fifth grade students’ visits.

Older Adults

The fire service leaders were very aware of the shift from children to older adults in terms of the audience most at risk to fire. They had stories of fire incidents that involved older adults. They were also very aware of the growing number of both the “baby boomers” who will become older adults in the decades ahead, as well as the growing number of people living into their 80s and 90s. The second group is particularly vulnerable to fires, falls, and other injuries.

People interviewed said that older adults are reluctant to express their needs, feeling that signaling for help might be a sign that they can no longer live independently. Also, many elderly don’t want to be a bother to anyone.

Older adults often live alone and may suffer from denial or depression, particularly when they lack social contact. Also, older adults have been taught so much not to open their doors to strangers that sometimes they may not want to open their door to someone who is going to install an alarm or provide information.

In Dallas, one of the CDC-funded cities, leaders find that communicating with older adults requires tact and diplomacy, as well as patience. When putting smoke alarms in the homes of older adults, firefighters find that older adults appreciate a visit and often want to chat, so visits take a little longer with them than with younger residents. Older adults also will respond to hints, suggestions, and observations, but resist being told directly what to do.

As a result of visiting, the fire department personnel can let the local station know if certain homes house someone disabled or elderly, which the “clients” seem to appreciate.

Picking the time to have a group presentation was important. Operating hours for older adults was usually 9:00 a.m. to 1:00 p.m. and planning anything after 2:00 p.m. usually didn’t work.

Leaders found it more of a challenge to reach those who are uninterested or unable to leave their homes to participate in a group presentation. Firefighters have the advantage of having a uniform and usually a fire truck so people know who they are.

Both cities have outreach efforts to older citizens’ groups. One person said that presenting information to older adults is easy but measuring whether or not they understand the information and whether or not they would adopt safer behaviors is difficult.

People with Disabilities

NFPA’s Public Education Division has a Fire Safety for People with Disabilities Task Force that has identified issues related to people with disabilities. They have recommended that local fire departments create coalitions with organizations representing people with disabilities to best determine how to serve this population. They

have also recommended that people with disabilities be involved with all levels of planning for such programs. The common saying in the disability community is “Nothing about us without us”. Egress capability, early warning, and fire sprinkler protection are three of the areas most emphasized.

Providing the best type of smoke alarm for people with disabilities presents a challenge. People who are deaf will need a smoke alarm with a strobe light to wake them. These types of alarms can be 8 to 10 times more expensive than standard alarms, so smoke alarm installation programs have to budget or raise money for them. People who are blind or with mobility disabilities can benefit from the type of smoke alarm that can be tested by a television remote control or a flashlight. Ten-year lithium battery smoke alarms can eliminate changing batteries—an impossible task for some.

The Task Force also expressed the need to have educational materials in alternative formats, such as large print; Braille, CD or audio tape, closed captioned videos or DVDs, and closed captions in foreign languages. When teaching children, having interactive and tactile materials is important. Presentations to adult audiences need to be wheelchair accessible for people and provide for sign-language interpreters.

Most of the local information on challenges for reaching people with disabilities came from the Louisville organizations serving people with disabilities. Leaders pointed out that wheelchair users and other people with mobility disabilities often rely on someone’s help to escape. People with disabilities may be hidden because some people do not want others to know that a person with a disability lives in the home. Some people with wheelchairs want to be sure that their chair gets out if there is a fire.

Another group of people who may have trouble escaping a fire are obese people, while people with temporary disabilities may not even have thought of egress issues.

The hazards of people using oxygen and smoking present another, growing problem.

Immigrants

Although most fire safety statistics do not show immigrants and people who speak languages other than English to be at high-risk to fire, fire departments show a great interest in involving them in their fire safety programs. Fire departments have to ensure that they reach everyone with the fire safety information and their smoke alarm programs. They need to make sure that newcomers understand the fire hazards and technology of their new country. Language and cultural differences between immigrant populations and the fire department and other caregivers present difficulties in communication and in dealing with people. Fire departments, as well as other city agencies, often lack translators and role models for immigrant populations.

One of the leaders we interviewed in Kentucky who works with many immigrant populations pointed out that having someone on the fire department or with any city agency who speaks every language spoken in the city is impossible. She said that cultural

issues were actually more challenging and that they needed someone on staff who knew the process of learning the individual cultures and building trust with the leaders in immigrant communities.

The current debate on immigration has stirred significant fears among immigrants. As a result, they are reluctant to approach the fire department for smoke alarms or other advice, fearful that the fire department will make inquiries as to their legal status. Also, many immigrant populations fear anyone in uniform. In other countries, the fire service, police, and national government are essentially the same so someone's past negative experience is projected onto people in uniform here.

Immigrants often live in crowded conditions. Multiple families live in spaces designed for a single family. Buildings become redesigned to accommodate more people, such as converting attics and basements into living spaces.

Fire 20/20, a Fire Act Grant funded project interviewed community leaders in Milwaukee and two other cities looking to develop recommendations for cultural competency among fire departments. The group identified two emerging groups in Milwaukee: 1) The Hmong population—two years ago a multi-fatality in the occurred to a Hmong family in the center of the city, and 2) the Latino community, which is appreciative of what fire department does and is excited to have more one-on-one contact with the department community liaison who is not a member of the fire service.

While Latinos and Asians are two of the fastest growing immigrant groups in both cities, immigrant communities from Africa, Eastern Europe, and the countries of the former Soviet Union are growing. In Louisville, 80 different languages are spoken in the public schools.

Poverty

Over the past decades, a number of statistical studies have tried to relate variations in fire experience to variations in one or more risk factors. Poverty, education, and race consistently rank high in these studies. In 2006, Milwaukee had the eighth highest ranking of poverty among cities with populations of 250,000. Twenty-six percent of the population lives below the poverty line.

People who are poor may live in homes they own but they cannot maintain and keep safe. Renters may live in properties that landlords do not keep up and that have a number of fire code violations. Renters may also feel that they do not have the clout to influence the landlord and they do not have the money to upgrade the property themselves. Also, they may not be able to afford safety equipment such as adequate numbers of smoke alarms. If they are not able to pay for utilities and central heating, they may rely on space heaters, which cause many more fires than central heating. And they may use candles if they cannot pay their electric bill.

The rate of poverty among the African-American population is greater than the white population. Mostly due to the high rate of poverty, African-Americans nationally have a

fire death rate 1.8 times the population at large. Black infants are at twice the risk of dying from injuries than the rest of the population. Black infants have the highest rates of homicide and unintentional suffocation. For African-American children ages 1 to 9, fires and burns are the leading cause of death from injury.

People with low incomes also have greater risk of suffering other injuries. In Milwaukee, the local International Association of Black Professional Fire Firefighters started a crib give away program because so many families could not afford cribs. Infants were sleeping with their parents in beds and being smothered when a parent would roll over on them. Families of children in poorer communities cannot afford or are unaware of the need for bicycle helmets and other safety gear for children that would help prevent unintentional injuries.

Several years before the CDC-funded smoke alarm program in Dallas, officials conducted a study to define the factors associated with house fires and related injuries by analyzing the data from population-based surveillance. The study showed rates of injuries related to house fires were highest in elderly, minority, and low-income populations and in houses without functioning smoke detectors. Efforts to prevent injuries and deaths from house fires should target these populations.

The chiefs of both Milwaukee and Louisville brought up housing issues and how they could affect fire risk. Chief Doug Holton of Milwaukee said that many people have lost their homes due to the sub-prime lending that has taken place in the past years, which has resulted in people foreclosing on their homes when the interest rates have adjusted up. Rising interest rates may make such a large difference in the monthly mortgage payment that it becomes impossible for the homeowner to afford the mortgage. The October 5th edition of the *Milwaukee Journal Sentinel* reported that 68 percent of the subprime mortgages were lent to African-Americans.

In many cases, people are moving in with relatives, which results in overcrowding and people living in basements or other areas that may not have two ways out or adequate smoke alarms and other safety features. This has even affected some of the firefighters who have had relatives move into their homes.

Both cities have a lot of older housing with older electricity and older furnaces and the home inspections department in one city is already overworked.

In a study of fires by census track in Philadelphia to investigate the possible cause of high levels of residential fire deaths to children younger than 15 years of age from 1989 to 2000 (see page 61 of this report), researchers found that housing was among four significant variables. Philadelphia is one of the oldest cities in the United States and has an aging housing stock. As the original furnaces age, they become less efficient and residents use space heaters to provide heat. Older buildings also have outmoded electrical systems that can contribute to the risk of fire through overloaded outlets, the use of extension cords, and frayed wires within walls.

Large urban centers also attract the homeless because of the services available, support network, and shelters. With a large homeless population, fire departments are not always aware of where the homeless population is living. Abandoned buildings tend to be a place of refuge and present a life safety issue to the fire service.

The homeless may shy away from support from the fire department in fear of being turned in to authorities. One interviewee gave the example of a homeless man who had barricaded himself in one room with no workable window in an abandoned home. He used a Weber grill to cook his meals. The man died in a fire. In another case, a homeless man died in a fire in a tent in which he was living. In Louisville, firefighters have begun treating every abandoned home or building as if it could be occupied by someone.

In Milwaukee a large number of students live in off-campus housing that have code violations.

Crime

Crime and the fear of potential crime keep people indoors, making it difficult to build neighborhoods of trust.

Crime seems low among the first generation of immigrants, but increases with the second generation, e.g., the appearance of gangs among young men. Crime, as well as poverty, creates hopelessness and the crime rate is the highest in poorer neighborhoods. People who are fearful of crime will put bars on windows, use double bolt locks, and use plywood or other make-shift items to block out intruders.

Gang membership is on the rise in urban areas resulting in activities ranging from violence to arson. The fire department needs to know who the gangs are and where they operate so they can be prepared when responding to an emergency.

In cities where EMS is part of the fire department like in Milwaukee, firefighters will be responding to violence related injuries. The Milwaukee Fire Department, a local hospital, and the school system has taken this so seriously that the department is now involved in a pilot program for 6th graders to learn how to manage anger. Off-duty firefighters have volunteered to work with teachers and other caregivers in a program that, if successful, will be required for all 6th grade pupils in the Milwaukee public schools.

The program has come about because Children's Hospital found that children who came from homes with domestic violence were the ones being admitted for injuries inflicted by another child. The program will involve teachers and health professionals, but they also wanted role models who knew how to build relationships and could serve as mentors. Twelve firefighters volunteered and are now going through training. (These are off-duty firefighters who are volunteering their time, so there are no staffing concerns.)

Commitment

Support from city leaders and buy-in from the firefighter union, as well as support from the fire chief, helps institutionalize fire safety education in the community. Firefighters

can be motivated by the environment they work in. Total commitment from rank and file makes for the most successful outreach programs.

The community expects the fire department to respond to a fire or other emergency. They don't necessarily expect the fire department to present education and prevention, and so the community gets lost as a political ally in communicating with city hall. The fire department leadership recognizes the value of education, but often the expectation at the lower and young levels is that the job is the traditional "put the wet stuff on the hot stuff."

Caregivers

Reaching third-party caregivers remains a challenge. Parents can be reached through their school-aged children, but that doesn't help when the children are preschoolers and at a higher risk. Identifying caregivers for older adults and the disabled is also a problem. In particular, firefighters must reach many single parents. Single fathers are often unaware of certain risks, in particular for burn-related injuries. The same is true for another group—boyfriends of single mothers.

Chapter 6

Strategies and Recommendations

This section summarizes effective outreach strategies used by the Milwaukee and Louisville fire departments, strategies from the smoke alarm programs funded by the Centers for Disease Control (CDC), and programs summarized in the literature review. Each topic area also includes a recommendation from the Urban Fire Safety Project team. Many ideas used in the recommendations came from the fire department and community leaders from the cities in which we conducted interviews.

In presenting the recommendations, the project team realizes that urban fire departments may not be able to implement all recommendations. And, many urban fire departments are already doing a number of the things we recommend. The project team hopes that departments will choose an additional one or two of the recommendations to put into action.

Leadership

Successful fire safety education and other outreach programs must have a fire chief who supports and values these programs. Both Milwaukee and Louisville have this support.

Both cities also have chiefs who support the smoke alarm installation programs, the public education programs, and the outreach to “high-risk” and “hard-to-reach” populations. Chief Gregory Frederick commented that he has worked his way through the ranks and was involved in the prevention programs. He sees the smoke alarm and public fire and life safety education programs, therefore, as fully a part of a firefighter’s job. Now, as chief, he sees the need to support these programs as an integral part of the firefighter’s job. A multi-pronged approach to fire safety that relies on education, protection, inspection, and emergency response is the standard operating procedure.

Recommendation: Urban fire chiefs should support public fire and life safety education as an important role for the fire department. Public education and its related programs need to be valued as much as inspections, suppression, and training within the department. Work with the Urban Fire Forum and Metro Chiefs to increase support for fire and life safety education and related programs at the community level.

Form a fire safety and public education task force in conjunction with the Metro Chiefs. This task force should consist of a diverse group of public educators from the Metro Chiefs member fire departments and would focus on the unique challenges of urban areas and the effective strategies and programs to meet those challenges.

Involvement and support from the firefighters union and organizations

The leadership of their individual locals of the International Association of Fire Fighters (IAFF) in both Milwaukee and Louisville strongly support the smoke alarm installation

programs. In Louisville, the smoke alarm, home inspection, and fire safety education program is part of the union contract, as is professional development and training for firefighters. The fire department has institutionalized the role of the firefighter in the community outreach programs.

Firefighters who came into the department when outreach programs were part of the job have learned that the role of the firefighter includes outreach. In both departments, the locals of the International Association of Black Professional Firefighters (IABPF) have also supported outreach programs.

Deputy Chief Donald Cummins of the Louisville Fire Department, remarked, “Because of our programs in the neighborhoods, people say that the fire department is great. When the firefighters were negotiating a union contract they got the public’s support because of their relationships in the neighborhoods and because of the service they provide.”

Recommendation: Integrate public education and outreach programs into the traditional duties and responsibilities of all members of the department. Include union representation at the highest level of program development, implementation, and evaluation.

Ensure that smoke alarm, home survey, and education prevention programs are valued along with the suppression, rescuing residents, and emergency medical services. The first priority should be to deliver the best service to the customers, or residents of the community. Work with the IAFF and other fire service groups representing firefighters, such as the IABPF and the National Association of Hispanic Firefighters, to add value to the firefighter’s role of focusing on customer service through public education.

The fire house as a welcoming place for the community

Of all the various factors that contribute to the success of the programs in the cities we reviewed, the one that stands out is that fire service personnel perceive their role as saving lives and that they’ll do that in every possible context. Both cities have made a serious commitment to making the local fire station a welcoming place in the community. The idea is to make the fire department a strong ongoing presence, not just when responding to an emergency. They encourage an “open door” policy, including stations keeping their doors open for community accessibility and presence at community events, especially those aimed at older adults and immigrant groups. The goal is to make firefighters approachable.

Representatives from both Milwaukee and Louisville commented that educating the public on the expanded role of the firefighters, including services other than suppression and emergency medical services, is important.

Recommendation: Open fire houses to the community to meet and greet the neighbors. A presence in the community in a non-threatening role as the public educator will help connect with the community.

Comprehensive smoke alarm installation program

Those at highest risk are most often the residents without smoke alarms. Fire departments providing the service of smoke alarm installations provide a critical means of protection and face-to-face interaction between local firefighters and the people to whose needs they respond. A smoke alarm installation program should provide residents with adequate smoke alarm protection—a smoke alarm in every bedroom, outside each sleeping area, and on every level of the home. Many times, fire departments do not have the resources to install sufficient alarms in each home.

Both Milwaukee and Louisville have implemented smoke alarm programs. Officials used the following principles when conducting the installation programs:

- ◆ Firefighters did not just pass out the alarms, they also installed them.
- ◆ Firefighters provided public fire prevention messages, escape planning information, and hazard identification in their programs. Firefighters from local fire houses reached out to residents in their communities, which resulted in a better understanding of the people and their homes.
- ◆ The programs were year round, allowing people to request an alarm at any time.
- ◆ The firefighters understand the value of the smoke alarm installation programs and do not see them as a threat to their jobs.

Recommendation: Smoke alarm installation programs should be a part of the service that urban fire departments provide for their residents. If possible, these programs should be a part of the fire department structure and involve firefighters in the active role of installers. Developing skills and receiving training should be part of the formal firefighter career development. Targeting two or three communities every year; going community by community; and reaching those precincts with the most fire deaths, injuries, or fire runs are important components. Install smoke alarms methodically so that everyone gets an adequate number of alarms and no one is left out unless they deny the service. Firefighters should be trained to identify and report code violations and structure problems, particularly when absentee landlords have allowed a property to go without repairs.

Funding to support smoke alarm initiatives should be part of the fire department budget with the department obtaining additional funding from other sources, such as the Department of Homeland Security's Assistance to Firefighters grant program and the Centers for Disease Control and Prevention smoke alarm installation program.

Partnerships with schools

Mandating fire safety education as part of the elementary level curriculum has helped firefighters gain access to the schools. Focusing on specific grade levels, as is done in Milwaukee (second and fifth) for visits to the Department's *Survive Alive* house, helps ensure that firefighters reach every child systematically. In addition to fire safety education, the Milwaukee Fire Department incorporates additional health issues, such as

anger management for sixth graders, to prevent violence and gang involvement as children enter their teen years.

Several national and international polls regarding the most trusted or respected professions have shown that firefighters hold one of the most highly regarded professions. Having an ongoing presence in the schools makes sense. For many children, this interaction provides the missing link in developing self esteem, which is an important element in anger management.

Recommendation: Include fire safety education as part of a child's formal education. The ideal methodology is to use a formal curriculum in the schools taught by classroom teachers. Support from the fire department is important to motivate teachers to include fire safety education as part of their curriculum. Programs that correlate to core subject areas will have the best chance of being used. Research other opportunities, such as after school programs, as well.

Fire departments should use effective programs to reach preschool age children who are at greatest risk. Creative programs that reach parents and other caregivers should be top priority in reaching this age group as they control the home environment—ways out, smoke alarm installation, and storage of matches and lighters.

Older adults

Both fire departments have partnered with older adults organizations to reach the older population through group presentations. They both also found that older adults will be a growing population of need and want to increase their outreach to this group.

Recommendation: Partner with the area agency on aging, community centers, and places of worship to reach older adults. Working with these partners, provide group presentations, home visits through the partner agencies, and smoke alarm installation in the homes of older adults as a part of the overall smoke alarm installation program. Formal programs, such as NFPA's *Remembering When™ Fire and Fall Prevention Program*, provide everything a fire department needs to reach older adults at meetings, as well as those confined to their homes through home visits. Reach out to church groups and community centers with a planned schedule for meeting with residents to build trust and teach important fire safety education messages.

Tracking data

In addition to tracking data for the number of smoke alarms installed or fire safety presentations given, track the amount of time firefighters spend on prevention, protection, inspection, and education. City managers may be tracking the number of fire runs, but the amount of time spent reducing runs is also important.

Recommendation: Analyze numbers of deaths and residential fires by census tract to identify those areas that should receive special emphasis when delivering fire safety

programs. Create a database to answer the questions of who, what, where, when, and how long for public education outreach to help quantify the role of the firefighter in public education outreach activities, as well as inspections and other activities with the mission of preventing fires and saving lives. Having a good sense of what has been done can also be useful when influencing public leaders to obtain more resources for fire departments.

Outreach to immigrants

Both fire departments had leaders eager to provide fire safety education materials to immigrant groups and to involve them in smoke alarm programs. The departments were involved with local community festivals and ethnic events. In Louisville, residents speak 50 languages, 5 of which are dominant. Fire department interpreters are available for people five languages. Knowing the language of the various immigrant populations is not as important, however, as understanding the culture and developing trust with the people. The fire department needs someone who understands how to learn about the culture and develop relationships. Immigrant orientation sessions sponsored by charitable organizations provide an opportunity for the fire service to reach out to the community in a nurturing setting and provide important fire safety information.

Recommendation: Every fire department should have a specialist to reach out to the immigrant population. This person must have specific training to allow for immersion in understanding cultural issues. The specialist must be able to reach out to the neighborhoods and become a trusted person.

Community outreach

There are well-tested principles of working with community leaders in geographically targeted areas that lead to success in implementing programs. Many of these principles are outlined in the fire departments that have identified and worked with the community leaders in *Reaching High Risk Groups: The Community-Based Fire Safety Program*.*

They include the following:

1. Analyze fire data by census tracts to identify the geographic target areas with the most fires and deaths to determine the main causes.
2. Have a market researcher or other qualified individual conduct focus groups among people in the target areas to find community leaders and determine how best to communicate fire safety messages or implement programs.
3. Hold meetings with the leaders of identified community groups.
4. Implement the program with the cooperation of the community groups.
5. Evaluate the program by documenting citizen response and analyzing fire data by comparing the number of fires or fire deaths and injuries before and after the programs are implemented.

Recommendation: Fire department officials should use proven methods of community outreach to identify the key leaders and organizations that serve the individual targeted

communities. Listen to what they have to say regarding effective delivery to their community members. Use this process to reach the diverse populations the fire department serves.

Home Foreclosures and Abandoned Homes.

Fire service personnel are most effective when they are thinking and planning ahead on how emerging issues may affect their ability to care for the fire and life safety of the people in the community they serve. One of the emergency issues concerns the both the results of the subprime lending practices and other housing issues.

When people lose their homes, the resulting factors can affect the fire and life safety of people in urban areas in several ways:

- 1) People move in with other family or friends, which can mean overcrowding and people living and sleeping in parts of the home that are not meant for sleeping rooms, such as basements and attics, that do not have two ways of egress and that are often heated with unsafe appliances.
- 2) Homelessness increases, leading to more people living in unsafe housing conditions.
- 3) More abandoned homes can lead to homeless people living in those homes or children vandalizing or playing in abandoned homes. These structures present additional hazards to firefighters and contribute to the juvenile firesetter problem.
- 4) In colder climates, abandoned homes must be kept heated and therefore invite squatters and drug dealers to use these buildings illegally. When these buildings are involved in fire, the risk of serious injury to fire personnel increases.

In addition to the fire hazards caused by the housing crisis, the loss of homes and other taxable property may affect the tax base that pays for important public services, such as the fire service.

Recommendation: Local fire departments and the national fire service should partner both nationally and locally with lending institutions and housing and community organizations to develop strategies to prevent home foreclosures and abandoning of homes.

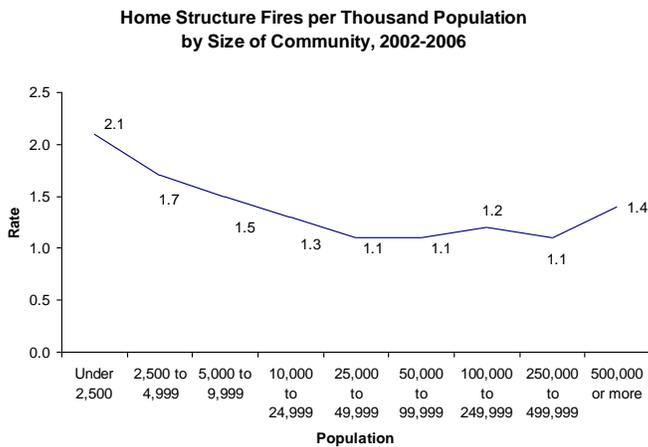
*C. Rossomando, Rossomando & Associates, *Reaching High Risk Groups: The Community-Based Fire Safety Program*, Washington, D.C.,

Appendix A

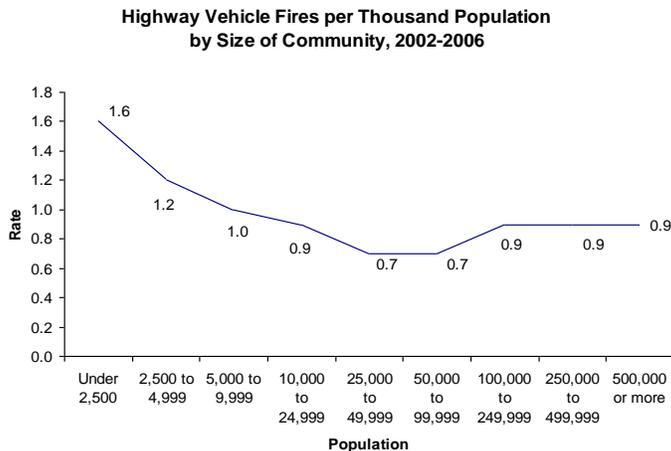
The Metro City Fire Problem

Fire rates—fire incidents

By far, home fire incident rates are highest for rural communities. [1] Rates for the largest metro cities are somewhat higher than rates for smaller cities but lower than rates for rural communities. Studies of metro city fire rates by census tract have established that many, perhaps most, cities have an “inner city” area with much higher fire rates than in the rest of the city. The fire rates for these inner cities may be higher than the average rates in rural communities. [2]



A similar curve applies for highway vehicle fire rates per thousand people. Rates are much higher for rural communities, and rates for metro cities are slightly higher than for smaller cities, but still much less than for rural communities. [1]

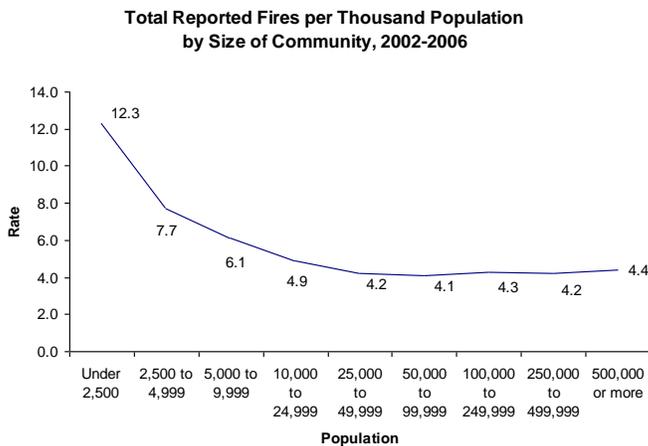


A TriData study of the rural fire problem, conducted for the U.S. Fire Administration using mid-1990s fire statistics, found that the vehicle *share* of fires was somewhat lower in rural communities than in non-rural communities, while the vehicle share of fire deaths was somewhat higher in rural communities. [3]

Most vehicle fires are highway vehicle fires, mostly involving cars or trucks. In 1999 to 2003, post-collision fires accounted for a small share, or 3 percent, of vehicle fires but for more than half, or 58 percent, of vehicle fire deaths. [4]

Metro cities may have a combination of greater traffic congestion and fewer high-speed highways, as compared to rural areas, and this combination may lead to more frequent collisions and ensuing fires but less frequent fatal collisions or ensuing fatal fires.

Total reported fire rates per thousand persons show a pattern very much like the home fire and highway vehicle fire rates. This includes structures other than homes, vehicles other than highway vehicles, and the largest component, which is outdoor trash and brush fires. [1]

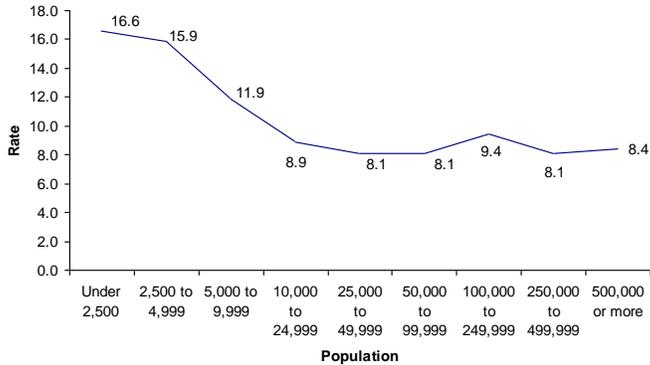


Fire rates—fire deaths

Most fire deaths occur in home fires.

Fire incident rates relative to population are lower in one- and two-family dwellings than in apartments, while fire death rates relative to population are higher in one- and two-family dwellings. [5] As noted in the previous section, metro cities have a somewhat higher share of housing units in apartments than the country as a whole, but metro cities are not so dominated by apartments over dwellings as may be imagined by people who think of older, northern cities as typical of metro cities in general. To the extent that apartments have a somewhat larger share of housing units in metro cities than in smaller communities, however, this difference would be estimated to reduce the fire death rate in metro cities, not increase it.

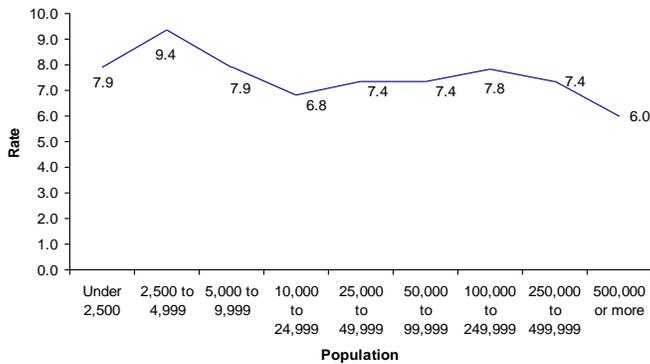
**Home Structure Fire Civilian Deaths per Million Population
by Size of Community, 2002-2006**



Home fire death rates, like total fire death rates, are highest for rural communities. Historically, the lowest rates have been for small cities and large towns. Recently, as the above figure shows, the lower peak for metro cities has been less pronounced and less clear cut. [1]

Metro cities also have a lower share of owner-occupied housing units. In 1994, in the United States as a whole, 64 percent of housing units were owner-occupied. In the same year in metro cities with populations of 250,000 to 500,000, the median percentage was 52 percent. And, in the same year in metro cities with populations of 500,000 or more, the median percentage was 48 percent. [6] Some researchers speculate that renters are less consistent in exhibiting fire-safe behaviors than owners, but (linear regression) statistical studies of factors correlated with fire incident rates show a very weak relationship for owner/renter status. [2] Age of building shows an even weaker relationship, while vacancy rates for the community show a somewhat stronger relationship. [5]

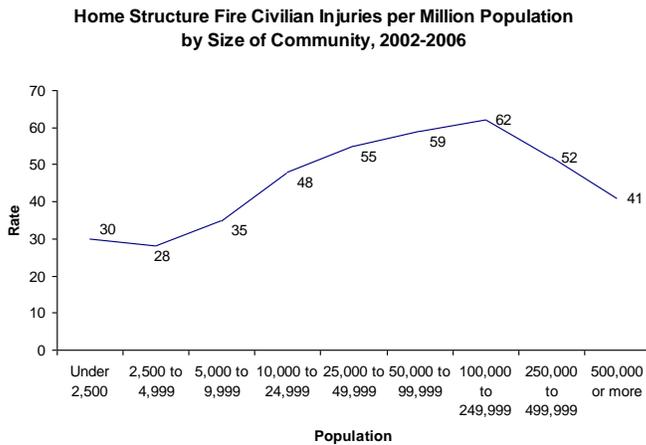
**Civilian Fire Deaths per Thousand Home Structure Fires
by Size of Community, 2002-2006**



The “bathtub curve”—higher at both ends than in the middle—historically applied not only to fire deaths per million population by community size but also to fire deaths per thousand fires. Recently, as the figure above shows, the pattern for fire deaths per thousand fires is almost flat across all community sizes. Where it deviates from a flat line at all, it looks more like an inverted bathtub curve.

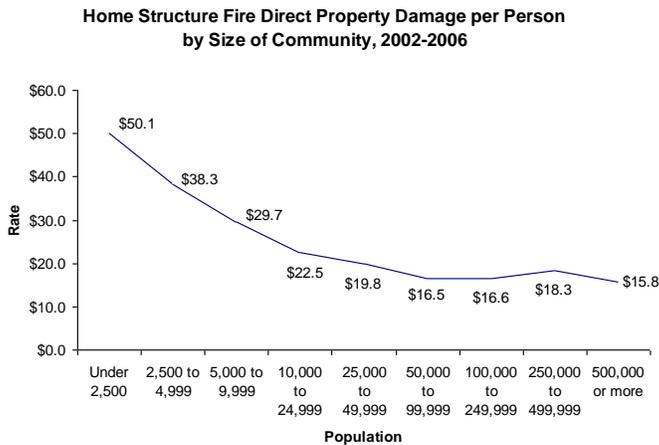
Fire rates—fire injuries

Civilian fire injuries per million population are also represented by an inverted bathtub curve by community size. [1]



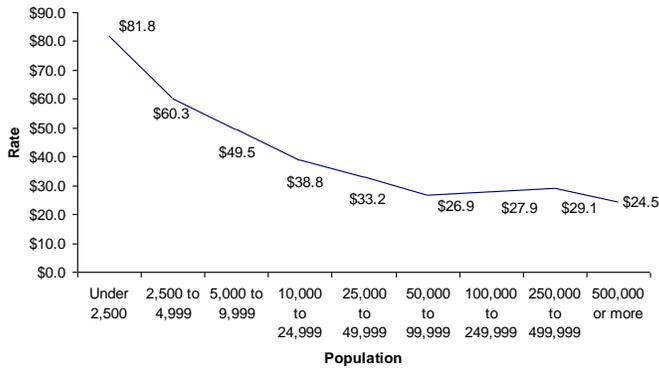
Fire rates—direct property damage

Direct property damage per million population shows a mostly declining curve, with metro cities having some of the lowest rates for communities of any size. This measure is quite sensitive to the effects of individual large-loss incidents. [1]



Shifting to all structure fires does not change the curve much. Rural rates and metro city rates increase by very similar percentages. [1]

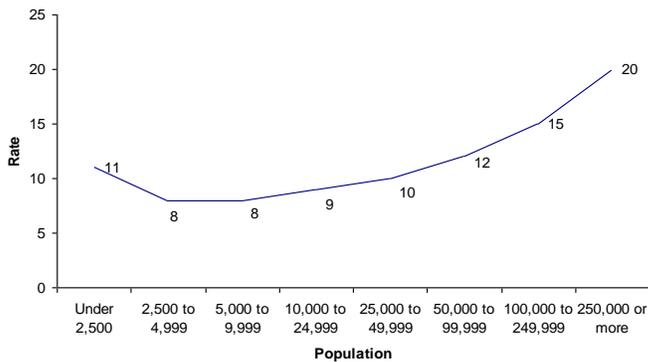
**Total Structure Fire Direct Property Damage per Person
by Size of Community, 2002-2006**



Fire causes—intentional fires and arson

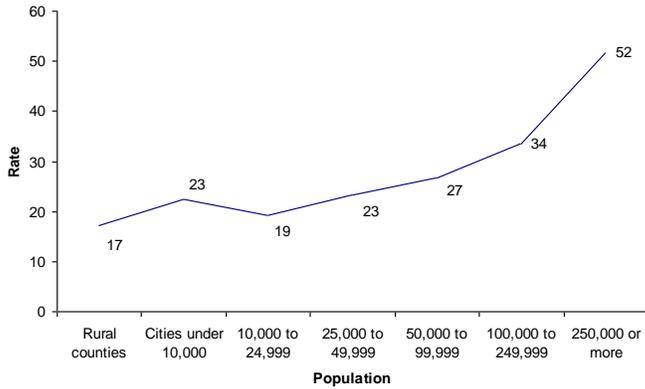
The most dramatic difference in fire cause profile between metro cities and other communities is in the absolute and relative importance of the arson—or intentional fire—problem. The three figures below illustrate how much higher intentional fire rates and arson offense rates are in metro cities, as well as how much higher the intentional fire problem share of the total structure fire problem is in metro cities. [7]

**Intentional Structure Fire Rate per 100,000 Population
Average by Size of Community, 2002-2006**

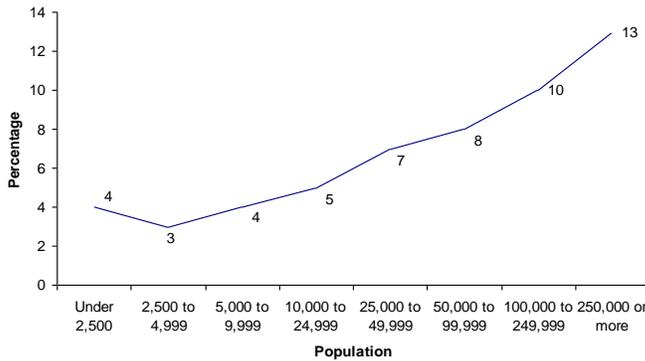


The curve for intentional structure fire rates by community size is almost the reverse of the curves provided for total home structure and total fire rates. The intentional fire share for the larger metro cities is roughly four times the share for small towns with populations of 2,500 to 4,999.

Average Arson Offense Rate, by Community Size, 2002-2005



Intentional Fire Percentage of Structure Fires by Size of Community, 2002-2006



Fire causes—heating equipment fires

Home heating as a percentage of total home structure fires differs greatly between rural communities and non-rural communities, but we found no studies that address the differences regarding home heating between metro cities and all smaller communities.

A 1998 TriData study, conducted for the U.S. Fire Administration, found that differences among cities in heating equipment residential structure fire rates correlated with differences in annual precipitation and percent of housing units that were rental properties. The report also indicates that precipitation appeared to be deriving its statistical significance from the fact that it served to separate the older northern cities from the other cities as a proxy for isolation of older, northern cities. [3] The northern location in turn relates to a higher heating demand per season, and the negative relationship with percent rental property might reflect a tendency for rental properties to have proportionally more central heating and less space heating. Space heating has much higher statistical fire risk than central heating. [8]

Nationally, the number of home heating fires does not show any strong relationship with the number of heating degree-days. [8] Heating equipment fires are much more common in rural communities, particularly in the Southeast. Some have speculated that the combination of milder winters with greater poverty could mean more use of affordable space heating, which, as expected, results in higher heating equipment fire rates overall.

What this suggests is that home heating fires are not generally a special problem for metro cities but may be a problem in any neighborhood where there is extensive use of space heating, which will typically be for cost reasons. The significance of home heating fires therefore would be worth examining on a city-by-city basis, as part of setting priorities for fire safety programs in that city.

Fire causes—electrical distribution equipment fires

The TriData study also showed a correlation between rates of electrical distribution and lighting equipment residential structure fires and annual precipitation rate. [3] Again recognizing that annual precipitation rate is a proxy for older, northern cities, this result is not surprising because electrical distribution equipment is the only major cause of fire for which a strong correlation with age of building (or age of system) has been seen in statistical studies. This suggests that electrical distribution equipment is worth considering for priority attention in older cities but not so much in metro cities in general.

Fire causes—child playing fires

The TriData study found a correlation between rates of child-playing residential structure fires and two variables. One was percent of population under age 5. This correlation is not surprising but also probably not that important, because that percentage does not vary that dramatically across cities. The other variable was percent change in population from 1980 to 1992. [3] Larger increases in population correlated with lower child-playing structure fire rates. This suggests higher rates in older cities, because those are the cities with less recent growth. Older cities have a number of correlated characteristics, as noted, including higher rates of poverty. The TriData study used median income, rather than percentage of population below the poverty line, as a variable. Other studies have found median income to be a weaker predictor of fire rates in general than are variables more tightly focused on the size of the poverty population. Therefore, the TriData findings were possibly proxies for a link between child-playing fire rates in cities and poverty. Note, too, that in cities, poverty is typically correlated with a higher percentage of children living in a household without two parents. This translates into less adult supervisory time in the household and this, on average, even with the best intentions and practices on the part of parents, more opportunities for children to be unsupervised.

Risk of major fire

While rural areas have the highest rates of fires, fire deaths, and property damage due to fire, whether metro cities have a higher risk of having a major fire is a separate question. Reasons exist as to why metro cities might not have a higher risk. Even a small town can

have a nightclub, a factory, or a store with enough occupants to create the potential for a large number of deaths if the wrong kind of fire occurs.

For example, a list of the 12 deadliest U.S. structure fires during the period of 1971 to 2006 would include four nightclubs. Two were in large metro cities with populations of at least 500,000, and two were in small towns with populations of less than 50,000. The latter two drew attendees from neighboring metro cities, but their fire safety was overseen by officials from much smaller communities. [9]

Fire safety behaviors and perceptions

In 1996, NFPA conducted one of a series of national surveys on fire safety behaviors and perceptions. [10] This study, unlike most of the others, provided separate results for people living in cities, suburbs, small towns, or rural areas, respectively:

- ◆ Nearly everyone, regardless of where they lived, felt very confident or somewhat confident about their own personal safety from fire. The percentages were 93 percent overall, 90 percent for cities, 95 percent for suburbs, 94 percent for small towns, and 88 percent for rural areas.
- ◆ When a slightly different question was asked, regarding feelings of fire safety at home, the percentages of very or somewhat confident were 96 percent overall, 94 percent for cities, 96 percent for suburbs, 94 percent for small towns, and 97 percent for rural areas.
- ◆ The survey also asked respondents to rate the fire safety of their “own homes” on a scale from A to F. Overall, 72 percent gave an A or B rating, while 74 percent from the cities, 72 percent from the suburbs, 69 percent from small towns, and 63 percent from rural areas gave such a rating.
- ◆ Putting these three questions together, the perceptions of city residents about their own home fire safety are about the same as the perceptions of everyone else, with the possible exception of rural residents, who sometimes express less confidence.
- ◆ When asked whether the household had smoke detectors on every level of the home, 92 percent of the overall respondents said yes, while 93 percent from cities, 94 percent from suburbs, 85 percent from small towns, and 88 percent from rural areas answered with a yes.
- ◆ When the survey asked whether the household had tested its smoke detectors within the past month, 55 percent overall said yes, while 56 percent from cities, 51 percent from suburbs, 58 percent from small towns, and 52 percent from rural areas said yes.
- ◆ When the survey asked whether the household had ever practiced a home fire escape plan, 36 percent of the overall respondents said yes, while 31 percent from

cities, 40 percent from suburbs, 35 percent from small towns, and 37 percent from rural areas said yes. This is one of the few questions where the gap between the response from cities and everyone else is large enough and negative enough to be worth considering.

- ◆ When the survey asked whether the household had a home escape ladder, 16 percent overall said yes, while 14 percent from cities, 12 percent from suburbs, 17 percent from small towns, and 15 percent from rural areas said yes.

References

1. Special analyses based on the NFPA annual fire experience survey.
2. See, for example, Philip S. Schaenman, John R. Hall, Jr., et al., *Procedures for Improving the Measurement of Local Fire Protection Effectiveness*, Urban Institute and NFPA, 1974, Chapter 4, and other similar studies by Michael Karter.
3. TriData Corporation, *An NFIRS Analysis: Investigating City Characteristics and Residential Fire Rates*, U.S. Fire Administration, April 1998.
4. Ahrens, Marty. *U.S. Vehicle Fire Trends and Patterns*, NFPA Fire Analysis & Research Division, October 2006.
5. Hall, John R., Jr., *Characteristics of Home Fire Victims*, NFPA Fire Analysis & Research Division, July 2005.
6. U.S. Census Bureau, *County and City Data Book 1994*.
7. Hall, John R., Jr., *Intentional Fires and Arson*, NFPA Fire Analysis & Research Division, forthcoming October 2007.
8. Hall, John R., Jr., *Home Fires Involving Heating Equipment*, NFPA Fire Analysis & Research Division, forthcoming October 2007.
9. Special analyses of data from NFPA's Fire Incident Data Organization database.
10. 1996 NFPA National Fire Safety Study, unpublished detailed tables.

Appendix B

Characteristics of Metro Cities

The U.S. Census Bureau defines a city as an incorporated place with a population of at least 25,000. No standardized definitions exist, however, for large versus small cities. The only other standardized distinctions are used in defining metropolitan areas. As part of this initiative, we have focused on cities large enough to be eligible for membership in the NFPA/IAFC Metro Chiefs Section, which is limited to fire departments having a minimum staffed strength of 400 fully paid career firefighters, as the Metro membership criteria loosely corresponds to cities having 250,000 or larger populations.” [1]

Here, we use median statistics for groups of cities, meaning that half the cities have values higher than the statistic and half have values that are lower. The readily available data made using the median easier than using a combined all-city average and the use of medians also avoids dominance by a single very large city, specifically New York City.

Density

The common image of a large U.S. city is of a large population packed close together in a small area, living and working in tall buildings and traveling on clogged streets. The feeling of being closely surrounded by people can be measured in several ways. Some of these measures confirm the conventional image of a metro city, while others do not.

The first measure of density is persons per square mile. The United States as a whole has 7.2 people per square mile. In 1994 (the latest data readily available when this report was drafted), cities with populations of 250,000 to 500,000 had a median density of 3,400 people per square mile, or nearly 500 times the average density for the entire United States. Cities with populations of 500,000 or more had a median density of 6,200 people per square mile. This comparison can be misleading, however, because large parts of the United States are virtually uninhabited.

In the same year, the median density for the smallest places qualifying as cities—those with populations of 25,000 to 30,000—was 2,700 people per square mile, not much less than the median density for cities 10 times as large. Furthermore, in all these population ranges, the range of densities was enormous. For example, cities with populations of 250,000 to 500,000 had rates of people per square mile of 700 to 11,300. And for cities with populations of 500,000 or more, the range was 900 to 23,700. The differences in densities within a population range were far greater than the differences between ranges.

As the ultimate example, New York City—the most densely packed metro city, with 23,700 people per square mile and usually the first city to come to mind when thinking of metro cities—had nearly the same density as Maywood, California. Maywood reaches its

density of 23,200 people per square mile by fitting 27,800 people into just 1.2 square miles.

Among the 64 metro cities of 1994, the 14 cities with the highest density included 10 of the 23 oldest metro cities, those with at least a third of their housing units built before 1940 or more than 50 years before the 1990 census from which the data was taken. These 10 cities are Baltimore, Boston, Buffalo, Chicago, Detroit, New York City, Newark, Philadelphia, and Washington. All but San Francisco are in the northern United States. The other four high-density cities are all southern cities affected by the influx of immigrants from Central and South America—Long Beach (CA), Los Angeles, Miami, and Santa Ana (CA).

Many metro cities have densities comparable to those in the smallest cities. Indianapolis and Phoenix are examples of cities with populations of more than 500,000 with densities associated with much smaller cities.

A few cities, such as Jacksonville, Nashville, and Oklahoma City, gained their large populations by annexing or merging with surrounding counties. Their densities are very low for a city of any size—no more than 1,000 people per square mile.

The first step in thinking about metro cities, then, is to think less about the old, tall cities of the northeast and more about the newer metro cities in the rest of the country. The latter are more typical of a metro city, which is why NFPA started its urban fire safety initiative in Milwaukee and Louisville—one of which has a population of more than 500,000 and one of which has a population of less than 500,000. Each city's density is reasonably typical for its population group. However, both are somewhat older than is typical for metro cities, with more than one-third of their 1990 housing being more than 50 years old.

A second measure of crowdedness is the proportion of apartments to dwellings. Officially, dwellings comprise one household per building, while apartments probably have several. In 1994 in the United States as a whole, 18 percent of housing units were in buildings with five or more housing units. In cities with populations of 250,000 to 500,000, the 1994 median percentage was 15 percent. In cities with populations of 500,000 or more, the 1994 median percentage was 20 percent.

Metro cities do not differ much from the rest of the country in the mix of apartments to dwellings and, again, the variation between cities of comparable size is far greater than the variation between averages for community size groups.

Here again, if the popular image of cities is focused on a short list of older northern tier cities, then the perception of communities dominated by apartments is easier to understand. The percentage of housing units in buildings with five or more units was 68 percent in Buffalo, 62 percent in New York City, 52 percent in Philadelphia, 50 percent in Washington, 43 percent in Boston and in Newark, 41 percent in Baltimore, 40 percent in Chicago, and 36 percent in Detroit. Many of the people living in these older, high-

density metro cities live in buildings they share with others, which is not the case for the other, more numerous metro cities.

A third measure of crowdedness is the number of persons per household. In 1994, the rate for the United States as a whole was 2.63 people per household. The median rate for cities with populations of 250,000 to 500,000 was slightly lower at 2.46. The median rate for cities with populations of 500,000 or more was also slightly lower at 2.56.

A fourth measure of crowdedness is the percentage of housing units with more than one person per room. In 1994, the percentage for the United States as a whole was 6.7 percent. The percentage for cities with populations of 250,000 to 500,000 was somewhat lower at 6.1 percent, while the percentage for cities with populations of 500,000 or more was nearly the same at 6.9 percent.

The idea that cities are crowded with large families or multiple families sharing housing units is clearly not true for metro cities in general. The cities with the highest percentages of housing units with more than one person per room were the cities most affected by immigration, especially immigration from Central and South America, including Santa Ana, California, with 38.1 percent; Miami with 26.9 percent; Los Angeles with 22.3 percent; Long Beach, California, with 16.5 percent; Honolulu with 16.2 percent; Anaheim with 15.8 percent; San Jose with 14.9 percent; and El Paso with 14.0 percent.

Putting these together gives us a picture of three groups of metro cities. One group, mostly in the northern tier and particularly in the northeast, consists of older cities with small geographic areas that built up because they could not build out, creating a high-density environment favoring apartments, but without a great deal of crowding in the individual housing units. A second group, mostly in the southern tier and particularly in the southwest, consists of newer cities with large geographic areas that have rapidly added people and housing, creating communities that may or may not have high community density but that often have considerable crowding within housing units. Finally, we have the majority of metro cities, which do not reflect either of these patterns.

Risk factors

In 1994, in the United States as a whole, 75 percent of people age 25 or older had completed 12 years of school. In cities with populations of 250,000 to 500,000, the median percentage was 76 percent and in cities with populations of 500,000 or more, the median percentage was 72 percent. The cities, then, did not differ significantly from the country as a whole.

In 1994, the unemployment rate for the United States as a whole was 6.7 percent. In the same year, in cities with populations of 250,000 to 500,000, the median unemployment rate was 6.1 percent and in cities with populations of 500,000 or more, the median unemployment rate was 6.9 percent. Again, the statistics for the cities did not differ significantly from the country as a whole.

In 1994, 13 percent of the U.S. population fell below the poverty line. In the same year, in cities with populations of 250,000 to 500,000, the median percentage of people below the poverty line was 17 percent and in cities with populations of 500,000 or more, the median percentage was 19 percent. In this case, the city percentages were somewhat larger than the national average.

Over the past decades, a number of statistical studies (using linear regression methods) have tried to relate variations in fire experience to variations in one or more risk factors, such as the three just listed. Poverty, education, and race consistently rank high in these studies. The predictive power of these risk factors to explain differences in fire experience among cities, however, is much less than the predictive power to explain differences among different parts of the same city, such as different census tracts.

Researchers have noted that the highest fire death rates by community size in the United States occur in rural communities with populations of less than 2,500 and that people are typically not aware of this fact. The role of physical separation and the absence of mass media in creating isolated pockets of experience are assumed to be major factors. A resident of a small town will probably be aware of a fire death in his or her own town and possibly aware of a fire death in neighboring small towns. The combined population of the towns whose fire experience comes to the attention of such a resident, however, is probably far smaller than the minimum population of a metro city.

What has not been noted much but is worth considering is that, in many metro cities, an analogous phenomenon may occur. That is, notwithstanding the much greater exposure provided by mass media, individual metro city residents may shape their perceptions much more around their neighborhoods than around the larger city. And in most cities in which researchers have studied risk factors, much of the city's fire experience and much of the city's high-risk population are in a relatively small number of census tracts.

For example, in their 1974 study, NFPA and the Urban Institute conducted linear regression studies of variations in residential fire rates per 1,000 people by census tract. In Seattle, Washington, for the period studied, the strongest risk factor statistically was the percentage of children under 18 living with both parents. Seattle had nearly 100 census tracts. The average percentage of children under 18 living with both parents was around 80 percent for the city. Twelve census tracts had percentages below 60 percent, and these 12 census tracts included 10 of the 11 with the highest fire rates. Most of the city's census tracts clustered around a fire rate roughly 20 percent lower than the all-city average, because the city average was pulled up by the much higher rates in the dozen highest fire rates census tracts. [2]

Something similar may be true for crime and the fear of crime. Metro cities do have higher crime rates than the United States as a whole. In 2006, the violent crime rate in metro cities was 88 percent higher than the rate for the entire country and the property crime rate was 35 percent higher. [3]

To people living outside America's metro cities, these higher crime rates appear to be characteristic of the cities as a whole. People living in a metro city, however, may come to see that neighborhoods vary considerably in their populations and their experiences, with people, fires, and crimes only rarely spilling from one neighborhood to another. Physical barriers—such as limited access highways, railroad tracks, or rivers—may reinforce boundaries between neighborhoods. Self-selection or discriminatory practices in hiring and in selling homes may reinforce the allocation of distinct populations to different neighborhoods.

This kind of concentration of fire risk, if and when it occurs, makes targeting fire safety program resources easier, because a small part of the city's population and area accounts for a large part of its fire risk and loss. However, this kind of segregation often undercuts the sense of community and shared goals that may be needed if the more affluent parts of the city are to support the allocation of resources to a different, needier part of the city.

Risk factors shared with smaller communities

Some risk factors present a significant or growing challenge to metro cities but not to any greater degree than to smaller communities. Here are examples:

- ◆ Aging population, resulting in more demand for emergency services (e.g., medical aid), for skilled nursing care facilities, and for assisted living facilities.
- ◆ Growing recognition of the special and diverse needs of the disabled population, combined with growth in the size of that population if for no other reason than that so many disabilities become more common with age and the population is aging.

Homelessness

A special problem within the set of high-risk factors is homelessness. Since the mid-1980s, researchers have been estimating the size of the U.S. homeless population. The most widely publicized recent estimates are of about 750,000 homeless people on any given night and 2 to 3.5 million people who experience at least one homeless night in a year. [4] These estimates combine surveys of shelters with surveys of people on the street and, as a result, may be especially likely to miss homeless people in smaller communities. Therefore, we know enough to know that the homeless population is a significant factor in many large cities and to know that officials in smaller communities are less likely to have good data on the size of their homeless populations.

Pursuing fire safety initiatives for the homeless population is difficult. Homeless shelters often set adding capacity as a high priority and they may be less willing to sacrifice more capacity in order to provide a fire-safe environment comparable to a typical home. Even riskier is the situation of a homeless person in makeshift lodging, where heating, cooking, and lighting are often improvised and may involve unsafe use of open fires.

Melting pot?

In 1994, in the United States as a whole, 14 percent of households reported speaking a language other than English at home. (This includes many households that reported they also spoke English well or very well. Language might not be so large a barrier for those households.) Cities with populations of 250,000 to 500,000 had a somewhat lower median percentage of 10 percent, while cities with populations of 500,000 or more had a somewhat higher median percentage of 19 percent.

In 2004, in the United States as a whole, 19 percent of households reported that they spoke a language other than English when at home. For the 25 largest cities combined—a group that roughly corresponds to cities with populations of 500,000 or more—the percentage was 38 percent, while the median percentage for those cities (using the kind of average less dominated by the largest cities) was 30 percent. [5]

Clearly, in the larger metro cities, more people speak something other than English at home as compared to the nation. Furthermore, in recent years, the share of the population speaking something other than English at home has been trending upward, both for the nation as a whole and for the larger metro cities. Whether the metro cities as a whole have proportionally more non-English speakers than the nation as a whole is unclear. Either way, any fire safety initiative must take these people into account.

In 2004, roughly three out of every five people, or 61 percent, speaking something other than English at home were speaking Spanish or Spanish Creole. The first concern in almost every metro city, therefore, should be translating materials into Spanish and making any other adjustments to fit with Spanish-speaking cultures.

In the United States, however, many other languages are common enough to be important in the planning of a typical metro city. In 2004, every one of the 25 largest cities had at least 2,000 residents who spoke an Asian or Pacific Island language at home.[6] The following list represents the languages other than English and Spanish that are spoken at home by at least 300,000 people or nearly one in every thousand nationwide:

- ◆ Chinese (2.3 million)
- ◆ French, Patois, or Cajun (1.3 million, not including 500,000 speaking French Creole)
- ◆ Tagalog, the principal language of the Philippines (1.3 million)
- ◆ German (1.1 million)
- ◆ Vietnamese (1.1 million)
- ◆ Korean (1.0 million)
- ◆ Italian (800,000)
- ◆ Russian (700,000)
- ◆ Arabic (600,000)
- ◆ Polish (600,000)
- ◆ Portuguese or Portuguese Creole (600,000)
- ◆ Indic languages other than Hindi, Urdu, Persian, Gujarathi, and Armenian (500,000)

- ◆ Japanese (500,000)
- ◆ Hindi (400,000)
- ◆ Miscellaneous Indo-European languages (400,000)
- ◆ Greek (400,000)
- ◆ West Germanic languages other than German and Yiddish (300,000)
- ◆ Urdu (300,000)
- ◆ Persian, the language of Iran (300,000)

Whatever the relative accuracy of the term “melting pot” to describe the historical path of U.S. immigrants, a large fraction of the current U.S. population are not comfortable with English and the diversity of languages spoken appears to be greater than ever. For fire safety initiatives, this represents a growing need to translate fire safety programs and materials into multiple languages and multiple alphabets, such as Chinese, Arabic, and Russian. And to be fully successful with a target population, fire safety professionals must often consider multiple cultures for each language.

Whether metro cities as a whole have this problem to a greater degree than the rest of the country is unclear, but the fact that larger metro cities do is clear. Not only do these larger metro cities, those with populations of at least 500,000, have a larger percentage of people who speak something other than English at home, but every percentage point in a larger metro city translates into at least 5,000 people. Therefore, a smaller percentage with yet another language is needed to create a sub-population with distinct needs that is large enough to justify special treatment. That in turn makes the possibility of having many distinct language groups requiring individual attention more likely in a large metro city than in a smaller metro city, let alone a smaller community.

Metro city resources

The second fire service needs assessment conducted by the NFPA and the U.S. Fire Administration in 2005 found that metro cities are more likely than smaller communities to have fire safety and fire prevention programs of all types. [7] In fact, the percentage of fire departments conducting plans review was 93 percent for metro cities (or communities of comparable size, such as urbanized counties) compared to 50 percent for all departments combined. And the percentage of fire departments conducting permit approval was 87 percent for metro cities (or comparable sized communities) compared to 27 percent for all departments combined. Eighty percent of fire departments in metro cities (or comparably sized communities) provided routine testing of active fire protection systems compared to 28 percent for all departments combined, while 86 percent of fire departments in metro cities (or comparably sized communities) provided free smoke alarms to needy populations compared to 43 percent for all departments combined. Furthermore, the percentage of departments conducting juvenile firesetter programs was 90 percent for metro cities (or comparably sized communities) compared to 20 percent for all departments combined. And, 74 percent of fire departments in metro cities (or comparably sized communities) conducted school fire safety education programs compared to 64 percent for all departments combined. The percentage was at least 70 percent for every size of community except the largest cities (those with

populations of at least 1,000,000) and rural communities (those with populations of less than 2,500), where the percentages were 60 percent and 58 percent, respectively. And, finally, the percentage of departments protecting communities in which someone conducts fire-code inspections was 100 percent for metro cities (or comparably sized communities) compared to 75 percent for all departments combined.

Metro cities are much more likely than smaller communities to have a full range of fire prevention and fire safety programs. Variations in funding—both in total and on a per resident basis—will affect the size, coverage, and impact of these programs, but at least having a base to start from is likely. This is an advantage for state or national fire safety groups seeking local partners for expanded programs.

Fire safety initiatives may depend as much on the resources and capabilities of the school system as on those of the fire department. In the 2003 to 2004 school year, the average total public elementary and secondary school enrollment in the United States was 48 million against a total number of classroom teachers that averaged 3 million, for an average ratio of 16 students per teacher. The combined average ratio for the 49 largest public school districts was 17 students per teacher, which did not change if counties without a metro city included were excluded from the calculation. Louisville and Milwaukee both fall squarely in the 16 to 17 student per teacher range. The resources available to metro city schools are not significantly less than those available to U.S. schools generally. [8]

The challenges to those resources, however, may be greater in metro cities. As noted, incoming students in the metro cities may represent more variety in the languages represented. Also, a higher percentage of the populations in metro cities are below the poverty line, and pre-school children below the poverty line score much worse than pre-school children above the poverty line on several measures of readiness for school. The 2005 tests of children aged 3 to 5 not yet in kindergarten, above and below the poverty line, found differences for recognition of all letters (29 vs. 14 percent), counting to 20 or higher (64 vs. 49 percent), reads or pretends to read storybooks (75 vs. 54 percent), writing own name (61 vs. 52 percent), and having at least 3 of the 4 previously listed skills (47 vs. 26 percent). [9]

These higher challenges translate into more time required per student, resulting in a greater strain on teachers despite a roughly equal average classroom size. Any such demand on teacher time will compete with less established demands, such as fire safety education or health education generally.

As with the other urban characteristics, these measures of capability and strain vary considerably from city to city. Not assuming that the problems of the most visible and familiar cities are common among all metro cities is important. In fact, some claim that a number of other strains on schools are more prevalent in metro cities, but no readily available data distinguish problem size in metro cities from problem size elsewhere or problem size in one city versus another. These strains include proportion of students who have disabilities requiring special accommodation, proportion of students presenting

discipline problems serious enough to affect school functioning or time allocations, incidents of carrying weapons, and degree of parental support for student learning.

References

1. Most statistics cited in this chapter are taken from U.S. Census Bureau, *County and City Data Book 1994*.
2. Philip S. Schaenman, John R. Hall, Jr., et al., *Procedures for Improving the Measurement of Local Fire Protection Effectiveness*, Urban Institute and NFPA, 1974, Chapter 4.
3. Federal Bureau of Investigation, *Crime in the U.S.*, 2006, accessed online at www.fbi.gov/ucr/cius2006 on October 10, 2007.
4. Urban Institute, "Millions still face homelessness in a booming economy," 2000, accessed online at www.urban.org, and National Alliance to End Homelessness, "A homelessness fact sheet for high school students," also accessed online on October 11, 2007.
5. U.S. Census Bureau, *Statistical Abstract of the United States 2007*, Tables 52 and 53.
6. U.S. Census Bureau, *Statistical Abstract of the United States 2007*, Table 51.
7. U.S. Department of Homeland Security and NFPA, *Four Years Later – A Second Needs Assessment of the U.S. Fire Service*, FA-303, October 2006, Tables 25-26.
8. U.S. Census Bureau, *Statistical Abstract of the United States 2007*, Tables 229 and 233.
9. U.S. Census Bureau, *Statistical Abstract of the United States 2007*, Table 224.

Appendix 3

Literature Review

1. *Profile of the Urban Fire Problem in the United States*, U.S. Fire Administration, 1999, Publication FA-190/May 1999, (Emmitsburg, MD: U.S. Fire Administration), produced under Contract EMW-95-C-4717, Available on line at www.usfa.fema.gov/downloads/pdf/publications/urban.pdf.

This report uses the 1996 data from the National Fire Incident Reporting System (NFIRS) and the mortality data from the National Center for Health Statistics (1991-1995) to profile the nature of the fire problem in urban areas of the United States. Large populations, and higher densities of people and buildings in urban areas, present a different set of challenges with fire than in rural areas. For example, the rate of structure fires due to incendiary or suspicious origin is a greater problem in communities with populations of 100,000 or more. Heating fires are typically less of a problem in urban areas than rural areas.

This report examines regional differences, regarding climate and building stock, pointing out that fires related to heating are more common in the northern areas of the United States and electrical distribution fires are likely more common in the older homes of the Northeast and South than in the Midwest and West.

This study examined fires occurring in a select group of 18 metropolitan areas chosen based on their large population, geographic location, and NFIRS participation. These metropolitan areas included in the “Urban” Fire Data Set were Atlanta, Boston-Worcester-Lawrence, Chicago-Gary-Kenosha, Cincinnati-Hamilton, Cleveland-Akron, Dallas-Ft. Worth, Denver-Boulder-Greeley, Hartford, Houston-Galveston-Brazoria, Kansas City, Los Angeles-Riverside-Orange County, Miami-Fort Lauderdale, Milwaukee-Racine, Minneapolis-St. Paul, New York-Northern New Jersey-Long Island, San Diego, San Francisco-Oakland-San Jose, and Washington-Baltimore. The “urban” data set consisted of 324,571 fire incidents (38 percent of all fires reported to NFIRS in 1996). To narrow the definition of “urban”, only incidents reported by fire departments in central counties of these metropolitan areas (per the U.S. Department of Agriculture’s Rural-Urban Continuum) were included in the final data set (306,775 fire incidents).

The profile, distribution, and cause of fires in this study showed that:

Outdoor fires were the most common type of urban fire reported in 1996. Forty-two percent of urban fires were classified as outdoor fires, less than one-third were structure and vehicle fires, and two percent of fires occurred in “other” locations.

The leading cause of outdoor fires in urban areas was incendiary or suspicious in origin. One concern is that some juvenile firesetters use outdoor fires as “gateway” fires. They move from setting fires outdoors to setting fires in vehicles or structures, which increases the chances for injuries or fatalities. Vehicle arson has a negative impact on neighborhoods, often these vehicles are abandoned in low income areas, diminishing the quality of living in the areas.

Outdoor fires were most common, however structure fires accounted for the majority of fire deaths, fire injuries and property loss resulting from urban fires.

Non-residential Structures: Fires of incendiary or suspicious origin predominated among non-residential structure fires, representing 30 percent of fires.

Residential Structures: Cooking fires accounted for more than one-quarter of all home fires, while incendiary and suspicious origin ranked second, followed by heating and electrical distribution.

The leading causes of residential fires were relatively consistent throughout the four major regions of the country. The leading cause of fire in every region (Northeast, Midwest, South, and West) was cooking fires, significantly higher in apartments at 39 percent than in one- and two family homes at 21 percent. Incendiary or suspicious origin was the second leading cause in every region except the Northeast where heating fires were second.

The leading causes of fatal residential fires were also relatively consistent across the country. Smoking was the leading cause of fatal home fires in every region except the West, where fires of incendiary or suspicious origin ranked first.

A higher proportion, or 35 percent, of residential structure fires occurred in apartments in urban areas as compared to the 20 percent in the United States as a whole. More multi-family housing is found in urban areas. Heating fires were more than two and a half times more likely to occur in one- and two family homes at 13 percent than in apartments at 5 percent. While heating fires in rural areas are often associated with chimneys and woodstoves, or other alternate heating devices, most apartments have central heating only, reducing the risk of fires associated with alternate heating.

Electrical distribution fires occurred two times more often in one- and two family homes at 12 percent, than in apartments at 6percent.

A majority, or 54 percent, of urban home fires occurred where no working smoke alarms were present. Similarly, 69 percent of fires with one or more fatalities occurred in homes not protected by operating alarms. These rates are similar to, though slightly lower than, rates for the United States as a whole.

Fire Death Rates: For the period 1991 to 1995, the Midwest had the highest urban fire death rate at 16.5 deaths per million population. The Northeast was second with 14.3, and the South had 13.8. In the West there were 10.0 fire deaths per million population. The overall fire death rate for this urban study falls to 13.8 per million population. To put this into perspective, the fire death rate for the United States as a whole was 18.9 per million population. This provides indirect confirmation of the finding of a 1997 U.S. Fire Administration study that fire death rates were significantly higher in rural areas than in non-rural areas (U.S. Fire Administration, 1998, *The Rural Fire Problem in the United States*, Publication A-180/August 1998, - Emmitsburg, MD, p 38).

The final section of the report profiles nine different metropolitan areas: Atlanta, Boston-Worcester-Lawrence, Chicago-Gary-Kenosha, Cleveland-Akron, Dallas-Ft. Worth, Hartford, Houston-Galveston-Brazoria, San Francisco-Oakland-San Jose, and Washington-Baltimore. Each profile includes counties in their urban area, data reported to NFIRS for 1996, type of fires, causes of structure fires, and causes of residential fatal fires and fires with injuries.

2. **U.S. Census Bureau** – <http://ask.census.gov/cgi-bin/askcensus.cfg> Website provides definitions of “urban” and rural that is widely used. An urbanized area has a nucleus (may or may not be a unique city) with at least 50,000 residents. Such an area also has a core of at least one contiguous block group of less than 2 square miles with 1,000 people per square mile. Urban clusters have similar cores, but they have populations of 2,500-49,999.

Metropolitan statistical areas (MSA), as defined by the Office of Management and Budget, include “central or core counties with one or more urbanized area, and outlying counties that are economically tied to the core counties as measured by work community”. Micropolitan statistical areas include a) non-metropolitan counties with at least one urban cluster of 10,000 or more residents, and b) non-core counties that lack these urban clusters. Both types of non-metropolitan counties are often included in studies of rural conditions.

Several classifications have been devised by the Economic Research Service (USDA). Census tract classifications combined with Census definitions of urbanized area and place and commuting information are used to define Rural-Urban Commuting Areas (RUCAs).

3. ***FIRE LOSS IN THE UNITED STATES DURING 2006***, Michael J. Karter, Jr., Fire Analysis and Research Division, National Fire Protection Association, September 2007, National Fire Protection Association, 1 Batterymarch Park, Quincy, MA
02169-7471, www.nfpa.org
This report identifies the most recent data as obtained through the National Fire Experience Survey 2006.



Fires in the United States During 2006



1,642,500 fires were reported in the United States during 2006

- up **3 percent** from 2005
- **3,245** civilian fire deaths
- One civilian death occurred every 2 hours and 42 minutes
- **16,400** civilian fire injuries
- One civilian injury occurred every 32 minutes
- **\$11.3 billion** in property damage
- A fire department responded to a fire every 19 seconds

524,000 structure fires occurred in the United States during 2006

- up **3 percent** from 2005
- **2,705** civilian fire deaths
- **14,350** civilian fire injuries
- **\$9.6 billion** in property damage
- One structure fire was reported every 60 seconds

278,000 vehicle fires occurred in the United States during 2006.

- down **4 percent** from 2005
- **490** civilian fire deaths
- **1,200** civilian fire injuries
- **\$1.3 billion** in property damage
- One vehicle fire was reported every 113 seconds

840,500 outside and other fires occurred in the United States during 2006.

- up **5 percent** from 2005
- **50** civilian fire deaths
- **850** civilian fire injuries
- **\$0.4 billion** in property damage
- One outside fire was reported every 38 seconds

2006 Fires per Thousand Population

Population of Community	All Regions	Northeast	Northcentral	South	West
500,000 or more	4.2	*	*	4.3	3.0
250,000 to 499,999	4.4	*	6.2	4.1	3.5
100,000 to 249,999	4.1	5.4	3.8	5.6	2.7
50,000 to 99,999	3.8	4.5	3.0	5.0	3.0
25,000 to 49,999	4.2	4.3	3.2	5.3	4.9
10,000 to 24,999	4.9	4.2	4.1	6.4	5.2
5,000 to 9,999	5.9	4.5	4.8	8.5	7.8
2,500 to 4,999	7.7	6.2	6.9	10.0	9.3
under 2,500	12.9	10.3	11.7	17.6	14.2

Source: NFPA's Survey of Fire Departments for 2006 U.S. Fire Experience.

*Insufficient data

2006 Civilian Fire Deaths per Million Population by Region and Size of Community

Population of Community	All Regions	Northeast	Northcentral	South	West
500,000 or more	10.7	13.4	28.5	10.7	6.8
250,000 to 499,999	8.4	*	12.0	5.8	6.8
100,000 to 249,999	10.8	14.6	11.9	14.4	5.8
50,000 to 99,999	8.9	9.2	8.6	12.2	5.1
25,000 to 49,999	8.6	5.0	8.9	8.5	11.7
10,000 to 24,999	9.1	6.1	8.3	13.3	5.5
5,000 to 9,999	11.7	6.6	9.4	17.5	17.4
2,500 to 4,999	12.4	7.2	12.6	18.7	9.7
under 2,500	17.6	9.8	9.2	56.6	*

Source: NFPA's Survey of Fire Departments for 2006 U.S. Fire Experience

*Insufficient data

**2006 Civilian Fire Injuries per Million Population
by Region and Size of Community**

Population of Community	All Regions	Northeast	Northcentral	South	West
500,000 or more	49.0	*	99.9	49.5	56.2
250,000 to 499,999	62.9	*	96.2	77.4	40.9
100,000 to 249,999	69.4	108.7	99.2	81.2	33.0
50,000 to 99,999	74.2	107.9	76.2	77.7	49.5
25,000 to 49,999	74.2	97.5	80.5	58.9	67.1
10,000 to 24,999	62.6	94.6	61.5	52.8	39.9
5,000 to 9,999	43.2	53.1	33.8	43.1	54.7
2,500 to 4,999	34.0	57.7	33.5	16.4	24.7
under 2,500	56.7	58.9	49.7	74.1	56.2

Source: NFPA's Survey of Fire Departments for 2006 U.S. Fire Experience.

*Insufficient data

Average 2006 Residential Fire Experience by Size of Community

Population of Community	Number of Fires	Civilian Deaths	Civilian Injuries	Property Loss
1,000,000 or more	1,578	14.71	89.00	\$31,336,300
500,000 to 999,999	851	6.20	31.18	13,807,300
250,000 to 499,999	435	2.52	17.54	6,368,800
100,000 to 249,999	174	1.34	9.00	3,040,000
50,000 to 99,999	76	0.50	4.13	1,428,200
25,000 to 49,999	43	0.26	2.01	711,800
10,000 to 24,999	20	0.12	0.71	403,900
5,000 to 9,999	11	0.06	0.20	207,300
2,500 to 4,999	5	0.04	0.07	140,200
under 2,500	3	0.02	0.03	61,800

Source: NFPA's Survey of Fire Departments for 2006 U.S. Fire Experience

The report discusses additional issues, such as false alarms by region and population. Fires accounted for seven percent of the 24,470,000 total calls. Nine percent of the calls were false alarms; 62 percent of the calls were for aid such as EMS.

The report concluded with a description of the survey methodology used in gathering this data, explained in detail, with a breakdown of fire department respondents and non-respondents to the survey.

Additional references were cited that may be of value to further examining the issues in this report:

John R. Hall, Jr., *Characteristics of Home Fire Victims Including Age and Sex*, July 2005, Quincy: National Fire Protection Association, Fire Analysis and Research Division.

Rita F. Fahy and Alison L. Miller, "How Being Poor Affects Fire Risk", *Fire Journal*, Vol. 83, No. 1 (January 1989), p. 28

4. ***Socioeconomic Factors and the Incidence of Fire***, Federal Emergency Management Agency, United States Fire Administration, National Fire Data Center, FA 170/June, 1997, produced under Contract EMW-95-C-4717, (Emmitsburg, MD: U.S. Fire Administration), available on line at www.usfa.fema.gov/downloads/pdf/publications/ .

This report examines the socioeconomic indicators of increased fire rates by looking at the complex and varied relationship among buildings, humans, and residential fires. Socioeconomic factors have been found to be the best known predictors of fire rates at the neighborhood level. It stresses that together with the structural factors of buildings, how humans use and maintain buildings have an equal or greater importance on the incidence of fire. Human activities, such as cooking, heating, incendiary or suspicious causes, and smoking are directly cited as the primary causes of residential structure fires. In 1994, all of these causes accounted for more than 66 percent of all residential fires.

The report reviews existing literature primarily dating back to the late 1970s and identifies that since then the limited research conducted is available mostly in unpublished doctoral dissertations and master's theses restricting their availability to other researchers. The conclusion is that the existing literature should be considered in the design of future research as it relates to socioeconomic characteristics linked to higher fire rates.

Data for four cities (Charlotte, NC, St. Petersburg, FL., San Diego, CA, and Seattle, WA), and one county (Fairfax County, VA) were collected, identify three variables most effective in discussing variations in the fire rate: ***parental presence*** (percentage of children under age 18 living with both parents); ***poverty*** (percentage of persons whose incomes fell below the poverty line); and ***under- education*** (percentage of persons older than 25 with fewer than eight years of schooling). Other variables that accounted for at least 20 percent of the variation in fire rates between census tracts in each of the six data sets were: ***good education*** (persons older than 25 with at least a high school education); ***race*** (percentage African American); ***home ownership*** (year round housing units, owner-occupied); ***adequate income*** (families with annual incomes of more than \$15,000.); and ***housing crowdedness*** (percentage of year round housing units with more than one person per room). ***Housing vacancy*** and the ***age of***

housing structures (percentage of housing units constructed before 1940) were also taken into consideration in looking at the fire rate variation between cities in the data set.

The author found that other variables **did not** appear to affect variations in fire rates, including: *housing in one-unit structures*; *unemployment* (unemployed males older than 16 in labor force who were unemployed); *older adults* (population older than 65); and *long-time residency* (percentage of persons older than age 5 living in the same housing unit since 1965).

Other studies done by Karter in 1978 used relevant socioeconomic and building characteristics data from five cities (Syracuse, NY, Newark, N.J., Phoenix, AZ, Toledo, OH, and Kansas City, MO) to divide the census tracts into “*low fire risk*” and “*high fire risk*” categories. (Michael Karter, Jr. and Allan Donner. “The Effect of Demographics on Fire Rates.” *Fire Journal*. Vol. 72, no.1 - Jan., 1978 pg. 53)

Gunther (1981) studied fire-cause patterns in Toledo, Ohio, neighborhoods to learn more about higher fire rates in low income areas of large cities. For each of the causes examined (smoking, cooking, children playing, and incendiary/suspicious fires), the census tract groups with lower incomes had markedly higher fire rates. Human actions, not mechanical malfunction, were generally tied to these causes, suggesting that public education is the most available tool to help reduce these types of fires. (Paul Gunther. 1981. “Fire-Cause Patterns for Different Socioeconomic Neighborhoods in Toledo, OH.” *Fire Journal*, Vol.75, no.3, May, pp.54-58.)

More recent work by Jennings (1996) focuses on the interrelationships between environmental, structural, and human factors as they relate to fire. These have been shown to be powerful predictors of fire incidence in different neighborhoods, and that these factors outweigh fire suppression factors (fire department resources) in determining losses from fires. Jennings’ conceptual model of fire initiation and fire loss is an important step in developing and testing a theory of fire ignition and losses. His work extended the current research beyond identifying variables in predicting fire rates for different communities or different households. As Schaenman et al (1977) points out, identifying predictor variables is not the same as identifying causes of higher fire rates. The example given is that while the incidence of poverty has been shown to be associated with increased fire risk, poverty in and of itself does not cause fires.

Part II of this report deals with how income level affects fire risk in urban areas (pp.10-24). The focus of this discussion is consistent with the literature, emphasizing the ways that lower income residents of urban areas are exposed to greater fire risk than people with higher incomes. Also how the same factors that increase risk for fire, also increase risk for fire related injuries and deaths. Three different levels explore the socioeconomic factors: the level of the neighborhood, the level of the household (including housing unit characteristics and characteristics of the household members), and the level of the individual.

Level of the neighborhood points out that the quality of the neighborhood, tied to the quality of its housing stock, is directly related to fire rates. Vacant and abandoned buildings, common in the poorest neighborhoods, are an extreme risk for severe fires as a result of arson. Homeless persons seeking shelter and lighting fires in the winter months to keep warm inside these buildings, and those under the influence of drugs or alcohol, with the added risk of careless use of smoking materials, seek refuge in these vacant buildings are common causes of serious fires in these neighborhoods leading to neighborhood decline. This may lead to poor, if any, investment by apartment building owners (not living there) in maintaining heating and electrical systems that may cause fires furthering neighborhood decline.

Arson is a significant cause of fires and fire casualties in metropolitan areas, accounting for over one fourth of all residential fire deaths in 1994 (data from the National Fire Incident Reporting System). Gunther (1981), in his work with Toledo, Ohio, identified that the census tract with the lowest median income experienced about 100 to 120 incendiary or suspicious fires per 100,000 population, while the census tracts with a slightly higher median income had about 55 to 70 incendiary or suspicious fires per 100,000 population—a dramatically lower rate.

Because of the higher crime rate in lower income neighborhoods, residents may block exits with furniture, or install iron bars on windows and doors that would interfere or prohibit their safe escape in the event of a fire, leading to higher fire-related injuries and deaths in these neighborhoods.

The discussion of level of the household focuses on the quality of the individual housing units. In many urban areas, households with low incomes may live in the oldest and most run-down housing. Heating, electrical wiring, and plumbing are poorly maintained and may have well passed their useful lives for safe operation, increasing the risk of malfunction and possible fire. Overloaded electrical sockets, circuits, and running extension cords to compensate for inadequate electrical systems may ignite an electrical fire.

Older space heaters, not adequately maintained, used incorrectly, not well ventilated, or too close to combustibles are all responsible for increasing the risk for fire in low income housing areas. The quality of home furnishings may add to the fire risk in lower income households that are more likely to have older furnishings with ignite more readily than furnishings manufactured to be more resistant to ignition under more recent consumer product improvements.

Smoke alarms have contributed significantly to reducing fire deaths (25 percent between 1980 and 1990, according to the CPSC) and injuries since 1980. The 1994 NFIRS data show that only 19.2 percent of fire deaths occurred in homes known to have operational

smoke alarms (Smith, Charles L. 1994. *Smoke Detector Operability Survey Report on Findings* – revised. Released by the Consumer Product Safety Commission, October 1994, p.1). Lower income households are less likely to have working smoke alarms because of living in substandard units not maintained to building codes, or do not purchase or maintain smoke alarms. Ninety-two percent of the units constructed between 1980 and 1992 are estimated to have operational smoke alarms, while the same is true for only 82 percent of household units built during the 1970s and 74 percent of those built before 1970 (Smith, Charles L., 1990 census data on number of households, 1994, pp16-17).

Housing affordability also affects fire risk, as these are households described as “shelter poor” if they are able to make their rent payments, but have no other income to cover basic needs as food, clothing, utility bills, and so on. If utilities are shut off, people are more inclined to compensate in less fire safe devices like candles for lighting and electric space heaters or other means to keep warm.

Other household related factors that may affect fire risk are social factors, such as single parent households with young children, the presence of elderly persons and household crowding. Various scenarios of leaving young children unsupervised are discussed. Gunther (1981) found that Toledo’s poorest group of neighborhoods had a rate of children playing fires that was 14.2 times as high as the wealthiest group of neighborhoods. This supports the National Fire Protection Association’s finding that among black children, who are disproportionately represented in low-income households, “home fires are the leading cause of injury-related deaths for children between ages 1 and 9 (NFPA 1996). Each year a disproportionately high number of older adults die in residential fires (people age 70 to 74 have a 50 percent greater chance of dying in a fire than the population at large, by age 85, the risk is more than 250 percent higher than the overall population). Older adults are exposed to greater risks and may be less able to escape a fire due to physical or mental limitations. This risk increases in elderly persons on medication that affect alertness or those that smoke and drink alcohol while alone. Finally, “overcrowding” is more of a problem in lower income households and is identified with a greater risk for fire mainly due to the excessive wear and tear on the unit’s mechanical systems. The increased number of people also increases the number of deaths and injuries in case of a fire, and may complicate escape or rescue during a fire.

The section of factors at the individual level primarily discusses the role of careless smoking behaviors as it relates to fires, fire deaths, and injuries. In 1990, the United

States Fire Administration identified careless smoking as being responsible for 7 percent of all residential fires in that year, but 26 percent of all fire deaths and 15 percent of all fire injuries. In Gunther's 1982 study of neighborhoods in Toledo, Ohio, careless smoking fires for the group with the lowest median income was 8.5 times as high as that for the group with the highest median income. Alcohol and drug abuse while smoking may lead to falling asleep, or improperly discarding cigarettes causing fire, and oftentimes fire deaths or injuries because the victim is too close to the source of ignition and too impaired to recognize the danger.

Other contributing characteristics of high risk for fire in urban areas at an individual level that are discussed in this report, and in need of further study, include low levels of education and literacy, housing tenure (home owners vs. renters), and social pathology as it relates to the increase in the rate of residential arsons, child playing incidents and fires set by juveniles.

The remainder of the report discusses how poverty affects fire risk in rural areas, especially in the rural South as it relates to heaters, fireplaces, portable heaters, and wood stoves. Additional factors may include the remote locations that people live in as it relates to the response time of the fire department, less strict adherence to building codes and greater use of low cost building materials.

The report ends asking some very critical questions that need further discussion and updated research involving socioeconomic factors to see how they impact the fire problem in both urban and rural communities. In identifying 1994 data, cooking, incendiary or suspicious causes, careless smoking, and children playing account for almost half of all fires in residential structures. In adding heating causes, this proportion rises to two-thirds of all fires. Since fires resulting from human activities account for a high proportion of these fires, public education represents one of the most important avenues for reducing the incidence and severity of home fires.

5. ***U.S. Fire Administration/National Fire Data Center, Fire in the United States 1995-2004***, Fourteenth Edition, August 2007, FA-311/August 2007, Department of Homeland Security, Federal Emergency Management Agency, produced by TriData Corporation, Arlington, VA, under Order Number HSFEEM-06-J-0001. Available for download at: <http://www.usfa.dhs.gov/downloads/pdf//publications/fa-311.pdf> (PDF, 4.1 Mb) (65 pg. document)

This fourteenth edition of *Fire in the United States* covers the 10-year period from 1995 to 2004 and focuses on the national fire problem, as well as an overview of the fire problem in structures, vehicles and other mobile properties, and outside and other properties. The purpose of the report is to aid the fire service, media, and general public with fire loss information that can be used to set priorities, establish and evaluate specific fire programs, and serve as a guide for fire data analyses at the state and local levels.

This edition of *Fire in the United States* is organized differently from previous editions. The report presents a summary of the national fire problem in terms of losses for structures, vehicle and other mobile properties, and outside and other properties. Detailed analyses of the residential and non-residential structure fire problems will be published as stand-alone reports and data on firefighter casualties are now published in two separate documents: the annual *Firefighter Fatalities in the United States* report and a new report, *Fire-Related Firefighter Injuries in 2004*, to be released at a later date. (Fire Engineering E-Newsletter 9/6/07)

“...in 2002, civilian deaths were at their lowest level (3,380). While fire deaths still are trending downward, in 2004 fire deaths were 15-18 percent higher—3,900 to 3,993 deaths, depending on the data source (NFPA 3,900 in 2004, NCHS mortality data were 3,993). ...Fires and fire injuries per million population reached 10-year lows. Property loss, when adjusted for inflation, continues to trend downward. The death rate of 13.6 per million population is half what it was in the late 1970s. Nevertheless, the United States has a fire death rate two to two and a half times that of several European nations and at least 20 percent higher than many. Of the 25 industrial nations examined by the World Fire Statistics Centre, the United States ranked as having the fourth highest fire death rate. This general status has been unchanged for the past 25 years.

Fire and Fire Loss Rates

Loss Measure (percent)	2004	10-Year Trend
Fires/Million Population	5,280	-27.7
Deaths/Million Population	13.3	-28.9
Injuries/Million Population	60.9	-39.6
Dollar Loss/Capita*	\$33.4	-6.2

*Adjusted to 2004 dollars

Sources: NFPA, Consumer Price Index, and U.S. Census Bureau

Regional and State Profiles - The fire problem varies from region to region and state to state because of variations in climate, socioeconomic status, education, demographics, and other factors. Six states (Alabama, Arkansas, Mississippi, Oklahoma, Tennessee, and West Virginia) and the District of Columbia have fire death rates that exceed 25 deaths per million population; this rate is one of the worst

among the world's nations. Fifteen states, mostly situated in the Southeast, have death rates between 14 and 25 per million population. Twenty-eight States have fire death rates at or below the national rate of 13.6 per million population. While some death rates are still high, states have made great progress in lowering both the absolute number of deaths and the deaths per capita.

Ten states in 2004, mostly large-population states, account for 49 percent of the national total U.S. fire deaths. Unless their fire problems are significantly reduced, the national total will be difficult to lower.”

The conclusions and areas of concern discussed in this recent report include:

- the fire problem in the United States continues to improve;
- the 10-year per capita rates are down. Contributing factors to this trend include:
 - smoke alarms, whose usage has become nearly universal over the past two decades;
 - sprinklers, which quickly combat incipient fires, especially in non-residential structures and recently in apartments;
 - fire codes, which have been strengthened;
 - construction techniques and materials, which have been targeted specifically to fire prevention;
 - public education at the community, county, state, and federal levels, which seems to be increasing; and
 - improved firefighter equipment and training.

Even in considering the positive trends, the United States still has a major fire problem compared to other industrialized nations. Recommendations are made to study and implement international fire prevention programs that have proved effective in reducing the number of fires and deaths. Other areas of concern described in this report include:

- The very young and very old continue to be at high risk.
- Certain ethnic groups are at enormous risk for fire injuries and death.
- Arson is an enormous problem in the United States, especially to outside and non-residential structure properties. Economically, arson accounts for 26 percent of property loss from all fires, more than 50 percent more than that of the next leading cause.
- Contiguous states often have similar fire profiles. A study to determine reasons for this could uncover severe problem areas or, conversely, reveal best practices.
- Many records submitted to NFIRS by participating fire departments provide either incomplete or no information in some of the fields. Additionally, in preparing this report, it is assumed that participating fire departments have reported 100 percent of their fire incidents; however, this is not always the case. The completeness of all the information in the NFIRS modules will contribute to the refinement and confidence level of future analyses.

The suggestion is made that if we could understand the relative importance of these factors to lessening the fire problem, resources could be better targeted to have the most impact.

Deaths and Injuries from House Fires; Istre, G. MD, McCoy, M. M.S., Osborn, L, Barnard, J. M.D., Bolton, A. M.P.H.; *New England Journal of Medicine*, June 2001, Vol 344, Number 24, pg 1911-1916.

Abstract (*as written by author*):

Background: Authors sought to define the factors associated with house fires and related injuries by analyzing the data from population-based surveillance.

Methods: For 1991 through 1997, authors linked the following data for Dallas: records from the fire department of all house fires (excluding fires in apartments and mobile homes), records of patients transported by ambulance, hospital admissions, and reports from the medical examiner of fatal injuries.

Results: There were 223 injuries (91 fatal and 132 nonfatal) from 7,190 house fires, for a rate of 5.2 injured persons per 100,000 population per year. Rates of injury related to house fires were highest among blacks (relative risk, 2.8; 95 percent confidence interval, 2.1 to 3.6) and in people 65 years of age or older (relative risk, 2.6; 95 percent confidence interval, 1.9 to 3.5). Census tracts with low median incomes had the highest rates of injury related to house fires (relative risk as compared with census tracts with high median incomes, 8.1; 95 percent confidence interval, 2.5 to 32.0). The rate of injuries was higher for fires that began in bedrooms or living areas (relative risk, 3.7); that were started by heating equipment, smoking, or children playing with fire (relative risk, 2.6); or that occurred in houses built before 1980 (relative risk, 6.6). Injuries occurred more often in houses without functioning smoke alarms (relative risk, 1.5; 95 percent confidence interval, 1.0 to 2.4). The prevalence of functioning smoke alarms was lowest in houses in the census tracts with the lowest median incomes ($P < 0.001$).

Conclusions: Rates of injuries related to house fires are highest in elderly, minority, and low-income populations and in houses without functioning smoke detectors. Efforts to prevent injuries and deaths from house fires should target these populations.

Source Information: From the Injury Prevention Center of Greater Dallas (G.R.I., M.A.M., A.B.); PID Associates (G.R.I.); the Dallas Fire Department (I.O.); and the Office of the Chief Medical Examiner of Dallas County (J.J.B.) – all in Dallas; and the Comprehensive Cancer Center, University of Alabama at Birmingham, Birmingham (A.B.). Address reprint requests to Dr. Istre at the Injury Prevention Center of Greater Dallas, P.O. Box 36067, Dallas, TX 75235.

Income, Housing, and Fire Injuries: A Census Tract Analysis; Shai, D., *Public Health Reports*, Vol. 121, Mar/Apr, 2006. pg 149-154. (*Note:* Article available by subscription only...)

- 8. A Behavioral Approach to Reducing Fires in Public Housing**; McConnell, C.F., O'Dwyler, W., Leeming, F.; *Journal of Community Psychology*, Vol 24, No 3, pg 201-212, 1996.

Abstract (as written by author): In an effort to reduce the fire incidence among the 19,000 low-income residents of the Memphis Housing Authority (MHA), a 35-minute fire-safety training program was developed and presented to every new head-of-household during his or her initial orientation session. The content of the program was determined through an analysis of nine years of MHA fire incidents and their causes, as well as discussions with residents about the context in which risky fire behaviors occur and training approaches that might be effective. The program also contained a component where trainees made a formal, written commitment to engage in self-selected fire safety behaviors. Data on fire incidence after 15 months indicated that the 2,340 residents who received the training were almost five times less likely to experience a fire than untrained residents. © 1996 John Wiley & Sons, Inc.

(**Note:** Full article available for purchase only.)

- 9. Fire Fatalities Among Children: An Analysis Across Philadelphia's Census Tracts**; Shai, D., PhD., Lupinacci, P., PhD.; *Public Health Reports*/March-April, 2003, Vol. 118, pp 115-126.

The investigation of this study explores residential fire deaths to children, ages younger than 15 in Philadelphia from 1989-2000. Data was collected from their 1990 census tract, as well as records from the Fire Marshal's Office. The study analyzes 246 deaths from 146 residential fires. Newspaper fire articles, as well as data from the Philadelphia Bureau of Licenses and Inspections provided added information, including code violations.

In Philadelphia, from 1996 to 2000, accidental child fire death rates (for children under age 10) were higher than those for motor vehicle accidents, unlike the data identified in national trends. Both the large proportion of fire deaths in Philadelphia, and child fire fatalities are examined in this research study. In urban areas, such as Philadelphia, "arson deaths are grounded in family violence and drug dealing, while unintentional fire deaths are grounded in poverty." The primary prevention strategy, whether the emphasis of injury mortality is on the mechanism of death (fire), or the intent or manner of death (homicide) is – smoke detectors.

Low income housing, single-parent households with children younger than age 18, houses built before 1939, and the number of children younger than 15 years of age in a census tract, were considered statistically significant variables this study. The

conclusion stated that the use of census tracts can be very useful in identifying significant factors for residential fire deaths of children. This information can lead to effective prevention

opportunities through smoke detector distribution programs, and education programs regarding the dangers of careless smoking, cooking, and so on, as well as information for firefighters in planning for the rescue of children when fire strikes.

10. Differences between Burns in Rural and in Urban Areas: Implications for Prevention,” Vidal-Treca, G., S Tcherny-Lessenot, C. Grossin, S. Devaux, M. Pages, J. Laguerre, and D. Wasserman. *Burns*, 26 (2000) 351-358.

Nineteen of the 23 French burn units participated in this study of burn victims' characteristics. Senior physicians filled out questionnaires on patients admitted to the burn units from September 1, 1991 through August 31, 1992. Information was captured about demographics, how and where the burn was incurred, the burn itself, and survival. Municipalities with populations of less than 2,000 were considered rural. Those with populations greater than 2,000 were considered urban. Cases that could not be classified as rural or urban were excluded from this analysis. Thirty-four percent of 1,234 patients resided in rural areas. In rural areas, 28.3 burns were incurred per million population compared to 18.4 in urban areas. More specifically, the burn rate was higher for both rural men and women and for rural children, teens and young adults than for their urban counterparts. The incidence of occupational burns was twice as high in rural areas.

The rural burn victims tended to be older and less educated. They were more likely to be retired and/or part of a couple than burn victims from urban areas. The only age group with differences in gender patterns based on density was the working adult populations. Seventy-four percent of the rural victims age 20 to 64 were male compared to 66 percent of the urban victims of that age group.

Occupational burns were similar in rural and urban areas. In both settings, the majority of burns occurred indoors, with the most frequent causes being “flames, explosions, and electrical installations.”

Greater differences were seen in the burns resulting from everyday activities. Rural victims were more likely to be 65 or over, retired, and to have some predisposing factor than were urban victims. Thirty-five percent of everyday rural burns occurred outside compared to 22.5 percent of urban burns. Further breakdown shows that the victims of everyday outdoor burns were more likely to be male, to be either between 20 and 65 or older than 65, to have high income and to be more highly educated than victims of everyday outdoor burns in urban areas.

Although hot liquids were the leading cause of burns in both areas, these burns were less common in rural areas. Larger shares of these burns were seen in urban males and in urban residents at least 65 years of age.

Flames or explosions caused a larger share of burns in rural areas than in urban areas. Rural flame or explosion burn victims were more likely to be male, to be either 20 to 65 or 65 and older, and to have higher income than the urban victims.

Burns caused by open fire and barbecues were more common in rural areas. Rural victims of open fire or barbecue burns were more likely than their urban counterparts to be either 20 to 65 or older than 65, to have low incomes, and to be less educated. Rural burns were deeper and more likely to cover more than 10 percent of the body surface area. A larger share of rural burns resulted in death. Rural fatalities were less likely to have had morbidities.

Only 20 percent of the French population lives in rural areas, but 34 percent of the burn victims were rural. This study dealt only with burns severe enough to be seen in burn units and excluded minor burns. However, rural residents tend to live a greater distance from these specialty units. The author referenced Thomas et al who found that some of the difficulties rural residents have in obtaining health care is due to lower socioeconomic and educational levels. The rural population in general tends to be older and have less education. Response and transport times tend to be greater in rural areas.

II. Urban Development/Good Neighbor Program, GSA, General Services Administration, <http://www.gsa.gov/Portal/gsa/ep/channelview.do?pageTypeId=8195&channelId=12897>.

About the Urban Development Program

GSA seeks to conduct its real estate activities and meet its client agencies' needs in ways that support community development. GSA facilities are located in more than 2000 urban communities nationwide, and in each of these communities GSA seeks to be an integral member and good neighbor. Through community partnerships, openness to the public, and location / design decisions, GSA provides multiple returns for communities and actively supports urban development. The principals that drive GSA business decisions in each of these areas are as follows:

Strategic Location and Design

- ♦Locate facilities in central business areas, historic districts, and redevelopment areas; and
- ♦Design and renovate facilities to enhance workplaces, revitalize communities, and represent the highest quality in architectural and urban design.

Customer and Community Partnerships

- ♦Establish partnerships with local customers and community organizations to address mutual neighborhood concerns;
- ♦Contract with business improvement districts and downtown companies;
- ♦Collaborate with civic advocate organizations at the national level;
- ♦Contribute to the improvement of areas around GSA facilities; and
- ♦Service as a clearinghouse for good practices.

Openness to the Public

- ♦ Incorporate retail and other high-traffic uses into GSA facilities, where feasible;
- ♦ Promote the use of GSA public spaces to host events, markets, meetings, and displays; and
- ♦ Meet security needs in ways that remain welcoming to the public.

12. Urbanization and Poverty *A Growing Challenge, Economic Growth & Trade, USAID,*

http://www.usaid.gov/our_work/economic_growth_and_trade/urban_programs/

In the next 30 years the world's population will grow by 2.2 billion people. Of these, 2.1 billion will be born in cities and 2.0 billion will be born in the world's poorest cities. More than 1 billion people will be born in slums if we don't do something now.

Why we care...

Few developing cities are prepared for the consequences of rapid growth. The urban poor are the fastest growing population in the world. More than 837 million people currently live in slums and countless others live on the street.



USAID's Urban Programs help provide suitable waste dumps

Well-managed cities...

- Are engines for economic growth and national prosperity
- Are centers of innovation and cultural exchange
- Will lead the way to civil harmony and global peace

Without USAID assistance rapid urbanization will...

Strangle economic growth and widen income disparities

Poison the air we breathe and create life threatening water shortages

Deplete valuable natural resources, increase the spread of disease and human suffering

Lead to increased conflict which will leave us all less secure

USAID's Response:

USAID's urban programs improve the living conditions of the urban poor while protecting the well-being of future generations. The Agency works to:

Increase investment in basic urban infrastructure, housing and services

Generate increased economic opportunity in cities

Promote safe, healthy urban environments

Help city governments more effectively respond to the needs of the urban poor

The USAID Urban Team works with a variety of governmental, non-governmental and private sector partners to help developing cities generate broad-based prosperity.

For more information on our work please visit our [Making Cities Work](#) extranet site.

Making Cities Work Urban Strategy

"We have entered the urban millennium. At their best, cities are engines of growth and incubators of civilization. They are crossroads of ideas, places of great intellectual ferment and innovation...cities can also be places of exploitation, disease, violent crime, unemployment, and extreme poverty...we must do more to make our cities safe and livable places for all."

-- [Kofi Annan \(2000\)](#)

Urbanization and Poverty - A Growing Challenge

More than 90 percent of the world's population growth in the coming two decades will occur in developing cities - most of it in urban slums. If developing cities are well-managed, they will be engines for economic growth, national prosperity, civil harmony and global peace. If not, rapid urbanization will poison the air we breathe, create life threatening water shortages, deplete valuable natural resources, strangle economic growth, widen income disparities and increase the spread of disease. Failure to manage the growth of developing cities will lead to increased political, military and civil conflict, which is likely to have profound effects on global security.

MCW (Making Cities Work) Library Resource View

<http://www.makingcitieswork.org/www/toolsAndResources/urbanResources/MCWLibrary?display=278> .

***Rebuilding shelter after natural disasters: three decades of USAID experience in Latin America and the Caribbean*, PADCO, 1999.**

The objective of this report is to support USAID's efforts in responding to Hurricanes Mitch and Georges, as well as to future disaster responses. The task was to research and analyze past experiences of the USAID Urban Programs Office in natural disaster preparedness/response in Latin American and the Caribbean (LAC) focusing on the shelter sector. The focus of the research is primarily on the reconstruction process and how it affects the shelter sector. Since many decisions made during relief have a significant impact on how reconstruction unfolds, aspects of the relief process are also included. This report examines the response to 10 of many natural disasters that have struck the LAC region over the past 30 years.

13. *Wildland Fire Management*, Bailey, Dan W. and Richard E. Montague. *NFPA Fire Protection Handbook, 19th Edition*, 2003, Section 7, pp. 95-110.

Between one-fourth and one-third of wildland fires in the 1.5 billion acres of protected U.S. wildlands are incendiary, one-fourth are caused by debris burning, and lightning causes between one-seventh and one-eighth of these fires. The vast majority of these fires are controlled before they reach 100 acres. About 2 percent of wildland fires cause two-thirds of the total burned area. Local fire departments and a number of county, state, and federal agencies are involved in wildland fire protection. Smokey the Bear has been a prevention symbol since 1950. Different techniques and equipment are needed for wildland firefighting than for structural firefighting. Strategies designed for protecting forest resources were not intended for structural protection. As more homes are built in these areas, protection of life and structures requires more attention.

The authors describe three sets of circumstances where structure and wildland fires intersect. A mixed interface has scattered structures and/or isolated homes in an undeveloped rural area. The risk to individual homes in these areas is high. The occluded interface consists of wildlands, such as a park or conservation land, in an urban area. In a classic interface, a number of homes, such as a subdivision, abut wildlands along a wide front. The classic interface poses a risk of a higher loss of life.

The authors describe the components of wildland fire protection, Firewise communities, fire detection and suppression methods, and issues of topography and fuels.

14. *Catastrophic Multi-Death Fires of 2003*, Badger, Stephen G., *NFPA Journal* 92, no. 5, (September/October 2004): 64-73

An October, 2003, California wildland-urban interface spread across 208,000 acres, killing 13 civilians and 1 firefighter. When fatally injured, the victims were attempting to evacuate or to protect property. The cause was not determined. A separate October, 2003, California wildland-urban interface fire that had been intentionally set spread through 91,000 acres and claimed six lives. Again, the victims were either attempting to evacuate or to protect property.

In March of 2003, six people died when a legally permitted agricultural fire was set on a sugar cane field. Warnings were given, but the six were either asleep or hiding.

In August of 2003, eight wildland firefighters returning to Oregon from an Idaho fire died after their van collided head-on with a tractor trailer truck and burst into flames. Two died of asphyxiation; traumatic injuries claimed the other six.

15. *The Changing Role and Needs of Local, Rural, and Volunteer Fire Departments in Wildland-Urban Interface: Recommended Actions for Implementing the 10-year Comprehensive Strategy - an Assessment and Report to Congress*, National Association of State Foresters Core Team,

Washington, DC, 2003, accessed at

<http://www.iafc.org/downloads/Final%20Rural%20Fire%20Report.pdf> on June 1, 2005.

Federal agencies employ fewer than 16,000 full-time and seasonal wildland firefighters. More than 658,000 volunteer firefighters serve in over 24,000 local rural fire departments. These volunteers are often the first to respond to wildland or wildland-urban interface fires.

In 2001, the *Ten-Year Comprehensive Strategy for Reducing Wildland Fire Risks to Communities and the Environment* called for an assessment of the training, equipment and safety of firefighters who work in the wildland-urban interface. The Core Team involved in this report included representatives from the International Association of Fire Chiefs (IAFC), the National Volunteer Fire Council (NVFC), USFA, NFPA, the National Association of State Foresters, the National Association of Counties, the USDA Forest Service, and the Department of the Interior.

The wildland-urban interface requires firefighting equipment, training and skill in structural and wildland firefighting. Evacuations may be required, communication and interagency coordination are critical. Policies on incorporating local firefighters in multi-jurisdictional responses inside and outside their immediate areas are required. Plans on responsibility division should be devised before an incident occurs. Radio communication difficulties and incompatibility have been identified as a serious problem. Funding for rural fire departments is often inadequate for their

scope of responsibilities. Investments that address these problems can be expected to increase the safety of firefighters and the public, as well as reduce losses and disruption.

- 16. *This Thing Called Fire: A Quick and Fairly Accurate History of Flame in the United States***, Guest Editorial, by Larry Hamilton, Office of Fire and Aviation, U.S. Bureau of Land Management, <http://www.terrain.org/columns/14/guest.htm>, No. 14: Winter/Spring 2004.

This gives an interesting historical perspective about the element of fire, its origin and value to humanity throughout the years. The article discusses fire's natural purpose and role in maintaining the environment and its roles as an active part of our "ecological equation", as well as what happens when man chooses to enjoy the "great outdoors" by building structures and "urbanizing" the land. This presents a great challenge to firefighters and residents in any community! Firefighting techniques, evacuation procedures, maintaining a "defensible space" around houses, and so on have led to what's known as "the wildland-urban interface" (WUI) initiative. To learn how you and your community can be better prepared to withstand fire in the areas described as WUI, visit the Firewise Website at www.firewise.gov. For more information about wildland fire, visit the National Interagency Fire Center's Website at www.nifc.gov.

- 17. *Reaching the Hard-to-Reach, Techniques from Fire Prevention Programs and Other Disciplines***, A. Kulenkamp, B. Lundquist, P. Schaenman, October, 1994. Tri-Data Corporation.

This study identified 40 fire prevention programs from around the country (22 states) that dealt with "hard to reach" target audiences (people who are very poor, low levels of education, the elderly living alone, low-income single mothers and their young children, people who do not understand English well or may be illiterate in their native language). Chapter 2 gives an overview of methods used to reach hard-to-reach target audiences beginning with a discussion on conducting "market research", followed by a list of 20 key approaches and techniques to consider in your program development and implementation. Forty case studies from various size cities follow that include:

- Albuquerque, New Mexico, Fire Department: Arroyo Safety
- Ann Arbor, MI: Fire and Burn Safety for Children in Low-income Areas
- Avon, Colorado, Fire Department: Spanish Materials for Mobile Home Parks
- Bakersfield, CA Fire Department: Smoke Detector Program for Hispanics
- Beaumont, TX Red Cross: Evacuation of the Elderly and Smoke Detector Program
- Charlotte, NC, Fire Department: Smoke Detector Maintenance in Low-Income Area
- Chesterfield County, VA, Fire Prevention Bureau: Fire Safety for Vietnamese

and Cambodians

- Clemson University Cooperative Extension Service: Statewide School Program
- Dallas, TX, Fire Department: Neighborhood Visits After a Fire Death
- Detroit, MI: Dealing with Devil's Night
- Eau Claire, WI, Fire Department: Reaching the Hmong
- Edmonton, Alberta, Canada, Fire Department: Burn Victims as Public Educators
- Galveston, TX, Fire Department: Smoke Detector Program for the Elderly
- Georgia Fire Academy: Safe and Efficient Home Heating Program
- Gwinnett County, GA, Fire Academy: Fire Safety for Seniors
- Hammond, IN, Fire Department: Survive Alive House
- Houston, TX, Fire Department: Public Education Through Community Centers and Libraries
- Indianapolis, IN, Fire Department: Juvenile Firesetter After-the-Fire Program
- Jacksonville, FL, Fire and Rescue Department: Reaching Low-Income Parents Through Preschool Program for Their Children
- Kalamazoo, MI, Department of Public Safety: Fire Safety for the Disabled
- Lansing and Ann Arbor, MI: Fire and Burn Safety for the Elderly
- Linden, KY, Fire Protection District: Burn Victim Speaker and Target Area Newsletter
- Louisville, KY, Fire Department: Day-Care Center Program and School Contest
- Mansfield, TX, Fire Department: Programs for the Elderly
- Maple Grove, MN, Fire Department: Preschool Fire Safety Education Program
- MA Department of Public Safety: Reaching Poor, Non-English Speaking Groups
- Memphis, TN, Fire Department: Children, the Elderly, and the Poor
- Miami, FL, Fire and Rescue: Reaching Diverse Low-Income Latin Groups
- Milwaukee, WI, Fire Department: Promoting Smoke Detectors in High-Fire -Risk Areas
- Minneapolis, MN: Fire Safety for the Hmong
- Oklahoma City, OK: Smoke Detector Program
- Oklahoma City, OK, Fire Department: Low-Income Community Preschool Program
- Oneida County, NY: Countywide Programs for Children and the Elderly
- Orlando, FL, FIRE Department: Low-Income Children Taught Fire Safety at Summer Swim Program
- Park Ridge, IL, Fire and Police Departments: Joint Program for Latchkey Children
- Philadelphia, PA, Fire Department: Reaching Southeast Asians and the Lowest Income Neighborhoods
- Phoenix, AZ, Fire Department: Arson Program Targeted at Hispanic Gangs
- Prince George's County, MD, Fire Department: Post-Incident Neighborhood Intervention Program
- Red Lake Indian Reservation, MN: Injury Prevention Project
- St. Paul, MN, Department of Fire and Safety Services: Multiple Programs for High Risk Groups

- Winter Garden, FL, Fire Department: Smoke Alarms for Low-Income New Mothers.

The next few chapters of this report cover 10 crime prevention and drug abuse prevention programs, and fifteen programs in the field of public health and social services that illustrate additional approaches used in these fields.

- Bridgeton, NJ: Teen Outreach Program
- Denver, CO: Adult Volunteers Partnering At-Risk-Youth
- Hartford, CT: Substance Abuse Prevention and Anti-Arson Programs
- Lapwai, ID: Nez Perce Substance Abuse Prevention Program
- New Bedford, MA: Substance Abuse Prevention for Prospective and New Mothers
- Southeastern U.S.: AIDS and Drug Abuse Prevention for Runaway Youth
- St. Paul, MN: Juvenile Crime Prevention
- Topeka, KS: Youth Center for Juvenile Offenders
- Waterbury, CT: Substance Abuse Prevention for Elementary School Children
- Waterloo, IA: Bench Press for Tougher Drug Law Enforcement

Public Health and Social Services Case Studies:

- Baltimore, MD: Companion Program for the Elderly
- Central Falls, RI: Project Hope for At-Risk Hispanic Youth
- Chicago, IL: Support for Asian-American Women and Children
- Cincinnati, OH: Healthy Moms and Babes Program Taken Into High-Risk Neighborhoods
- Eutaw, AL: Alabama Rural Pregnancy and Infant Health Program
- Greater Torrington, CT: Regional Coalition Program Reaching the Elderly
- Jackson County, FL: Health Promotion for Rural African American Residents
- Knoxville, TN: Family Literacy Program
- Lansing, MI: Michigan's Eldercare Program
- Las Cruces, NM: Native American Nutrition Project
- Montgomery County, AR: Health Education Advisory Committee
- National Indian Council on Aging: Participation in Social Security and Other Entitlement Programs
- New York, NY: Boys and Girls Clubs of America
- Seattle, WA: National Asian Pacific Center on Aging
- Seattle, WA: Youth Care

With regard to reaching hard-to-reach audiences with fire and life safety messages, the report offers the following suggestions for success:

- Be businesslike and conduct market research.
- Use fire loss and other data in program planning and evaluation.
- Consider cultural factors.
- Meet the hard-to-reach face to face.

- Respect your audience.
- Get real!
- Piggyback programs that are already reaching your target audience.
- Develop a variety of effective materials.
- Give something away to promote participation.
- Use learning-by-doing to reinforce lessons.
- Hold people responsible for their actions.
- Let spark plugs do their thing.
- Use peer educators whenever possible.
- Secure participant commitment.
- Persist.
- Form partnerships.
- Use volunteers.
- Use churches for outreach.
- Be imaginative in seeking funding sources.
- Promote policy changes and legislation to achieve long-term progress.

18. *Reaching High Risk Groups: The Community-Based Fire Safety Program,*
C. Rossomando, Rossomando & Associates, Washington, D.C., 1996.

This document describes an approach that targets fire safety messages and promotes smoke detectors to the hardest-to-reach and most at-risk populations, and embodies many of the concepts previously discussed. The report details the general approach and provides instructions that fire departments and community organizations can use to design their own programs. It also includes a “funding guide” to raise resources to support for your programs.

Experiences, evaluation results, and lessons learned are documented in the publication from programs conducted in Baltimore; Peoria, IL; Barnwell and Blackville, S.C.; rural Maine; Albuquerque, NM; New Orleans, LA, and Cleveland, OH. Fire departments in these communities participated in a multi-year project managed by Rossomando & Associates. The overall objective of the project was to see whether a model developed by Portland, OR, could work in other geographically and demographically diverse areas.

By documenting experiences and conducting evaluations in each pilot site, they learned that community-based program development can help to target programs and communicate more effectively with hardest-to-reach residents, the ones most likely to die in fires. Actively involving neighborhood organizations allows fire departments to find new allies for fire prevention. Market research can identify influential groups, key messages, and effective dissemination methods.

19. *Public Fire Education Today: Fire Service Programs Across America,*
Federal Emergency Management Agency, United States Fire Administration,
1990 Edition, Under Contract No. EMW-89-C-3060, FA-98/September 1990.

This publication is a collection of more than 80 public fire safety education programs from 49 states and the District of Columbia. It is but a sample of the hundreds of fire safety programs being conducted. This document is intended as a resource for fire departments and other fire groups interested in initiating or expanding their own programs. Fire service interest in education is growing and organizations across the country are finding creative ways to bring life-saving messages to their communities. The fire service's commitment to public fire education has grown both in size and sophistication. There are more programs for high-risk populations, and greater emphasis on in-school programs. More fire service organizations are trying to measure the effectiveness of their programs and many departments have been remarkably successful in winning community and private sector support for their programs.

(Another FEMA/US Fire Administration Report "**Public Fire Education Resource Directory**" was compiled under Contract EMW-86-C-2290, Technical Resources, Inc., FA-75/May 1988. This document identifies programs throughout the country by category, i.e. burn and scald prevention programs, electrical hazards, escape planning and drills, and so on.)

20. FIRE 20/20™ - Multicultural Health and Safety Research, Project Final Report,

Understanding Leads to Safety. This program was developed by FIRE 20/20™ in conjunction with the Seattle Fire Department, the Austin Fire Department, Austin-Travis County Emergency Medical Services, and the Milwaukee Fire Department.

Funding for this study was provided by a Department of Homeland Security (DHS) Fire Prevention and Safety Grant, a grant from the International Association of Fire Chiefs (IAFC), and funding support from Lion Apparel.

This report, which is based on 62 community focus groups, more than 1,400 written and online surveys, and 124 personal interviews of both fire service personnel and multicultural community members, deals with the issues and challenges facing a multicultural community as they relate to safety risks for fire/EMS personnel and civilians. Following an extensive survey of 108 U.S. Metro Fire Departments, administrators choose three departments to examine as case study sites, Seattle, Austin, and Milwaukee.

The general areas of multicultural capacity, communications, customer service, fire service culture, community relations, and leadership are what researchers examined throughout the report and identified as having the greatest impact on the first responder's safety, as well as on residents of the multicultural community.

The following five questions were the focus of the study conducted in Seattle, Austin, and Milwaukee:

1. How do firefighters perceive the effectiveness of their emergency and non-emergency service delivery in multicultural communities?
2. How do people in multicultural communities perceive firefighters' emergency and non-emergency service delivery?
3. How does the fire service "hero" culture increase or decrease the risk of injury and loss of life for firefighters and community members when serving multicultural communities?
4. What health and safety risks to firefighters and community members could be reduced if firefighters had greater multicultural awareness and better reflected the community?
5. What is the current multicultural make-up of firefighters in metro regions of the United States?

While the services rendered by the firefighters and EMS personnel were rated very high by the multicultural community members and the first responders, the study identified that communication and cultural issues may delay services presenting a problem for all involved. Multicultural focus groups indicated that they were unaware of all of the services provided through their fire department, especially regarding fire prevention and public safety information. While collaboration and partnerships in safety between the fire department/EMS service personnel and the multicultural community members is desirable, various cultural leaders in the community feel that it is inappropriate for them to initiate these partnerships and that the fire department leaders reach out to them. "Hiring a competent, gender and culturally diverse workforce that is representative of our community" was responded to favorably by the focus groups as positively enhancing safe and effective service. Many of the first responders felt that their "can do" attitude increased safety for the multicultural community members, but decreased safety for their personnel.

Three recommendations came from this study:

1. Require the completion of demographic data for NFIRS.
2. Build partnerships with multicultural communities.
3. Move to a "safety and prevention culture"—changing from the current "response culture" to a "safety and prevention culture" that includes the multicultural members of the community—the customers—as partners in safety and prevention to reduce emergency incidents.

Urban Links

[Submit an Urban Link](#) recommended for listing on this page.

U.S. Government

[DOE Clean Cities](#)

<http://www.ccities.doe.gov/>

[Department of Energy \(DOE\) - Center of Excellence for Sustainable Development](#)

<http://www.sustainable.doe.gov/>

[Environmental Protection Agency](#)

<http://www.epa.gov/>

[Housing and Urban Development \(HUD\) – Office of Policy Development and Research](#)

<http://www.huduser.org/>

[Livable Communities - Related Links](#)

<http://www.livablecommunities.gov/fedlinks.htm>

[USAID Environmental Health Project \(EHP\)](#)

<http://www.ehproject.org/>

International Donor Community

[Cities Alliance](#)

<http://www.citiesalliance.org>

[Management and Governance Network](#)

<http://magnet.undp.org/>

[UNCHS Best Practices Database](#)

<http://www.bestpractices.org/cgi-bin/bp98.cgi>

[UNCHS-Human Settlements In Asia](#)

<http://www.hsd.ait.ac.th/Web1.html>

[UNCHS-Statistical Data and Information in the Asia Pacific Region](#)

<http://www.hsd.ait.ac.th/ihsa/si/si.html>

[UNDP Management and Governance Network](#)

<http://magnet.undp.org>

[UNU/IAS Programme-Megacities and Urban Development](http://www.ias.unu.edu/research_prog/megacities/ias_megacity.htm)

http://www.ias.unu.edu/research_prog/megacities/ias_megacity.htm

[United Nations Centre for Human Settlements \(Habitat\)](http://www.unchcs.org)

<http://www.unchcs.org>

[World Bank Urban Development Home Page](http://www.worldbank.org/html/fpd/urban/)

<http://www.worldbank.org/html/fpd/urban/>

Private Entities

[Abt Associates Inc.](http://www.abtassoc.com)

<http://www.abtassoc.com>

[Brookings Institution](http://www.brook.edu/es/urban/urban.htm)

<http://www.brook.edu/es/urban/urban.htm>

[GIS Development.Net - India](http://www.gisdevelopment.net/index.htm)

<http://www.gisdevelopment.net/index.htm>

[Planning and Development Collaborative International \(PADCO\)](http://www.padcoinc.com)

<http://www.padcoinc.com>

[The Communities Group](http://www.thecommunitiesgroup.com)

<http://www.thecommunitiesgroup.com>

[Urban Timeline](http://www.urbantimeline.org)

<http://www.urbantimeline.org>

NGOs

[Asian Disaster Preparedness Center](http://www.adpc.ait.ac.th)

<http://www.adpc.ait.ac.th>

[Habitat for Humanity](http://www.habitat.org)

<http://www.habitat.org>

[Institute for Sustainable Communities](http://www.iscvt.org)

<http://www.iscvt.org>

[Institute of Management \(IIMACORE\), SRISTI](http://www.sristi.org/dmis.html)

<http://www.sristi.org/dmis.html>

[International City/County Management Association](http://www.icma.org/)

<http://www.icma.org/>

[International Food Policy Research Institute](http://www.ifpri.org/)

<http://www.ifpri.org/>

[International Institute for Environment and Development](http://www.iied.org/human/index.html)

<http://www.iied.org/human/index.html>

[Megacities 2000 Foundation](http://www.megacities.nl/megacities/main.htm)

<http://www.megacities.nl/megacities/main.htm>

[Plan International](http://www.plan-international.org)

<http://www.plan-international.org>

[Research Triangle Institute](http://www.rti.org/)

<http://www.rti.org/>

[The Institute of Public Administration](http://www.theipa.org)

<http://www.theipa.org>

[The Woodrow Wilson Center](http://www.wilsoncenter.org)

<http://www.wilsoncenter.org>

[Urban Institute](http://www.urban.org/)

<http://www.urban.org/>

[Urban Land Institute](http://www.uli.org/)

<http://www.uli.org/>

Professional Associations, Networks and Conferences

[CitiStates Group](http://www.citistates.com)

<http://www.citistates.com>

[Civic Practices Network](http://www.cpn.org/)

<http://www.cpn.org/>

[International Making Cities Liveable](http://www.livablecities.org)

<http://www.livablecities.org>

[International Union for Housing Finance](http://www.housingfinance.org)

<http://www.housingfinance.org>

[National League of Cities](http://www.nlc.org/)

<http://www.nlc.org/>

[Sister Cities Internation Public Information](http://www.sister-cities.org/sci/cityseek/list)

<http://www.sister-cities.org/sci/cityseek/list>

[Smart Growth](http://www.smartgrowth.org/)

<http://www.smartgrowth.org/>

[Sustainable Communities Network](http://www.sustainable.org/)

<http://www.sustainable.org/>

[The International Council for Local Environmental Initiative \(ICLEI\)](http://www.iclei.org/)

<http://www.iclei.org/>

Regional

[Asia Pacific Cities Forum](http://www.apcf.org/)

<http://www.apcf.org/>

[Official City Sites](http://www.officialcitysites.org)

<http://www.officialcitysites.org>

[UNCHS – Human Settlements in Asia](http://www.hsd.ait.ac.th/Web1.html)

<http://www.hsd.ait.ac.th/Web1.html>

[UNCHS – Statistical Data and Information in the Asia Pacific Region](http://www.hsd.ait.ac.th/ihsa/si/si.html)

<http://www.hsd.ait.ac.th/ihsa/si/si.html>

Appendix 4

People Interviewed and Summary of Responses

• **Milwaukee Interviewees**

Interviewee	Title	Org.
Chief Douglas A. Holton	Fire Chief	Milwaukee Fire Department
Chief Mark Sain	Assistant Fire Chief	Milwaukee Fire Department
Lt. Larry Jenkins, PIO	Public Information Officer	Milwaukee Fire Department
Bobby Weber	IAFF	IAFF
Brian Smith	Head of Public Education	Milwaukee Fire Department
Lt. Ron Johnson	Director, Survive Alive House	Milwaukee Fire Department
Lt. Duane Smootz	Local President	IABFF
Capt. Gerard Washington	Project Manager, Fire 20/20	Milwaukee Fire Department
Ms. Ann Wilson	Director	Hillside Community Center
Ms. Melinda Vernon	Executive Director	Milwaukee Center for Independence
Ms. Dorothy Jackson	Program Manager	Repairers of the Breach
Ms. Maria Martinez	Case Worker	UMOS Latina Resource Center (Northside)
Ms. Mary Ann Borman	Case Worker	UMOS Latina Resource Center (Southside)
Rev. Moses Fuller	Pastor, FD Chaplain, Former Firefighter	St. Timothy's Church
Mr. Bradley Thurman	Community Leader, Former Firefighter	

• **Milwaukee Interview Material—Summary of Responses**

Audiences

Second and fifth graders

Older adults

Areas of the city where fire loss rate is abnormally high

Installation of smoke alarms / batteries where needed after initial alarm has been addressed

City of Milwaukee residents in need of a smoke alarm and installation

Programs

Designed for 7 to 12 year olds in 120 elementary schools

Quality Assurance Commission specified program and developed learning targets and tests

Second grade – post-test

Fifth grade – pre- and post-test

Report/evaluation due July 2007 on Survive Alive House

MNRSA's questions:

Immigration status

Bi-lingual public education

Elder safe program

F.O.C.U.S. – Firefighters Out Creating Urban Safety – Community Fire Safety Campaign

Fast Responder

Smoke alarm hotline

Postcards

Door hangers

Prevention first

Suppression second

Conduit – media and community

Sometimes make connections between fire department / community

Sometimes handle yourself

Work with:

Domestic violence clients

Shelter / counseling / legal

Support groups

Deal with immigration status

VAWA Violence Against Women Act

Restraining order

Police

Hospital / Clinics

Fire 20/20 Grant: Milwaukee, Richmond, Seattle – Homeland Security

1. Identify segments
2. Get fire department out into community
3. 14 focus groups, report due July 2007

Success

Borrowing from police departments

Making contacts with communities

UWM Evaluation

Build a relevant delivery mechanism

Right messenger

Simplify complicated subject matter

Shared vision of community service between labor and management

Keeps moving beyond usual tension issues

1. En Español
2. Outreach, outreach, outreach!
3. Smoke alarms
4. Tighter community with programs – connect with community programs as viaduct

Easily understood

Visuals

Stickers

Repetition

Check on smoke alarms program. Easy or not?

Levels of success / different ways to define

- activity
- results

Inquiries about how to fight fires

No OST-city programs. No after-school programs except athletics. No teen centers.

Career Youth Development

Be humane in presenting safety. Delicate issue

Stop / Drop / Roll / Burns / First aid list for minor burns, etc. for homeless

- working people going from homeless to new apartments
- skills in using gas / electricity
- inspection of new homes / work with agencies / overnight shelters situating people in housing
- work with community advocates

Required to sell to rank and file: “Save your life and others.”

Required to sell to community. Overcome perceptions / resistance

Buy-in from city leaders (mayor’s office)

Buy-in from Fire Chief

Buy-in from union and involve pre-planning

Show what you are doing right, not as an insurance policy. We are here to support other services.

Getting fire safety bought in

Getting community bought in

Open-door policy – neighborhood watch meetings at firehouse

Canvassing area of fire deaths

DOA – 100 Form to report problems in residences

Challenges

Cultural: language and customs (e.g. cleaning with gasoline)

Language

Internal challenges: motivated firefighters

Scheduling firefighters, good teachers

Improve how people live totally

Cultural between white/black

State facilities for the mentally retarded shut down

Community trust

Fire only part of problem

Housing / crime

Hopelessness among poor

Language – Latino, Laotian

Need programs for adults with cognitive disabilities

Need to be presented in right way

Challenge: How do we stay involved with these communities?

Clients need monitoring to get education

Best practices for case management of clients living in home

1. Be careful of retaliation from landlord
2. Rebellious kids – connect with youth programs [innocent kids in danger]
3. SSI
4. INS
5. Language – need bi-lingual
6. Getting at least one smoke alarm
7. Concern about status

Composition of fire department: tipping back to white

Asians: view uniforms with mistrust

Recruitment difficulty

Reaching the population not using mainstream media

African-American:

50 to 70 yrs old – historically bad experience

35 to 50 yrs old – anti-establishment

18 to 35 yrs old – whatever

kids – “no concerns”

Need to reach 8 to 18

Create future

Have to see totality – everyone is together

Getting low-income people to buy fire insurance

Seniors tend to store stuff

Understanding cultural difficulties and customs

Not enough Spanish language programs

H’Mung community – childbirth at home

Orthodox Jewish Community – Yom Kippur

Uniform identified with police

Solutions

Need different approach telling teens and young adults about what fire service does.
Need to talk with people / organizations before an incident

Ask . What is your current relationship with the Milwaukee Fire Department?

What Works

Partnership w/ Milwaukee Public Schools second and fifth grades required

Teachers guide – information first at school

Second grade better in second half of year

Fifth grade better in first half of year

Tracking data:

- *firefighter visits*
- *results*
- *students who attend by student not just by school*

Third Alarm – no training, included. Survive Alive

Make firehouse center of the community

Put out music/lyrics

Target messages to kids

People relate to the messenger first, not the message.

Latino Fire Department is 3 to 5 percent of fire department

1. Relationships with respective areas
Approachable / user friendly
2. Visible with other neighborhood activities
Partnering with organizations

Hope House

Community Advocates – good places for training

Fire Department could attend Repairers “Saturday Community Int.” to talk about resources and Friday Focus Group

Everything works, but check experience. And target audiences

Fire F.O.C.U.S. is good

Number of alarms installed

Blood pressure screening

EMS / First responder calls – alarms / education / other safety

Prod. Focus

Having right people

Crisis plan for clients: what support needs are for client

Identify natural support

Fire apparatus at outreach points, e.g., grocery stores

Safety plan for families

Defining Success

People know you care about them

Empathy

Need to see bigger picture

Warrants vs. Ins.

Build trust

Be honest

Tell it like it is

Red Cross / Could do more: housing, clothing, furniture

Shotgun approach: needed targeted approach

People plugged into one sector but not across sectors.

Frustration: over time alarms get removed

Parents control the house, but don't always reach parents

Building owners face expenses for hard-wiring alarms

What to Modify

Outlook – see things as connected

Change attitude

Local fire department needs activities / events for kids

Does fire department go to schools in Latina community?

Feedback to case manager

1. Do in-service presentation on success, how / why it has worked
2. Need database on success

Community could use a better understanding of what the fire department would / does do.

Wish churches could play a role in leadership / communication between community and fire service, e.g., training in CPR, recruitment, providing volunteer interpreters

• **Louisville Interviewees**

Interviewee	Title	Org.
Col. Gregory Frederick	Fire Chief	Louisville, Fire Department
Lt. Col. Donald Cummins	Assistant Fire Chief, Fire Marshal	Louisville, Fire Department
Captain Ronel Brown	Public Information Officer	Louisville, Fire Department
Captain Gene Botner	Public Education Officer	Louisville, Fire Department
Shirley Vice	Fire Information Processing Tech	Louisville, Fire Department
Major Henry Ott	Chief of Investigations	Louisville, Fire Department
Sharon Rengers R.N.	Chair	Jefferson County Safe Kids
Cindy Venerable	Louisville Metro Office of Aging & Disabled Citizens	
Kim Allen	Director of Public Safety & Health	City of Louisville
James Wilkins, Vice President	Vice President	Louisville Professional Firefighters Local 345
Firefighter James O. Bently	President	Louisville Black Professional Firefighters Association
Lt. Rob Dwyer	President	Jefferson County Fire Inspectors Association
Claudia Peralta-Mudd	Community Outreach	Office of Immigration Affairs
Theresa Baker	Director, Burn Injury Prevention (state-wide)	University (of Louisville) Hospital

• **Louisville Interview Material and Summary of Responses**

What audiences do you address?

- General Public
- Greatest risk: older adults, poor, young
- Older adults
- School children
- Juvenile fire setters
- Latch-key kids
- Emotionally disabled
- Families at the end of their ropes.
- Homeless
-

What programs that address fire and burn safety?

- Fireworks—Television/radio
- Smoke alarm program through Metro Call (similar to MFD's Project Fire)
- Remembering When program at various senior houses
- Learn Not To Burn (LNTB)
- Fire safety Smoke House for kids but not mandatory through the schools
- Participate in neighborhood festivals
- Straight Talk Program (80 percent of kids are the result of an investigation. 10 percent live with male, 90 percent with female)
- MetroStat (includes average on-scene time) measures
- Firehouse visits
- Community Action Programs (CAT)
- Alarms installed
- Inspections
- Children in Hospitals Week (April) at Kosair's Children's Hospital: 5,000 kids (kindergarten)
- Fire Prevention Week (FPW)
- Smoke Trailer (usually travels every weekend to community events)
- Jonathan Winters film
- Use kids as caregivers/aids to older adults
- Great Annual Fire Drill
- Elder Abuse Commission and Adult Protective Services
- TRIAD (1998) focuses on law enforcement and seniors but includes fire department and EMS; Hold monthly meetings: 50 service providers and 50 senior leaders. Develop calendars with information for older adults. Hold annual convention with exhibitors and attendees

What is "Program Success"

Difficult to measure success

Few immigrant fire burns/problems.

Smoke alarm program (with union support)

One-on-one work

EMS runs result in check for fire safety

Fires decreasing.

- Elder abuse unit established in police department
- TRIAD: Networking/Communication/Sharing
- Kentucky is a mandatory training state: training in elder abuse is now required.

Emergency shelters and emergency crisis response teams.

What were/are challenges?

Identifying caregivers is difficult.

Funding, e.g. for public safety announcements

Growing immigrant populations:

- Spanish (fastest growing)
- African: Sudanese (pilot lights)
- Bosnian

- Vietnamese
- Korean
- Getting in front of older adults is easy. Getting through to them is not.
- Crime and security seen as greater problems

Language barriers, esp. Spanish and Asian

Lack of trust (older adults/children) due to

Fear of Crime

Fear of uniforms

For older adults a fire might signal that they need a nursing home.

Getting older adults to express their needs, which they're reluctant to do

Crime: keeps people indoors

Careless smoking and alcohol

10-year Lithium battery popular with methadone labs (illegal)

Senior housing now becoming mixed, making it harder to reach seniors.

- Too little time for injury prevention in school day/curriculum.
- Testing climate in schools: need to match the core curriculum
- Getting to pre-schools not a problem, but getting to parents is.
- Mothers' boyfriends
- Single dads

Immigrants

- Tend to live in apartments
- High occupancy in barns
- Cultural differences
- Significant condominium development increases the population and increases response times.
- Kitchen fires remain a problem
- Getting people to call the fire department instead of trying to fight the fire. Scared to call.
- Smoke alarms don't have lights: not good for the hearing impaired, especially older adults
- Pride: people don't want to admit faults.
- Language barrier: Hispanic population at 100,000+
- Customs differ, e.g., burning outdoors.
- Getting renters to spend \$100/year on insurance. They often live in older properties that are not maintained.
- Interpreters and translated materials needed for all safety areas (not just fire)
- The first generation of immigrants is okay, but crime begins to increase with the second generation.
- Educating different cultures is difficult.

Adult services strained

- Self-neglect
- Denial and depression
- Living alone

Lack of Services

- Changing the fire service culture at lower levels.

- Firefighters need a sense of ownership at the station level.
- Traditional community expectations: “show up and put out the fire.”
- HUD properties with no sprinklers
- Schools require an approved curriculum and buses cost extra for field trips.
- Vacant abandoned buildings are spreading

Note: Older adults and the disabled have common physical issues.

What were/are solutions?

Hispanic firefighters

Catholic Charities orientation for immigrants includes fire service presence/orientation about fire safety

Relationship with the International Cultural Affairs Department. LFD has a multi-language guide to use.

Aggressive public education at programs for older adults

- Brochures in multiple languages (separately) (Spanish/Vietnamese)
- Retired firefighters works with immigration groups

Materials, e.g., coloring books, in Spanish

A state requirement for injury education and testing in schools would be a big help.

Spanish classes not good enough.

The local (union) in conjunction with the Red Cross buys gifts for anyone burned out from a fire.

For immigrants, trust is an issue.

Respect is important.

Fire stations have to be community-oriented. They serve as ambassadors to the community.

Emergency Contact System is in the works and must include medication information. “Vial of Life” card for medications.

The multi-language book has 50 languages in it, four of which are dominant.

Five people are available as interpreters.

What works? Why?

- Media cooperates, a benefit for public education.
- Smoke alarm program includes home inspections and escape planning
- Fire company involvement
- Union support
- “x” hours per month for Home Inspection Program (HIP). This is tracked carefully.
- Children’s birthday parties can be held at the local fire station.
- Community partners, especially corporate support
- Housing inspection (building inspectors) held for the sale of single/duplex rentals. Fire inspectors handle triplexes and up.
- Check refrigerator/freezer to see how older adults are faring.
- Corporate sponsorship and corporate volunteers (helped install smoke alarms)
- NFPA website and FPW materials
- Presence of fire service in the community

- Community action programs
- Focus on prevention
- Legislation, e.g., fire safe cigarettes
- Political support from the mayor
- Multi-prong approach.

- **What doesn't work? Why?**
- Used to leave or give out smoke alarms but they would be sold. Now the alarms are installed through the local station. 10-year lithium batteries and tamper-proof.
- Public education doesn't show up in tracking, just number of runs and inspections. We should track hours as well or instead.
- Lack of documented history of what has been done.
- Stickers on windows for the handicapped don't work: easy mark for criminals.
- The merger of city/county worked. It's sparked wide interest from other communities. The incentive is efficiency in economic development and having one unified voice.
- Water companies charge a sprinkler stand-by fee, an incentive to not use sprinklers.

What would you change/modify?

- More dollars for television public service announcements
- Fundraising for corporate dollars
- Used to do Meals on Wheels as a way of checking for smoke alarms and doing home inspections.
- We could train visiting nurses to check for smoke alarms.
- Could use strong, year-round school education programs.
- Put in as many smoke alarms as needed, not just one.
- Rental properties are up to the landlord but someone has to stay on top of him.

Appendix 5

Interviews by Questions

Milwaukee Interview # 1

What role do your organization play in developing, implementing, or promoting safety and/or health programs?

Designed for 7-12 year olds 120 Elementary Schools

Quality Assurance Commission specified program and developed learning targets and tests

Second grade – post-test

Fifth grade – pre-and post-test

Report/Evaluation due July 2007 on Survive Alive House

MNRSA's questions:

Immigration status

Bi-lingual public education

How do they work and what specifically is your role?

Executive director

What are the real challenges?

Cultural: language and customs (e.g. cleaning with gasoline)

Language

Internal challenges: motivated firefighters

Scheduling firefighters, good teachers

What works?

Partnership with Milwaukee Public Schools second and fifth grades required

Teachers guide–info first at school

Second grade better in second half of year

Fifth grade better in first half of year

Tracking data:

- *firefighter visits*

- *results*

- *students who attend by student not just by school*

Third Alarm – no training, include Survive Alive

How do you define success for these programs?

UWM evaluation

With whom else should I talk for insight?

Brian Smith – Milwaukee Fire Department
International Community Center

MILWAUKEE INTERVIEW # 2

What are the real challenges?

Improve how people live totally
Cultural between white/black
State facilities for the mentally retarded shut down

What works?

Make firehouse center of the community
Put out music/lyrics
Target messages to kids
People relate to the messenger first, not the message.
Latino Fire Department is 3%-5% of fire department

What doesn't/didn't work?

Too much study

How do you define success for these programs?

People know you care about them
Empathy
Need to see bigger picture

Warrants vs. Ins.

Build trust

Be honest

Tell it like it is

What would you change/modify? How? Why?

Outlook–see things as connected
Change attitude

With whom else should I talk for insight?

We're more about curing symptoms than the disease.
Too much research, not enough development.

Afro-American:

50-70 yrs old–historically bad experience

35-50 yrs old–anti-establishment

18-35 yrs old–whatever

kids–“no concerns”

Need to reach 8-18
Create future
Have to see totality – everyone is together

MILWAUKEE INTERVIEW # 3

To whom are they targeted?

1) second – fifth graders

What are the real challenges?

Community trust

What works?

1. Relationships with respective areas
Approachable / user friendly
2. Visible with other neighborhood activities
Partnering with organizations

What doesn't/didn't work?

Shotgun approach: needed targeted approach

How do you define success for these programs?

Build a relevant delivery mechanism
Right messenger
Simplify complicated subject matter

Are they successful and what makes them successful?

Shared vision of community service between labor and management
Keeps moving beyond usual tension issues

MILWAUKEE INTERVIEW # 4

What role do your organization play in developing, implementing, or promoting safety and/or health programs?

Supporting people in their homes
Cognitive Disabilities / some physical disabilities
 Serve throughout lifespan
 School / childcare
 Empl. Programs
Developmental Disabilities

How do they work and what specifically is your role?

Needs assessment of clients – program
Communicate w/fire department re: disabled inside
Advocate for clients re: smoke detectors

What are the real challenges?

Need programs for adults with cognitive disabilities

Need to be presented in right way

Clients need monitoring to get education

Best practices for case management of clients living in home

Be careful of retaliation from landlord

What works?

Crisis plan for clients: what support needs are for client

Identify natural support

Fire apparatus at outreach points, e.g., grocery stores

How do you define success for these programs?

Easily understood

Visuals

Stickers, e.g.,

Repetition

Check on smoke detectors program. Easy or not?

What would you change/modify? How? Why?

Feedback to case manager

What other questions should I be asking?

Is there a safety module in client assessment?

Env.

Need for follow-up

Client ability to respond

With whom else should I talk for insight?

Family Care – serves older adults in homes

Will serve younger population with physical / cognitive disabilities

- Nurse and Social Worker Team

Safe House: How about for adults with disabilities

More cooperation needed with building inspectors?

What is fire department role / relationship with landlords?

What is fire department role / relationship with building inspectors?

Can fire department develop right presentation on fire safety for clients

Right materials for case managers

MILWAUKEE INTERVIEW # 5

What are the real challenges?

Fire only part of problem
Housing / crime
Hopelessness among poor

Composition of fire department: tipping back to white

What works?

Prod. Focus
Having right people

MILWAUKEE INTERVIEW # 6

What role do your organization play in developing, implementing, or promoting safety and/or health programs?

Clients: Everything from waking to sleeping
Daytime services, counseling, spiritual counseling
Classes in anger management / violence reduction

13 years

Leadership have been homeless

What are the real challenges?

Abandoned buildings
Trespassing and safety

What works?

Hope House
Community Advocates – good places for training

Fire Department could attend Repairers “Saturday Community Int.” to talk about resources and Friday Focus Group

What doesn't/didn't work?

Teach / directly legal issues about

How do you define success for these programs?

Be humane in presenting safety. Delicate issue

Stop / Drop / Roll / Burns / First aid list for minor burns, etc. for homeless

Fire department - *working people going from homeless to new apartments*
- *skills in using gas / electricity*

- *inspection of new homes / work with agencies / overnight shelters situating people in housing*
- *work with community advocates*

With whom else should I talk for insight?

See material attached to original interview sheet

MILWAUKEE INTERVIEW # 7

What role do your organization play in developing, implementing, or promoting safety and/or health programs?

Elder safe Program

F.O.C.U.S. – Firefighters Out Creating Urban Safety – Community Fire Safety Campaign

Fast Responder

Smoke alarm hotline

Postcards

Door hangers

Prevention first

Suppression second

To whom are they targeted?

Older adults

Areas of the city where fire loss rate is abnormally high

Installation of smoke detectors / batteries

where needed after initial alarm has been addressed

City of Milwaukee residents in need of a smoke detector and installation

How do they work and what specifically is your role?

Conduit—media and community

Sometimes make connections between fire department / community

Sometimes handle yourself

What are the real challenges?

Language – Latino, Laotian

What works?

Everything works, but check experience and target audiences

Fire F.O.C.U.S. is good

Number of alarms installed

Blood pressure screening

EMS / First responder calls – alarms / education / other safety

What doesn't/didn't work?

Frustration: over time detectors get removed

How do you define success for these programs?

Levels of success / different ways to define

- activity
- results

Inquiries about how to fight fires

No OST-city programs. No after-school programs except athletics. No teen centers. Career Youth Development

Are they successful and what makes them successful?

1. Required to sell to rank and file: "Save your life and others."
2. Required to sell to community. Overcome perceptions / resistance

What would you change/modify? How? Why?

1. Do in-service presentation on success, how / why it has worked
2. Need database on success

What other questions should I be asking?

1. What is your current relationship with the Milwaukee Fire Department?

With whom else should I talk for insight?

Reverend Moses Fuller – 20th and Washington - St. Timothy's Church
Bradley Thurman – Titonia and Hadley Coffeeshop

Need different approach telling teens and young adults about what fire service does.

Need to talk with people / organizations before an incident

MILWAUKEE INTERVIEW # 8

What role do your organization play in developing, implementing, or promoting safety and/or health programs?

Public Housing; Building owned by Milwaukee Housing Authority; Boys and Girls Clubs; Technical College

What role with Milwaukee Fire Department? "Seniors"

*14 high rises, 7 for older adults
safety program*

Address all risks: Risk Comm.

- staff, - residents

required by insurance

What are the real challenges?

Getting low-income people to buy fire insurance
Older adults tend to store stuff

What works?

Medicine prescriptions: left side-kitchen cabinet
Allergies, etc.

What doesn't/didn't work?

Written information doesn't work.
Need more creative ways (use technology)
 "Phone system" – universal message

How do you define success for these programs?

Take Action Listen Know
Fests (senior, kids)
Police and fire need good relationships with people in community
Consistency in relationships is important

Are they successful and what makes them successful?

Good relationships with fire department
Dollars needed - fundraising

With whom else should I talk for insight?

Al Schoetzel – Chief of Public Safety for Public Housing 286-5100
Sister Lucina – Sisters of St., Francis Daughters of Luke 449-2681
People with physical disabilities who are immobile and obese
 Children, Adults
 Wheelchairs
 Immobile
 Confined to bed
 Overcrowding

Department on Aging 289-6874
Disabilities: Brian – knows all disability groups

MILWAUKEE INTERVIEW # 9

What role do your organization play in developing, implementing, or promoting safety and/or health programs?

Fire 20/20 Grant : Milwaukee, Richmond, Seattle – Homeland Security

1. Identify segments
2. Get fire department out into community
3. 14 focus groups, report due July 2007

What are the real challenges?

Understanding cultural difficulties and customs
Not enough Spanish language programs
H'Mung community – childbirth at home
Orthodox Jewish Community – Yom Kippur
Uniform identified with police

How do you define success for these programs?

Borrowing from police departments
Making contacts with communities

Are they successful and what makes them successful?

Getting fire safety bought in
Getting community bought in
Open-door policy – neighborhood watch meetings at firehouse

What would you change/modify? How? Why?

We are doing on-going community development

What other questions should I be asking?

Know everyone: Cecelia Robinson-Smith
Martha Lowe

With whom else should I talk for insight?

Major areas of incidents – near north side, near south side

Educate public AND

Let public educ. Fire safety

Challenge: How do we stay involved with these communities?

Fire 20/20 as information structure for community outreach for educ. / prev

MILWAUKEE INTERVIEW # 10

What are the real challenges?

Asians: view uniforms with mistrust
Recruitment difficulty
Reaching the population not using mainstream media

What works?

Canvassing area of fire deaths
DOA – 100 Form to report problems in residences

What doesn't/didn't work?

Parents control the house, but don't always reach parents

Building owners face expenses for hard-wiring detectors

How do you define success for these programs?

Buy-in from city leaders (mayor's office)

Buy-in from Fire Chief

Buy-in from union and involve pre-planning

Show what you are doing right, not as an insurance policy. We are here to support other services.

What would you change/modify? How? Why?

Community could use a better understanding of what the fire department would / does do.

Wish churches could play a role in leadership / communication between community and fire service, e.g.,

Training in CPR

Recruitment

Interpreters (volunteers)

With whom else should I talk for insight? People plugged into one sector but not across sectors.

MILWAUKEE INTERVIEW # 11

What role do your organization play in developing, implementing, or promoting safety and/or health programs?

Work with:

Domestic violence clients

Shelter / counseling / legal

Support groups

Deal with immigration status

VAWA--Violence Against Women Act

Restraining order

Police

Hospital / Clinics

What are the real challenges?

1. Rebellious kids – connect with youth programs [innocent kids in danger]
2. SSI
3. INS

1. Language – need bi-lingual
2. Getting at least one smoke detector
3. Concern about status

What works?

Safety plan for families

What doesn't/didn't work?

Red Cross / Could do more: housing, clothing, furniture

Are they successful and what makes them successful?

1. En Español
2. Outreach, outreach, outreach!
3. Smoke detectors
4. Tighter community with programs – connect with community programs as viaduct

What would you change/modify? How? Why?

Local fire department need activities / events for kids

Does fire department go to schools in Latina community?

What other questions should I be asking?

CALL:

Will fire department ask about immigration status?

Legal services

Connect Maria with bi-lingual public education person?

Homes not prepared

No electricity (poor or undocumented)

Substandard housing

With whom else should I talk for insight?

Mary Ann Borman at United Management Opportunity Services (414) 389-6511

Presentations at W-2 sites

Need better communication

Use holidays: 5 May; 16 September (Independence Day); Mexican Festival

Is smoke detector program targeted? And how does it work?

High unemployment and high dropout rate

Does Milwaukee Fire Department have a “cadet” program?

MILWAUKEE INTERVIEW # 12

“Project Staying Alive”. They have a Survive Alive house. These are used to teach fire safety to children in the second and fifth grades.

They have a partnership with the Milwaukee Public Schools.

A new program called “Project Eugema” (sp?). Firefighters will work with 6th grade children. They hope they have a facility.

Children’s hospital found that it was children who came to the homes where there was domestic violence. They would come in with wounds and they found they were inflicted by someone else.

They wrote a grant They tired a couple time and then they received \$400,000.

Twelve firefighters are going through training. They were looking for role models-- firefighters who knew how to build relationships and to be mentors.

Among the fire service, contact is most important. What service can we provide? They are also trying to get another *Survive Alive* house in the North Side. The *Survive Alive* house is on the South Side but they do not have one for the North Side. They are looking for a coordinator for the Staying Alive program. They are trying for a 501(c) 3. The enthusiasm is very high. Younger firefighters.

When they are teaching they use a pulse meter to tell what makes children angry. They also use electronic response tool so kidd can respond to a question or comment.

They put out a notice and 12 people volunteered for it. Firefighters participate in the program when they are off duty so they do not have to worry about staffing issues.

The Fire Department will also have Cultural Competency training. Question is “How does the community think I am doing?”

You ask the question--“Am I serving you?”

Last training will be cultural competency. That committee just met at Marquette University. Milwaukee firefighters will do cultural competency training.

Now EMT training is by Milwaukee Department Members.

Appendix 6

Summary of Centers for Disease Control (CDC) Interviews by City

For several years, the Centers for Disease Control (CDC) have funded four or five cities per year to initiate or grow smoke alarm programs. We interviewed participants in three of the cities that received grants in 2006. The cities are Dallas, Texas; Detroit, Michigan; and Bridgeport, Connecticut.

• Interview—Dallas Fire Department (DFD), Dallas, Texas

Interviewees—Joe Pierce, Fire Chief, Dallas Fire Department; Lisa Carey

The Program

The program is in its second year. With CDC funding the DFD purchases smoke alarms and installs them in homes throughout the city. Volunteers do the installations, while fire department personnel supervise and inspect the volunteers' work and provide fire safety information.

Alarms have 10-year lithium batteries but (unlike Milwaukee and Louisville) are not tamper proof: The tamper-proof alarms took four times longer to install. Program administrators are aware that this could create future problems, since people are prone to removing batteries. They will follow-up with a survey to determine if, in fact, that is happening.

On average, volunteers install three smoke alarms in each dwelling, relying on guidance from the *International Smoke Alarm Code*. This code now requires a smoke alarm in each bedroom, as well as in other locations in the house. [Note that in Milwaukee and Louisville only one alarm is installed per dwelling. Louisville interviewees raised this as an item of concern.] In addition, the home visit can highlight other concerns, such as if the trash isn't being picked up.

This is a pro-active program, that is, the fire department goes out unsolicited to neighborhoods rather than waiting for people to come to them. Often they will take a fire truck, which announces their presence. If no one is home, they return at another time.

The Injury Prevention Center at Parkland (Public) Hospital performs all statistical analysis on fire and injury data and provides the program with very specific information about which geographic areas to target, avoiding political pressure and stereotyping. Selection is objective and resources can be directed towards the most critical areas. Generally these are the poorer neighborhoods with older buildings. Based on federal census tracks, the program has completed the first of four tracks or areas.

The DFD's public information officer publicizes the program in local media. Now in its second year, word of mouth also spreads the word. The official name through the CDC grant is *Raising Citizens' Fire I.Q.* Locally, officials also call the program *Operation Installation*.

In the first year, fire officials recruited volunteers through the Red Cross and Parkland Hospital. As word of the program has spread, other groups, such as churches, have asked to become involved.

Critical Success Factors

- Support from top management, starting with the chief. Without that the program will not succeed. [Because Dallas is a southern city, support from the union associations is not seen as critical, though the associations do support it.]
- Throughout the program there has to be a total commitment. Half-way simply won't work.

Lessons Learned

- Find the money. This is critical.
- Partner with others for help and support.
- Get upper management buy-in and support, not just assent.
- Getting started is harder than maintaining the program.
- Learning the challenging federal purchase order system takes more time than you would think.
- There was a learning curve for learning how to get the word out.
- It took more time to get the program up and running.

Fire Data and Evaluation

Dallas experienced 18 fire deaths in 2005 and 11 in 2006. This year they stand at 11 or 12. At this point they are at the first round of measuring, looking to see if they actually have made people more conscious of fire safety. This will be done through surveys of those homes in which they installed alarms and through data analysis. Reports are due every six months to CDC, tracking both activity and money.

Special Audiences

Communication is not a problem with non-native English speakers. They have experienced the phenomenon of immigrants not calling the fire department for assistance either because of fear of deportation (if they are illegal immigrants) or because in their native countries they are charged a sum of money for calling the department (Asian culture). Materials are available in Spanish, but they also use sign-language and graphics to communicate.

Communicating with older adults requires tact and diplomacy, as well as patience. Older adults appreciate a visit and want to chat, so visits take longer. Older adults also will respond to hints, suggestions, and observations, but resist being told what to do.

As a result of visiting, the fire department personnel can let the local station know if there is someone disabled or elderly in certain homes. This seems appreciated by the “client.”

• **Interview— Detroit Children’s Hospital, Detroit, MI**

Interviewee—Sue Jane Smith, Trauma Coordinator

The Program

In 2000, six children died in a fire in Detroit. In the wake of that tragedy Sue Smith, trauma coordinator for 10 years (at that time) at Detroit’s Children’s Hospital, felt something had to be done. She made it her personal mission to start an organization that would put smoke alarms on every level of every home that needed and wanted them.

This is strictly a grass-roots program that began with Sue and her sons installing smoke alarms upon request to those who could not afford them. From modest efforts, the program has grown into a full-fledged volunteer effort that is ending its first year of CDC funding and has been renewed for a second year.

The goal for the first year as a funded program is to install alarms for 1,500 families (by September 30). Thus far, 1,478 families have received one or more smoke alarms. To participate, a family needs only not to have a smoke alarm on every level of their home. The alarms installed are tamper-proof with 10-year lithium batteries. Sue is also looking for financial support for alarms for the hearing-impaired. Tracking includes the number of adults and children served, as well as the number of smoke alarms installed. Families have to sign a waiver of liability, which has not proven to be a deterrent.

In addition to installing alarms and instructing people on testing and maintenance, volunteers also discuss the importance of escape planning, knowing two ways out, and having an outside meeting place. They also leave behind a home safety checklist and talk about issues, such as avoiding scalds and burns.

Six months after installing alarms, volunteers call families to determine if behaviors have changed. They also visit 1 percent for a visual evaluation. Thus far they have recorded two “saves” in which families escaped because of an installed alarm and having an escape plan.

The demographics of the people reached are typical of urban neighborhoods. Everyone is poor and many are older. Grandparents often serve as caregivers for their grandchildren when the parents working full-time. The program reaches a number of Hispanic homes. There is also a small Arabic population, but they have received no queries from them and have no translators available if they did.

Availability of the program has spread through public service announcements and word of mouth. Often, after installing alarms in one or two residences in a neighborhood, other calls follow.

The grant has allowed for the hiring of a full-time coordinator who handles all logistical requirements: recruiting volunteers, scheduling visits, and so on. Volunteers come from churches, block clubs, Boys & Girls Clubs, the City Year (AmeriCorps) programs, State Farm Insurance employees, and Ford Motor Company employees.

The area served is Detroit, Highland Park (which has a large fire problem), and Hamtramck.

The Detroit Fire Department has no involvement in this program. The fire chief has written a letter of endorsement, but firefighters do not volunteer or participate in any other way.

Sue Smith's impression is that the fire department does send people to schools and they teach students how to "stop, drop, and roll," but nothing else. The result in Ms. Smith's experience is that many children have the impression that "stop, drop and roll" is what one does when there's a fire, not just when clothing catches fire.

Of all the CDC grant recipients for smoke alarm programs, this is the only one that is a hospital. All others are fire or health departments.

• **Interview—Bridgeport Fire Department, Bridgeport, CT**

Interviewees—Brian Rooney, Chief; Bob Petrocelli, Assistant Chief

Background

In 2004 (or 2005) eight people died in fires in homes without working smoke alarms, which was the impetus to create a smoke alarm installation program for the city.

The Program

Called the Safe Sleep Program, the program is similar to others in that it provides free smoke alarms to residents who need them. The role of the fire service differs, though, from other fire department-sponsored programs. Fire department personnel provide follow-up and education, but they do not do the actual installation. For instance, in the summer months, the fire companies go into the community, park a truck, and check homes through inspections. Throughout the year they also attend programs for older adults and school events, such as PTA-sponsored events and carnivals, and reach out to churches and their leaders.

A Unique Partnership with AmeriCorps

Fundamental to the program's success is the strategic partnership between the Bridgeport Fire Department and AmeriCorps, which is a national volunteer program that connects volunteers with community service programs. In this case AmeriCorps trains volunteers in public safety and alarm installation and has taken on the responsibility for installing smoke alarms, while the fire service provides community presence and awareness and training for older citizens and children.

Targeting a particular section of the city creates problems, so the program takes aim at the entire city. Volunteers canvass various parts of the city, scheduled and coordinated carefully. When no one is home, volunteers leave a doorknob hanger in Spanish and English on the front door, indicating that people can receive a free smoke alarm and displaying a phone number.

The alarms installed are tamper-proof with a 10-year lithium battery. The volunteers install the minimum number of alarms: one on every floor and one outside the bedrooms. There are, however, some challenges associated with the alarms and their suppliers.

1. About 50 per 1,000 alarms have a failure rate: They start sounding or chirping for no apparent reasons and the fire department has to remove and replace them.
2. The price per alarm can vary from \$11.00 to \$24.00
3. There can be inventory issues with the suppliers, which can affect the price.
4. Storage is another issue.

Immigrant Populations

Many immigrants are renters, so to reach them the fire department partners with property owners associations to reach their rental clients. They also have found that the churches are good vehicles to reach immigrants.

The AmeriCorps volunteers who install the smoke alarms do not wear uniforms, avoiding the concern many immigrants have about people in uniforms.

What Didn't Work

The team is very clear about what kinds of vehicles did not work in promoting the program. Newspaper ads and open houses at the local fire station generated little response, as did flyers and mass mailings. Using tax addresses didn't work, because many tax addresses actually account for multiple structures.

What Does Work

Personal contact with the fire department works, which helps build trust between citizens and the department. That's why the fire department makes itself very visible in the local community through education and inspections.

Strong partnerships with organizations also work to promote the program or to find funding for the purchase of alarms.

Critical Success Factors

The team was very clear about what drives the program's success. First, meeting weekly team meetings are essential, especially when outside partners (AmeriCorps) are involved. This keeps the momentum going for the program. Secondly, constant promotion ("marketing") is required to let the public know about the program and its results.

Results

- Because of its success, Bridgeport is now the model for other cities in the state. (Bridgeport is the largest city in Connecticut.)
- The target for the first year of the CDC grant was met two months ago. The CDC commitment is for five years.
- At the Dallas CDC update meeting, Bridgeport had installed the largest number of alarms among the first-year awardees.

After a one-year FEMA grant and the first year of the CDC grant, 11,000 smoke alarms have been installed.