Running head: Implementing Risk Reduction Programs within Child Care Facilities

Leading Community Risk Reduction

An Implementation Plan for Risk Reduction Programs.

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An applied research project submitted to the National Fire Academy as part of the Executive Fire Officer Program

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CERTIFICATION STATEMENT

I herby certify that this paper constitutes my own product, that where the language of others is set forth, quotation marks so indicate, and that appropriate credit is given where I have used the language, ideas, expressions, or writings of another.

Signed: _____

ABSTRACT

The problem was Clackamas Fire did not have an ongoing risk reduction program targeting children five years of age and under. The purpose of this research project was to create a strategic formulation process to develop this program addressing preventable injuries to kindergarten and pre-kindergarten children. Three questions were researched to better understand these issues: What risk reduction processes are used in child day care centers across America to address future injuries? What risk reduction processes are used in centers across Oregon to address future injuries? What risk reduction processes are appropriate at CCFD#1 centers to address future injuries? An action research method was used to guide this research. The findings of this research support and outline a strategic formulation process.

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INTRODUCTION

The death or serious injury of children within our community has always been an emotionally charged subject for parents and emergency responders alike. Local media often provides in-depth coverage of these tragic events. Parents of young children may conduct brief self reflection when tragedy strikes children of ages similar to their own. Across the United States, unintentional injuries result in 5,500 child fatalities and 92,000 children permanently disabled annually. NFPA believes these traffic injuries, drownings, fires, burns, chokings, poisonings, and falls suffered by children are not random accidents: these tragedies are predictable and thus preventable (Risk Watch, 1998).

Awareness of the risk to children is a necessary condition to engage a community in a risk reduction program. Public education programs can be effective tools in reducing community risk. The problem is Clackamas County Fire District #1 does not have an ongoing risk reduction program which targets children five years of age and under. The purpose of this applied research project is to create a strategic formulation process to develop this community risk reduction program addressing preventable injuries to kindergarten and pre-kindergarten children attending daycare facilities within Clackamas Fire's response area.

Action research methods were employed to answer the following research questions: What risk reduction processes are used in child day care centers across America to address future injuries? What risk reduction processes are used in child care centers across Oregon to address future injuries? What risk reduction processes are appropriate at CCFD#1 day care centers to address future injuries?

BACKGROUND AND SIGNIFICANCE

Clackamas County Fire District #1 is an accredited agency with the Commission on Fire Accreditation International and was the first fire agency so accredited in the State of Oregon. Clackamas Fire is the third largest fire department in Oregon proudly serving 160,000 citizens in an area covering 194 square miles. Clackamas Fire operates fifteen community fire stations. The district's service area includes the cities of Milwaukie, Oregon City, Happy Valley, and Johnson City. Clackamas Fire also protects the unincorporated areas of Oak Lodge, Clackamas, Sunnyside, Redland, Carver, Beavercreek, Highland and Clarkes. The Fire District employs 158 full time employees, including one fire chief, one assistant chief, two deputy chiefs, one executive officer, eight battalion chiefs, and 134 sworn personnel. Approximately 60 volunteers supplement the career firefighter forces. All career firefighters are, at minimum, certified as emergency medical technicians (EMTs). The district employs 80 certified paramedics and staffs daily with a minimum of one paramedic on each career response unit.

Clackamas Fire District #1 is a fire service agency created by a series of mergers with smaller agencies. Approximately eleven fire departments have consolidated into one fire district during the last 30 years to create the current special district. Some of the larger mergers occurred in 1997 and 1998. Recent mergers have doubled the total personnel employed by the organization and thus have brought several organizational cultures together. Clackamas Fire adopted its first formal Strategic Business Plan in March 1999. Educating the public to reduce preventable injuries continues to be prominent throughout the 2003-2008 Strategic Business Plan document (CCFD1, 2003).

During 2004, Clackamas Fire responded to 14,000 priority one requests for assistance. Approximately 50 percent of these responses are medical related.

The population of the State of Oregon is approximately 3.4 million. The number of children ages 0-4 years of age is estimated at 223,000. The demand for child care has been steadily increasing in the past few decades, due to the steady increase in women with young children entering the labor force in the U.S. (U.S. Census Bureau, 2000). There are 249 large licensed group child facilities in Oregon. A large facility is licensed in Oregon for 12 or more children at one location. (Oregon, 2003) 43 large child care facilities have been identified within the Clackamas Fire District response area.

Childhood preventable injuries are a serious problem across the country. Children younger than five years of age, have the highest death rate from fire (Shai, 2003). Children playing with fire cause hundreds of deaths and thousands of injuries each year. Preschoolers are most likely to start these fires. Most of the people killed in these fires are children under 5 years of age (NFPA, 2004). In 2004, Clackamas Fire responded to approximately 14,000 emergency requests for assistance. 1,576 of these incidents involved traumatic injuries. Each week, Clackamas Fire paramedics provide initial treatment for preventable childhood injuries. A reduction in these injuries within the communities served by Clackamas Fire would have a positive impact on many systems, but most importantly, would improve the quality of life to children and their families.

Additional performance requirements have been imposed on Oregon elementary schools in recent years. Many Oregon school districts have experienced reduced annual school days due to budgetary constraints. Because of these two factors, the access to classrooms for fire department public educators has been reduced.

More households than ever rely on two incomes. More children than ever are spending time in professional daycare centers. Of the millions of children with two working parents across the U.S., over one-third of these children are attending private day care centers (JEMS, 1990).

By researching the barriers to effective risk reduction education in child care facilities, recommendations may be developed to improve programs and performance, thus, reducing future injuries of those participating. It is hoped that this research will not only prove beneficial for Clackamas Fire, but, will also provide insight for other agencies pursuing excellence in community risk reduction processes.

This applied research project is applicable to the United States Fire Administration's five-year operational objectives "to reduce the loss of life from fire in the age group 14 years and below". A direct correlation is established between this research and the National Fire Academy R-280 Leading Community Risk Reduction curriculum. Units 4, Intervention Strategies and Unit 5, Action Planning best outline the subjects explored in this paper.

LITERATURE REVIEW

The purpose of this literature review is to identify and compare best practice approaches to the implementation of risk reduction programs in child care facilities. Reference material was located to provide an understanding of the scope of preventable injuries, the demand for child care outside of the home, and methods to develop successful public education risk reduction programs. This background information became necessary to provide a basis to pursue risk reduction. It is difficult to justify

expending public resources to fix a problem without first providing proof the problem exists.

The U.S. Department of Homeland Security defines community risk as measures taken by a community to reduce the impact of risks on the community. Risk reduction involves implementing community-based strategies that either reduce or eliminate hazards or the community's vulnerability to these hazards (FEMA, 2003).

The National Fire Academy's 'Leading Community Risk Reduction' Executive Fire Officer Program student manual was reviewed for applicable information on this subject. Risk in the community is a community issue and therefore the process of community risk reduction must involve the community. Any community risk reduction process that fails to engage the community is doomed to fail. Also, a community risk reduction plan must be based upon a local problem and local resources. New initiatives cannot take the form of canned programs, meant to be everything to everyone. Each community must develop a specific plan to address the unique fire problems of that community. And finally, Community risk reduction is a product of community hazards and the vulnerability to the community from the hazards (FEMA, 2003). Community risk and a plan to address this risk will be different for each community.

The Solutions 2000 symposium examined fire safety challenges of young children, defined as children less than five years of age. Recommendations developed in the Solutions 2000 report included; Form coalitions that focus on child fire safety; Develop fire safety programs specifically focused towards young children and those with disabilities; and Prepare children for fire emergencies by getting parents, siblings, care providers, educators, and role models involved in fire safety education (Lopes,1999).

The work began in Solutions 2000 was expanded upon several years later in Beyond Solutions 2000. Angela Mickallide, Program Director of National Safe Kids, presented statistics supporting the need for national public education for children. During 1998, five hundred seventy five children ages 14 and under died in residential fires. More than 50 percent of these children were four and under. Each year, an estimated 40,000 children age 14 and younger are injured by fires in the home. Children age five and under, represent 9% of the population yet they account for 20% of all fire-related deaths in homes. These children are more than twice as likely to die in a fire as the remainder of the population. Injuries have significant impact on the family and the community. Children age four and under account for more than $550 million in annual cost from fire-related burns and deaths. Preventing injury and deaths require a multifaceted approach (Mickallide, 2001).

In November 2003, NFPA published a report titled "Children playing with fire" by John R. Hall. This report serves as the source for some alarming statistics. In 1999, children started more than 41,900 fires resulting in an estimated 1,901 injuries and 165 deaths. 90 percent of children whose fireplay started fires, were under the age of six. Three and four year olds are most likely to play with lighters. The chance of death resulting from fire play of a preschool child is greater than a fire started by a child five or older. The median age of children who start fires by fire play is five years old. The median age of fatal fire victims is three years old. These fires represent the leading cause of fire deaths among preschoolers. Young children most often start fires in the home, usually in their bedroom (Hall, 2003).

About 300 people are killed and $272 million in property is destroyed in fire attributed to children playing with fire. The United States Fire Administration encourages parents to teach children at an early age about the dangers of fire play in an effort to prevent child injuries, fire deaths, and fire setting behavior in the future. Children under 5 years of age are curious about fire. Over 30 percent of fires that kill children are set by children playing with fire (USFA, 1999).

Fires started by children, many as young as three years old, cause more than $245 million in property damage annually. Child fireplay is the leading cause of fire related deaths for children under five years old. Tragically, three quarters of those who die in fires started by children – are children (Fireproof Children, 2004). The shear amount of research and the statistics related to the dangers of fireplay and annual injuries to young children is significant. As the national data collection process improves, this information continues to reach wider distribution and these annual statistics should be cause for concern.

Children ages 5-9 are at the greatest risk of being hit by a motor vehicle. Children under 4 years of age are at especially high risk for drowning. Kids under age 5 are at greatest risk from fire because they may panic and hide in closets or under beds. Children 3-8 are very curious about matches and lighters. Toddlers are at the greatest risk from scalds as they begin to crawl, climb, and walk. Children under 5 are most frequently the victims of poisings. Choking is the fourth leading cause of accidental death in young children (Safe Kids, 2004). Preventable injuries to children occur each day in the communities we serve. Only the serious or very tragic gain media attention.

The need for paid child care continues to rise. Obtaining affordable, quality child daycare, especially for children under five years of age, is a major concern for many working parents. Approximately eight percent of daycare workers are below 20 years of age. This reflects the minimal training requirements for many child daycare positions (U.S. Dept. labor, 2004). Child care centers are found in every municipality, large or small. The intense demand for this service has resulted in the construction of thousand of these facilities (Fire Engineering, 1998). There were more than 67,000 day care centers across the country in 2001. Many working mothers turn to these centers to juggle motherhood and a career (U.S. Census Bureau, 2004). Children as young as 2 ½ years old are typically considered capable of responding to emergency situations either on their own or with directions from supervising adults (Paarlberg, 2000).

The Child Care Research Partnership conducts a biennial household telephone survey to establish how Oregon's child care education system is doing. An estimated 27 percent of the 605,500 Oregon children under age 13 are in some form of child care purchased by their parent(s). 41 percent of Oregon's children receive child care in a paid center. In Clackamas County, there are 22,004 children 0-4 years of age. Again, 27 percent of these children are in some form of paid child care. An estimate 6,993 slots are available in Clackamas County child care facilities (Oregon Child Care Research partnership, 2003). As the demand for child care continues to increase, more young children will be attending commercial daycare facilities.

The Federal Emergency Management Agency (FEMA) and the United States Fire Administration (USFA) provide a public fire education planning publication titled; A Five Step Process. This document provides a huge amount of information on this subject.

Since 1977, A Five-Step Process is a model that's been used by public educators to develop and implement fire safety education programs. Today's fire agencies use many terms for fire and injury prevention programs. Programs differ in size and approach; but, the goals remain constant; Change the public's behavior so fewer dangerous situations, fires, and injuries occur. Successful programs follow a five –step process: 1.Conduct a community analysis, 2.Develop community partnerships, 3.Create an intervention strategy, 4.Impliment the strategy, and 5.Evaluate the results (FEMA, 2002).

It is imperative to have a thorough understanding of the planning process which gains support of department leaders and develops partnerships within the community. Community fire and life safety education should be included in an organization's mission statement. It should be included in a department's budget. Job descriptions should include community risk reduction education as a required duty and personnel should be trained as community educators. Conducting a comprehensive community risk analysis is the first step toward deciding which fire or injury problem needs to be addressed. The community risk reduction education process is a never-ending cycle of analysis and revision. It is a series of five-step planning processes that overlap and continue and develop through time (FEMA, 2002). This book was a particular good find. It is a nationally recognized manual, published by a federal agency, and provides a huge amount of guidance to develop a risk reduction process in any community. The information included in this manual provides for the basis of these recommendations.

The first research question to be addressed was; What risk reduction processes are used in child daycare centers across America to address future injuries.

A new public education era began in 1988 when the National Safe Kids Campaign was introduced in Washington DC. The goal of this program is to reduce preventable childhood injuries, including those from fire. In 1995, the National Fire Protection Association (NFPA) began working with National Safe Kids Campaign to develop an all-risk injury prevention curriculum called *Risk Watch*®. Risk Watch® is an effective public education tool. It is essential that each community gather data on fires and preventable injures within their community. Data analysis is an important part of the overall planning process as well as the development of an effective public education program. Effective prevention programs incorporate education, code enforcement, and engineering interventions in one comprehensive prevention strategy. These three interventions working together attack the problem from all sides so the ability to reduce deaths and injuries is dramatically improved. Public Educators must teach the public that injuries and fires are seldom accidents. Safe Kids estimates that as many as 90% of unintentional injuries to children can be prevented (FEMA, 2002). Safe Kids is a large organization and growing throughout the nation.

Developed by the NFPA, *Risk Watch*® is a comprehensive curriculum designed to give children in preschool through grade eight the information and support they need to make positive choices about their personal safety and well being. The program targets the top eight risk areas for this age group: Motor vehicle safety, Fire and burn prevention, Choking, suffocation, and strangulation prevention, Poisoning prevention, fall prevention, Firearm injury prevention, Bike and pedestrian safety, and water safety (Risk Watch®, 2004).

Risk Watch® is the first comprehensive educational program designed specifically to address the eight preventable injury risk areas that most threaten the children of North America (NFPA Journal, 1997). The Risk Watch® program is familiar because Clackamas Fire provided this curriculum to most elementary schools several years ago but left instruction to the classroom teachers.

Bic Corporation introduced the Play safe! Be safe!® multimedia fire safety education kits in 1994. They provide local workshops, enabling best practices for teaching fire prevention and life safety throughout the US and Canada. Bic also sponsors interactive games and activities at their www.playsafebesafe.com website. (Bic, 2004)

Hagerstown Pennsylvania Fire Department has developed community partnerships and established a child training center for injury prevention. Children's Village distributes information on their program including advice for other agencies desiring to begin their own risk reduction education programs. Creating an education committee to design and supervise the curriculum is a smart strategy. Don't try to reinvent the wheel! Use part of all of existing curriculums as a model for your program. It is important to identify the stakeholders who have the greatest interest in the project. Gaining support early from these individuals is essential to a successful beginning. Finally, personal vision and commitment is critical for a project to be successful (Children's Village, 2004). The Hagerstown's risk reduction campus is a model example of what a community can achieve by developing partnerships with a common vision.

The third edition of the Sesame Street Fire Safety Station program is distributed free of charge through the Untied States Fire Administration. This project began in 1979. The material is designed to be effective in one-time teaching situation or an ongoing basis

for the preschool audience. Tips for effective pre-school fire safety lessons include; keep presentations less than 20 or 30 minutes, sit with children on the floor, use simple words, repeat important messages, and involve the children in activities (USFA,1996).

Jon Hansen, in his published Executive Fire Officer project, conducted research into the implementation of a Kid Safe injury prevention program in Oklahoma City, OK. Children less than five years old have been subject to a disproportionate share of injuries and deaths. This same group has been the cause of a high percentage of residential fires resulting from dangerous fire play. A major obstacle became apparent, this group of children was too young to attend public school where fire safety education traditionally occurs. The Kid Safe program includes pre and post testing to determine the effectiveness of the program. The author recommends the following steps to implement an injury prevention program for young children:

- Collect local relevant data
- Organize a well balanced task force
- Select facilities to pilot the program
- Make modifications to meet local needs
- Locate funding for implementation
- Advertise the program with local media
- Conduct workshops for instructors
- Hold open houses
- Implement the curriculum in child care facilities
- Monitor progress
- Celebrate completion with dramatic graduations

- Evaluate the program

This Applied Research Project provides a good summary of a similar project in risk reduction. Unfortunately, it appears to only deal with fire related injury prevention issues. This research defines the process used to create a successful program and provides very similar recommendations to the FEMA five step manual.

Public officials realize that unintentional injuries are the number one killer of children under 14 years old. Fire prevention officers have identified that fire related incidents only account for five percent of unintentional injuries to children. If you are really interested in kids, you must go beyond just fire safety education (Seaton, 2000).

In the *Risk Watch*® program, teachers at each grade level use different ways of getting the safety and prevention message across. At the pre-K and kindergarten level, children become story tellers (NFPA Journal, 2000). The Risk Watch material is a curriculum which requires instructor preparation time and material development prior to classroom delivery.

In 2003, *Risk Watch*® released their *Risk Watch: Natural Disaster*® program intended to help children and their families prepare for the six leading natural disasters-floods, earthquakes, hurricanes, tornados, winter storms, and wildfires. Also included is an expanded general preparedness section following September 11, 2001 (NFPA Journal, 2003).

In Alcoa, Tennessee, safety educators teach children as young as 2 ½ years old to dial 911 using a color coded telephone. Pre-school children are instructed to call Blue-Red-Red for help. Since many toddlers know colors but not numbers, this was proven to

be an effective method (Malone, 1994). This article described a creative local solution to a widespread childhood development issue.

In addition to a basic need for valid and reliable fire safety knowledge measures, there is a need for measures that are appropriate for pre-literate children. Children play a major role in fire loss; yet, young children are often overlooked in fire safety training and even more often overlooked with regard to fire-knowledge testing because of their limited reading skills (Bowers, 1994). This re-iterates the need to use alternate teaching methods for the very youngest audiences.

The second research question to be answered was; What risk reduction processes are used in child care centers across Oregon to address future injuries?

Oregon State Statutes, ORS 336.072(1), requires that all schools are required to instruct and drill students 30 minutes monthly on emergency procedures so that students will respond to an emergency without confusion or panic. Emergency procedure drills shall include fires, earthquakes, and tsunami where appropriate. The Oregon fire service's goal is that every child will receive the education he or she needs for a lifetime safe from fire, burn, and earthquake injuries (Office of the State Fire Marshal, 1987).

The Oregon Child Care Division establishes rules for providers. Centers will develop a written plan for handling emergencies, including, but not limited to, fire, acute illness of a child or staff, floods, earthquakes, and evacuation of the facility. Fire drills shall be conducted monthly. One other aspect of the emergency plan shall be practiced every other month (Oregon CCD, 2003). There are no requirements to provide injury prevention education applicable to a residential environment in the State of Oregon handbook of rules for certified child care centers.

The Oregon State Fire Marshal's Office Community Education Unit distributes a fire safety skills curriculum for grades K-6. The program provides nine fire and life safety skills to protect children, their families, and their community from the hazards of fire, earthquake, wildfire, severe weather, and hazardous materials through survival and prevention skills. Kindergarteners are addressed since it has been determined that at this age students can begin to understand the dangers of uncontrolled fire, how to escape from it and how to treat simple injuries caused by fire (Office of the State Fire Marshal, 1987). No indication that this program has been revised since 1987 was found. The signatures included in the introduction, confirm that this document has not been updated for some time.

The Oregon State Fire Marshal's Office partnered with several national and local groups to create an Incendios No Màs (Fires No More) project. This multi-media Spanish message based program was developed surrounding the three most common fire causes in the Woodburn, Oregon community. This project was conducted in Head Start programs in the Woodburn area. It also has provided a foundation for other Oregon fire agencies to develop Spanish outreach programs. The State of Oregon also maintains a public education lending library to assist local fire departments with video, curriculum, and instructional kits (Office of the State Fire Marshal, 2003).

The Oregon Life Safety Team is composed of representatives of community partners and fire service agencies. This team coordinates and implements consistent statewide fire prevention messages and campaigns. During 2003, a candle safety campaign and a smoke alarm campaign were coordinated. Efforts are selected using state-wide data to identify target areas (Office of the State Fire Marshal, 2003).

The third and final research question to be answered was; What risk reduction processes are appropriate at CCFD#1 daycare centers to address future injuries?

Clackamas Fire's five-year strategic plan includes the following action plan statement; Evaluate loss data at regular intervals to update and modify education programs to target fire cause trends. And further; Provide a minimum of one 45-minute fire-safety presentation to as many elementary school students each year as possible (CCFD1, 2003).

It was discovered during this research process that Clackamas Fire had made a prior attempt at addressing risk reduction in some child care facilities. Brandon Paxton, a fire cadet explorer with Clackamas Fire, chose to complete his Rex Putman High School senior project in fire safety public education. Capt. Troy Buzalsky trained Paxton and authorized him to deliver Bic - Play safe! Be safe!® kits to an unknown number of daycare providers within the fire district boundaries. The kits were provided to Clackamas Fire at no cost through the Portland Metro Injury Prevention Coalition community grant. Paxton was not paid for his efforts, but Buzalsky attended his senior project presentation and wrote him a glowing letter of recommendation following his efforts. Local news providers featured this community service story on local news broadcasts and in print. These deliveries of materials and the associated brief training of care providers occurred during spring and summer of 2001. As an incentive to participate, each child care facility was provided with a new kid's bike and helmet to be distributed to a child in need. Paxton also demonstrated proper bike helmet fitting on one child at each facility. No other injury prevention was included in this effort as the kits contained only fire safety activities and material. No follow-up has been conducted with

these facilities since this distribution in 2001, until this survey was conducted. T. Buzalsky (personal communication, September 29, 2004).

Brandon Paxton a 2001 graduate of Rex Putman High School in Milwaukie, Oregon was contacted via telephone for an interview in October 2004. Paxton confirmed that he had completed the project and that only fire safety material was delivered. He was unable to provide documentation on the project or a list of daycare providers who received the materials and training. He did recall delivering to Learning Tree Centers and the delivery of bikes and helmets. B. Paxton (personal communication, Sept. 2004).

Alarming statistics are readily available on the dangers young children face from preventable injuries. Developing public education solutions to these risks must be based upon local solutions to local problems. When instructing very young children in safety intervention, it becomes necessary to develop alternative method to reinforce positive behavior since this age group may have short attention spans and not yet be able to read. The FEMA five step manual is a priceless resource to use as a template in the development of a risk reduction public education process within a community.

PROCEDURES

The purpose of this applied research project was to identify an appropriate implementation strategy for a risk reduction program in child care facilities within the Clackamas Fire response area.

The initial research for this project began while on campus of the National Fire Academy located in Emmitsburg, Maryland during August 2004. An electronic search of Learning Resource Center's (LRC) reference material revealed sources of related material including several Executive Fire Officer Applied Research Projects and

periodical articles. Additional research was conducted from October 2004-January 2005. This research included internet searches using the Goggle search engine (www.google.com). Several personal interviews were conducted via telephone or in person. Additional reference material was received via mail from contacts made during the process.

A survey was prepared for distribution to larger Oregon fire service agencies and larger certified child care facilities within the boundaries of Clackamas Fire's service area. Both surveys were reviewed by staff for grammatical content and clarity. A draft copy of the child care facility survey was hand-delivered to the owner/operator of the Oak Grove Learning Tree Center. The survey was completed and returned within one week. A personal follow-up meeting was conducted to discuss any clarity issues with the survey. Final revisions to the surveys were made following input and these surveys were forwarded via E-mail to the assigned evaluator, Al Conners, for approval.

The State of Oregon Employment Department Child Care Division was contacted for a list of certified child care centers within the Clackamas Fire response area. This list was compared to the Clackamas Fire inspection database. Using these two sources, a list of 43 daycare facilities was established which serve more than twelve children at each facility. On October 19th, 2004, 100% of these 43 facilities were sent surveys via U.S. mail carrier. A self-addressed, stamped return envelope was included with an explanation of the request. The surveys began returning in a few days through U.S. mail. The results were compiled the last week of November 2004. A summary of the 22 surveys received was prepared for analysis and is included.

The Oregon Fire Chief's Association (OFCA) *Fire Agencies Member Handbook* lists a total of 350 fire agencies in Oregon. This directory was used as a source to identify 46 larger Oregon fire departments to include in this survey. The intent was to survey only larger fire service organizations with a career fire prevention staff. Listings identifying themselves as all volunteer agencies were not considered. Using the author's knowledge of fire organizations within the State of Oregon in conjunction with information provided in the OFCA *Fire Agencies Member Handbook*, 100% of these 46 Oregon fire chiefs or fire marshal's were mailed surveys on October 26th, 2004. A self-addressed, stamped return envelope was included with an explanation of the request. The surveys began returning within a few days and were summarized on November 26th, 2004. A total of 26 completed surveys were received by this date.

RESULTS

The results of this applied research project were developed from a comprehensive examination of data published in books, periodicals, journals, surveys, and internet sources. Community risk reduction processes result from identifying a need and a desired outcome. The risk reduction process is designed to remove barriers preventing the desired future reality. These results identify methods to pursue improvement in the safety of children within our communities.

Research Question #1: What risk reduction processes are used in child daycare centers across America to address future injuries? Several national injury prevention programs were identified:

The original **Sesame Street Fire Safety** project began in 1979 to teach preschoolers memorable fire safety messages. The current expanded program is distributed by FEMA's United State Fire Administration Publications at no cost to fire service agencies, schools, and other agencies. The program includes a teacher's manual, student work book, and a cassette tape of fire safety songs.

NFPA's - Learn not to burn® is a behavior based curriculum covering eight basic fire safety behaviors with curriculums for Pre K to grade 3. Songs, activities, teacher information, posters, and letters for parents are included. Pre-K / K curriculum is available in both English and Spanish (Cost $10.00 each kit.) (NFPA).

NFPA's - Risk Watch® is a comprehensive injury prevention program designed for use in classrooms. Risk Watch® curriculum is divided by Pre-K / K, Grades 1-2, Grades 2-3, Grades 4-5, and Grades 7-8. Topics addressed include: Motor vehicle safety, fire and burn prevention, choking, suffocation, and strangulation prevention, poisoning prevention, falls prevention, firearm injury prevention, bike and pedestrian safety, and water safety. Teacher curriculum provided. A natural disaster series is also available (Cost $72.50 each manual) (Risk Watch, 1998).

BIC Corporation – Play safe- Be safe®! is a multimedia fire safety education kit to teach fire safety skills to preschool children. A video, story cards, dress a firefighter activity board, card game, and teacher's manual is included. The program and video is available in both English and Spanish (Cost is $12.00 each) (Bic, 2003).

The National Safe Kids Campaign provides distribution of hands-on educational activities for children and their families to assist communities to get more involved in child safety. The strength in this agency is their ability to share information (Safe Kids).

Kid Safe is a program developed in Oklahoma City to address the high rate of deaths and injuries due to fire. The program includes nine lessons on fire-safety behavior designed for the pre-school audience (Hansen, 1990).

Safety APE ™ provides videos, sign along music, and activity books covering several child injury prevention subjects, such as water safety and bike/skateboard safety. Material is available in English and Spanish (cost $10.00 each video).

Local Programs are developed in response to specific community needs and may contain portions or similar material to nationally recognized programs. The Kid Safe program began as a response to a local problem. After development, the program has been implemented in other jurisdiction with similar needs.

Research Question #2: What risk reduction processes are used in child care centers across Oregon to address future injuries?

Of the 26 Oregon fire departments that responded to the survey, 23 agencies (88.5%) indicated that they provide regular fire safety education to children. Most of these agencies targeted Pre-kindergarten to 6th grade.

Eleven of 26 (42.5%) Oregon fire departments participating in the survey provide regular injury prevention education to children. Again pre-kindergarten to 6th grade children are targeted.

Eighteen of 26 (69.2%) of the Oregon fire departments participating in the survey utilize a locally developed program for their fire education and injury prevention programs. Seven (27%) of the 26 organizations surveyed, use NFPA's Risk Watch®. Five agencies (19% of those surveyed) reported use of Bic's play safe – be safe® program. Five agencies (19% of those surveyed) also reported use of Safe Kids material.

One agency reported using NFPA's Learn not to burn material while another reported using the Kid Safe program.

Fourteen (30%) of the 26 Oregon fire service organizations indicated that they have made attempts at or have an on-going risk reduction educational program in daycare facilities within their jurisdictions.

Eight (30%) of the organizations participating in the survey reported the use of pre-post testing in their programs.

Research Question #3: What risk reduction processes are appropriate at CCFD#1 daycare centers to address future injuries?

Of the 22 Clackamas County Fire District #1 daycare facilities which responded to the survey, 18 (81%) reported that they provide fire safety education in addition to local fire station tours and monthly state mandated fire drills. Six facilities reported annual fire safety training. Four facilities reported monthly fire safety training for their children. Three centers reported occasional training and five facilities reported seldom but some training did occur. A majority of these efforts targeted the pre-kindergarten and kindergarten children with less emphasis on the 1st grade through 5th grade audience.

Of the 22 Clackamas County Fire District #1 child daycare facilities which responded to the survey, Eleven (50%) reported that they provide some injury prevention training to the children they care for. Two facilities (9%) reported monthly training, two reported occasional, one reported weekly, two reported annual, six (27%) reported seldom or occasional. The emphasis of this material was once again targeting the pre-kindergarten through first grade children with lesser participation by 2nd grade through 6th grade. Daycare facilities reported using a variety of material to facilitate these

subjects. Three facilities (13.6%) reported using the Bic corp. 'play safe – be safe' kits. One facility reported using an electrical safety program distributed by PGE, the local power company. One reported using a Spanish only program. Eight facilities (36%) reported using a locally designed safety program. Sixteen (72.7%) of the reporting facilities reported conducting some type of disaster preparation training for their students.

When asked if child care centers would be willing to dedicate time weekly to present fire safety and injury prevention material to the children in their facility if it was provided free of charge, Twenty one, an overwhelming 95 % responded "Yes". When queried on how much time would be dedicated to this subject, centers responded with a range from 10 minutes to 30 minutes per week. One center committed to an hour per week while another indicated that no time would be committed weekly to this subject.

Care providers were also surveyed on the type of activities which work best for staff and children in their facility. Table 1-A

Rank	Activity	Indicated	Percentage
1	Visit from firefighters and a Fire Engine	19 of 22	86%
2	Activity or Coloring books	18 of 22	81%
3	Books teachers could read on injury prevention	18 of 22	81%
4	Fire Safety or Injury prevention games	16 of 22	73%
5	Fire safety and injury prevention handouts	13 of 22	59%
6	Fire safety and injury prevention videos	12 of 22	54%
7	Certificate of program completion to take home	8 of 22	36%
8	Activities to be done at home and then returned	7 of 22	31%
9	Annual Coloring contest with a grand prize	7 of 22	31%
10	Internet games and safety education learning	5 of 22	23%
11	Pre and Post testing	4 of 22	18%

These same participants were asked which of the above activities would be most effective for children under six years old. Below is a table summarizing the results.

Table 2-A

Rank	Activity	Indicated	Percentage
1	Visit from firefighters and a Fire Engine	16 of 22	72%
2	Fire Safety or Injury prevention games	10 of 22	45%
3	Books teachers could read on injury prevention	9 of 22	41%
4	Activity or Coloring books	8 of 22	36%
5	Fire safety and injury prevention videos	7 of 22	32%
6	Activities to be done at home and then returned	3 of 22	14%
7	Annual Coloring contest with a grand prize	2 of 22	9 %
8	Certificate of program completion to take home	2 of 22	9 %
9	Fire safety and injury prevention handouts	1 of 22	4 %

Daycare centers were also surveyed to determine if they received a Bic corporation play safe! be safe!® fire safety kit from CCFD#1 during the summer of 2001. Four of twenty two respondents indicated that they had received this material. Respondents indicated that this material was appropriate for Pre-kindergarten and kindergarten children.

DISCUSSION

The Federal Government reauthorized The Elementary and Secondary Education Act creating the No Child Left Behind Act of 2001 (Public Law 107-110). In January 2003, the State of Oregon submitted an Accountability Workbook to the U.S. Department to Education outlining the state's interest to comply with this federal mandate. ORS 329.105 establishes a state report card system for all schools as the basis for a statewide accountability system. Adequate yearly progress of K-2 grade students will be assessed

by student performance on grade 3 testing. A statewide accountability system has been established including rewards and sanctions expecting all student subgroups to reach established proficiency by 2013-2014 (Oregon, 2004). Schools throughout Oregon also face annual funding crises which have resulted in a reduction in the number of annual school days. These added achievement requirements in conjunction with reduced school days are impacting public safety education access into classrooms as teachers must prioritize available time. Child care facilities provide full day supervision for many pre-schoolers and offer before and after school care for school age children. Keeping children busy and entertained in a safe and structured environment seems to be their priority.

Pre-school age children are at greatest risk and many preschoolers are not in preschools where they can be reached by public education programs. Parents and caregivers must be more widely distributed with public fire safety education information to address this risk (Hall, 2003). Several sources reiterate this risk to the youngest members of our communities. The USFA also recognizes that the risk from fire injuries and deaths is greatest among the youngest and oldest members of society.

How young of a child can comprehend personal safety material? Children at a very young age can be mesmerized by television cartoons. Educational or entertainment, children absorb what they are exposed to. Clearly three to five year olds are capable of understanding and learning these life saving skills but will learn them only through a determined effort (Cole, R., Crandell, R., Kourofsky, C., 2004). Young children are dependant upon their caregivers to provide for their personal safety during their early years. Children age two and below may be a difficult audience to teach. But, parents

preach and demonstrate safety to these children beginning at very young age. Several sources and programs target three year olds for successful injury prevention learning. Age three appears to be an appropriate target age to begin this injury prevention education.

One consistent finding during this research project is the direction that local community risk programs must not be a canned programs designed for other communities. A local injury prevention effort should be tailored to address local problems. National and state-wide risks can differ from a specific community's experience with regard to childhood injuries. To be effective, you must study the local problem before creating a local solution to the issues.

Two sources were identified which revealed methods for developing a successful community based public education process. Both authors recommend beginning with an analysis of the local data on childhood injuries. Both suggest building community partnerships and assembling a diverse group of motivated individuals. Both recommended designing a strategy and curriculum. Both recommended implementing the program and then monitoring and evaluating its effectiveness. Although the recommendations differed slightly in areas, both were consistent in the order of the major milestones.

Eighty one percent of the CCFD#1 child care facilities whom responded to the survey indicated they provide fire safety education in addition to the state mandated fire drills and local fire station tours. Although encouraged by this majority response, the frequency and quality of information presented was not quantified. No providers acknowledged a weekly commitment to fire safety education. Only one provider

acknowledged a weekly commitment to injury prevention training. Approximately 30 percent of respondents indicated that these educational efforts occur seldom or occasionally. It is difficult to determine if these activities really occur or if providers simply felt compelled to have their facility not shown as inferior when compared to their competitors. The lack of recognized national program materials being used could be one indicator that current efforts are primarily sporadic and not consistent.

The most encouraging finding of the surveys returned from daycare providers was their willingness to dedicate time for these activities if the materials were provided free of charge to their facilities. 95 percent of these respondents indicated they would dedicate 10 minutes to 30 minutes each week to this subject. Only one provider indicated that they would not be willing to commit to this effort. A note attached to this survey indicated the respondent thought a monthly commitment would be more appropriate for pre-school children. This confirms that daycare providers have time available and would dedicate efforts to participating in risk reduction education in their facilities.

When surveyed for methods to deliver this material, 72 percent of those responding indicated that their preferred activity would include a visit from firefighters on a fire engine. The question inquired which activities would be most effective for children under six years old. Providers may have considered this activity to be best received by their children or this activity would be most enjoyed by their children. The intent of this survey question was to determine which activities would be most effective at teaching injury prevention education material. It is unknown whether providers responded based upon entertainment value or education value, either way this is seen as a

popular opportunity to facilitate interaction between fire service personnel and young children.

The cost of material reviewed varied from free to $72.00 per copy. Since the amount of material needed to allow wide-spread participation is significant, the costs of material may become a factor in the selection process. To better understand the program materials mentioned in this report, the author personally viewed videos and participated in interactive games with his five year old daughter. Some materials are ready-to-go and lend themselves to use by parents or teachers with minimal advanced preparation. The Risk Watch® curriculum, although professionally assembled, requires much instructor preparation unless the instructor simply plans to read text out of the manual. This program seems more appropriate for instructors who teach the same curriculum on a regular basis and not a one-time presenter with minimal knowledge of the subject and restricted preparation time.

Treating serious injuries involving children is often very traumatic for the emergency responders as well as family members of the victim. In June of 2003, Clackamas Fire personnel responded to a fatal residential fire involving a nine year old boy. The boy was found deceased in the shower with water running as he retreated from the smoke and heat. The boy's grandmother/caretaker also died in this fire. A single working smoke alarm may have prevented this tragic incident. Just recently, a two year old boy was treated by our personnel for strangulation involving a mini-blind cord. He also died. These events continue to remind emergency responders that many more lives will be lost unless we embrace proactive public education throughout the community.

RECOMMENDATIONS

The problem, as previously stated, is that Clackamas County Fire District #1 does not have an ongoing risk reduction program which targets children five years of age and under. The purpose of this applied research project is to create a strategic formulation process to create a community risk reduction program addressing preventable injuries to kindergarten and pre-kindergarten children attending day-care facilities within Clackamas Fire's response area.

The research presented in this study has demonstrated the need for Clackamas Fire to develop a strategic formulation process to develop a community risk reduction program addressing preventable injuries to young children attending daycare facilities within Clackamas Fire District. Based upon the findings of this research, it is recommended that Clackamas Fire District begin formulating a community risk reduction process using the nationally recognized process presented in this research paper.

As the organization begins this process, it will be essential to remain flexible and attentive to the needs of the citizens, the care providers, and the organization. Gathering a broad perspective of these representatives, allowing them adequate input, and completing the planning and implementation phase in a timely manner will be essential.

One critical component of this process will be the collection of historical data on accidental injuries and death to children within our communities and assembling this data by cause of injury and frequency. Identifying the total number of children attending child care inside Clackamas Fire will also be important, as will their ages and demographics. The momentum and drive for this project will develop as the significance of risk to children is better understood within our local jurisdiction.

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CLACKAMAS FIRE DISTRICT COMMUNITY RISK REDUCTION PROCESS

Community risk reduction consists of identifying threats to the community and then implementing plans to eliminate or reduce these risks. Nationally, children under five years old are subject to a disproportionate number of deaths and serious injuries. These children may not be able to protect themselves and thus are dependant upon their caregivers to provide for their safety. Protecting these youngest members of our community is a noble cause. It has been demonstrated that children as young as 3 years of age are capable of understanding life saving messages. By teaching life safety skills to children at very young ages, these children will be better prepared to protect themselves and may even educate their parents and caregivers along the way. In Oregon, public schools are reducing fire department public education access due to increased curriculum demands and reduced school days. Our current program does not begin fire safety awareness training until kindergarten or first grade. Many traumatic injuries occur to children less than five years of age. Day care providers have indicated that they will provide time and instruction weekly in their facilities if injury prevention materials are provided at no cost to them. The goal of this project is to develop a community risk reduction program addressing preventable injuries to kindergarten and pre-kindergarten children attending daycare facilities within Clackamas Fire's response area.

The Clackamas Fire District will use a nationally recognized five-step process to develop and incorporate this risk reduction process into the communities we serve.

Step One – Risk Analysis

The first step in this process will consist of conducting an analysis of community data available on childhood injuries. The fire district's records management system may serve as an initial source of injury information. Local hospitals, medical insurance companies, State of Oregon, Clackamas County, and local pediatricians may also provide reliable sources for gathering input. A summary of children in day care facilities and their ages will be prepared. The goal of data research in this area is to define the scope of the local problem and identify those activities which present the greatest risk.

Step Two – Assembling a Team

During the second step, the Fire Marshal will identify potential members of the department and of the community to serve on the planning team and share the program vision. Potential members include; parents, teachers, daycare operators, firefighters, public educators, police officers, paramedics, nurses, doctors, and other members of the community. The charge of this team will include; Reviewing initial data, Determine if additional data on CCFD#1 childhood injuries is desired from other sources, Finalize a list of local risks to children, and decide which risks are appropriate to target for risk reduction. Identifying frequency and severity of this vulnerability will be included in the process. Timelines for completion of this process will be developed as well as the establishment of scope and authority of this team.

Step Three – Develop an Intervention Strategy

The third step can only proceed after the childhood injury and death problem is clearly defined within the community. Members of the planning team will develop intervention strategies to improve the situation. It can be anticipated that public education will be included in the solution but options should be considered such as equipment, engineering, enforcement, and product development opportunities.

Curriculum development and a review of current programs and available materials will be included. Intervention opportunities may be restricted by available funding. Securing additional funding sources may become part of this effort to allow additional strategies to be considered as feasible for implementation. A key element of this activity is to develop local solutions to the local problem.

Step Four – Implement the Strategy

During the fourth step, an implementation team will be formed including some members of the planning team. Timelines for initial project implementation will be established outlining areas of responsibility and funding estimates. A list of daycare facilities will be developed. Beta test locations will be designated if appropriate. Pre-testing of the children involved will be discussed. Result of pre-testing may prove beneficial for future evaluative measures. Timelines will be confirmed or adjusted as necessary. The Fire Marshal will oversee the implementation of the program.

Step Five – Evaluate the Results

The fifth step in this process will be to evaluate the effectiveness of the program annually using local sources of data. Post-program evaluative testing procedures of the children attending the targeted daycare centers will be discussed. Based upon input from daycare providers, public educators, and the trends established by data analysis, the implementation strategies will require review and ongoing adjustment.

Oregon Fire Service Survey

Injury Prevention in Child Care Centers

As a participant in the National Fire Academy's Executive Fire Officer Program, I am conducting research on available risk reduction processes used in child care facilities in Oregon.

Across our country, children under 6 years old have been subject to a disproportionate share of injuries and death from fire. Unintentional injury continues to rate as the number one health risk facing school age children (NFPA). Oregon's 'No child left behind' legislation has restricted classroom access in some school districts. These facts provide the basis for my research.

I need your help! Please answer the following questions based upon your department's experience with this subject. Please return the surveys to the address listed below using the postage paid envelopes provided.

1. Does your department provide regular fire safety education to children?

   Yes No

   If yes; What ages are targeted? Circle all that apply.

   Pre K, K, 1, 2, 3, 4, 5, 6, 7, 8, High School

2. Does your department provide regular injury prevention education to children?

   Yes No

   If yes; What ages are targeted? Circle all that apply.

   Pre K, K, 1, 2, 3, 4, 5, 6, 7, 8, High School

3. What national or local programs are used to educate these children? Mark all that apply.

   ___ Risk Watch - NFPA
   ___ Play Safe; Be Safe –Bic Corp
   ___ Kid Safe Program – Oklahoma City Fire
   ___ Safe Kid Program – Illinois
   ___ Other National Program _____
   ___ Local program – Please describe:_____
   _____
   _____
   _____

4. Does your department currently provide regular fire safety or injury prevention education in child care facilities within your jurisdiction?

   Yes No

5. What previous attempts have been made at educating Kindergarten and Pre-Kindergarten children in daycare facilities?

   ___ Ongoing program
   ___ Several attempts in last 10 years
   ___ No attempt that you are aware of

   If attempts have been made, please share any successes or failures with this age group and setting based upon the program and the approach taken.

_____
_____
_____
_____
_____
_____

6. Do any of your child education risk reduction programs utilize pre and post testing of the participants to determine the effectiveness of the education efforts?

   Yes No

7. Do you have program outlines, lesson plans, handouts, pre-post tests, any research available on subjects related to risk reduction programs in Child Care facilities, (specifically targeting children less than 6 years of age) that you can send me?

   Yes No

8. Who is the best contact in your organization if I need additional information on this subject?

   Name: _____

   Title: _____

   Phone Number: _____

   E-Mail: _____

Thank You very much for participating in my research project.

Mail completed responses to: Deputy Chief Scott Weninger - Fire Marshal
Clackamas County Fire District #1
2930 SE Oak Grove Blvd. Milwaukie, OR 97267
E-mail: Scottwen@ccfd1.com

Clackamas County Fire District #1 Survey
Injury Prevention in Child Care Centers

As a participant in the National Fire Academy's Executive Fire Officer Program, I am conducting research on available risk reduction processes used in child care facilities in our Fire District.

Across our country, children under 6 years old have been subject to a disproportionate share of injuries and death from fire. Unintentional injury continues to rate as the number one health risk facing school age children (NFPA). Oregon's 'No child left behind' legislation has restricted classroom access in some school districts. These facts provide the basis for my research.

I need your help! Please answer the following questions based upon your organization's experience with this subject. Please return the surveys to the address listed below using the postage paid envelops provided.

1. Does your facility provide fire safety education to children other than monthly state required fire drills and local fire station tours? Yes No
   If yes; How often? (Circle one)
   Seldom, occasionally, weekly, monthly, annually
   If yes; What ages are targeted? (Circle all that apply.)
   Grades: Pre K, K, 1, 2, 3, 4, 5, 6, 7, 8

2. Does your facility provide regular injury prevention education to children? Yes No
   If yes; How often? (Circle one)
   Seldom, occasionally, weekly, monthly, annually
   If yes; What ages are targeted? (Circle all that apply)
   Grades: Pre K, K, 1, 2, 3, 4, 5, 6, 7, 8

3. What national or local programs are used to educate these children? Mark all that apply.
   ___ Risk Watch - NFPA
   ___ Play Safe; Be Safe –Bic Corp
   ___ Other National Program(s) _____
   ___ Local program – Please describe:_____
   _____
   _____

4. Does your facility conduct disaster preparedness activities or provide any disaster training to staff and or children? Yes No

   If Yes, please explain _____
   _____
   _____

5. Would you be willing to dedicate time weekly to present fire safety and injury prevention material to the children within your facility if it was provided free of charge?
   Yes No

6. How much time weekly would your staff be willing to dedicate to this subject or activity?
   ___ None ___ 30 min ___ 1 hour ___ More than an hour a week

7. What types of activities would work best for your staff and children? Mark all that apply.
   ___ a. Activity or Coloring books
   ___ b. Fire safety and injury prevention Videos
   ___ c. Fire safety and injury prevention Handouts
   ___ d. Fire Safety or Injury prevention games
   ___ e. Activities to be done at home and then returned
   ___ f. Annual Coloring contest with a grand prize
   ___ g. Visit from firefighters and a Fire Engine
   ___ h. Certificate of program completion to take home
   ___ i. Books that teachers could read to children on injury prevention
   ___ j. Internet sites for interactive games and safety education learning
   ___ k. Pre and Post testing to determine the effectiveness of the program
   ___ l. Other: _____

8. Which of the activities listed in #7 will be most effective for children under 6 years old?

9. During the summer of 2001, Brandon Paxston, a senior at Rex Putman High School, delivered a fire safety program and limited staff training to day care centers on behalf of Clackamas Fire. Did you receive "Play Safe; Be Safe" program materials and training from Brandon in 2001?

   Yes No

   If Yes, Please explain your experience. What worked, what did not. Please share your successes or failures with this previous effort to educate your children.

   _____
   _____
   _____
   _____
   _____
   _____

10. What age group did the "Play Safe; Be Safe" information seem to best fit:

    (Circle all that apply.) Grades: Pre K, K, 1, 2, 3, 4, 5, 6, 7, 8

11. Who is the best contact in your organization if I need additional follow-up information on this subject?

    Name: _____ Title:_____

    Phone: _____E-Mail:_____

Thank You very much for participating in this research project.

Mail completed responses to: Deputy Chief Scott Weninger - Fire Marshal
Clackamas County Fire District #1
2930 SE Oak Grove Blvd. Milwaukie, OR 97267
E-mail: Scottwen@ccfd1.com