

Executive Analysis of Fire Service Operations in Emergency Management

Drowning: A Preventable Tragedy!

City of Mount Dora Fire Department

Strategies of Community Risk Reduction

April 2008

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CERTIFICATION STATEMENT

I hereby 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 is the Mount Dora Fire Department does not have a prevention program to reduce the risk of drowning in our community. The purpose of this research was to identify elements necessary for the Mount Dora Fire Department to create, implement and maintain a drowning prevention program. This research utilized the descriptive method. The following questions were asked:

1. What types of information are available to inform the public in regards to water safety and drowning prevention?
2. How have other communities with a similar problem approached the issue successfully?
3. What support agencies are available to assist the Mount Dora Fire Department in establishing a drowning prevention program in the City of Mount Dora?
4. Why should the fire department take an active role in the prevention of drowning within our community?
5. What codes and regulations can be identified and adopted by the City of Mount Dora in order to assist in the prevention of drowning?

The procedures for this research came from different resources. A survey was distributed, to determine other fire department's involvement in drowning prevention. Additionally, the author conducted a comprehensive literature review by collecting information from books, journal articles, the internet, and articles by organizations that exist for the purposes of safety and the prevention of injury. Information collected is beneficial in correcting the problem stated within the research. The results of the research suggest that the Mount Dora Fire Department should be involved in the prevention of drowning and that there are agencies and resources that will assist in the development of this program. Additionally, we must evaluate the program for

effectiveness. Recommendations were made to gain support from city leaders and create a drowning prevention program with the support of all resources and outside organizations.

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INTRODUCTION

The State of Florida is known for being hot during the summer and when it is hot, people usually find a cool place to relax. One of the most popular ways to cool off is to be near or in the water. The City of Mount Dora is located in the very heart of Central Florida where lakes and pools are in abundance and water is widely used for recreational purposes. The problem is the Mount Dora Fire Department does not have a prevention program to reduce the risk of drowning in our community. The purpose of this research is to identify elements necessary for the Mount Dora Fire Department to create, implement and maintain a drowning prevention program within the City of Mount Dora. This research will be done utilizing the descriptive method and will focus on the following questions:

1. What types of information are available to inform the public in regards to water safety and drowning prevention?
2. How have other communities with a similar problem approached the issue successfully?
3. What support agencies are available to assist the Mount Dora Fire Department in establishing a drowning prevention program in the City of Mount Dora?
4. Why should the fire department take an active role in the prevention of drowning within our community?
5. What codes and regulations can be identified and adopted by the City of Mount Dora in order to assist in the prevention of drowning?

BACKGROUND AND SIGNIFICANCE

The City of Mount Dora, Florida is a community located within Lake County which is currently the third fastest growing county in the State. The City was established in 1880 and is bordered by Lake Dora. This lake is 4,475 acres and is one of a seven-body chain of lakes that

connects waterways all the way to the Atlantic Ocean. Both residents of the community and visitors alike utilize the lake for boating, fishing and other recreational purposes. The City is host to several annual festivals each year and has been nicknamed “Festival City”. Several thousands of visitors are drawn to the community each year to coincide with the normal year round population of 11,564 residents during the summer and 15,000 during the winter months when the seasonal northern residents return to reside for preferable weather. The City is approximately 11 square miles and growing very rapidly.

The City has a full time career fire department that is trying to keep pace with a rapidly growing community. The fire department has both an operations division as well as a fire prevention division. The fire prevention division is very active in community risk reduction and seeks to be proactive in preventing accidental death and injury throughout the City from a variety of hazards. Community education programs are frequently taught to the public on topics such as fire safety, hurricane preparedness and awareness, CPR, first aid, etc.

After responding to several drowning and near drowning calls in the past few years, the fire department has realized that it does not have a program for drowning prevention. This deficiency in the prevention program is counter productive to the mission of protecting life. According to Gilchrist (2001, 2002), deaths from drowning for children less than age five in Florida are more than double the national average and are higher than any other state in the nation. Drowning is the seventh leading cause of unintentional injury deaths for all ages and the second leading cause of all injury deaths in children aged 1 – 14 years. Many of these injuries occur in recreational water settings, including pools, spas/hot tubs, and natural water settings (e.g., lakes, rivers or oceans).

Based on these risk factors the City of Mount Dora is prone to continue experiencing both drowning and near drowning emergencies. The risk of this type of tragedy is increasing with the large number of residential subdivisions that are being annexed into the City. These new subdivisions bring in large numbers of families and many of them desire and build a swimming pool to cool off in the Florida summer climate. Lake Dora and several other bodies of water in close proximity to the City provide a wide variety of water recreation activities including but not limited to boating, swimming, water skiing and personal watercraft.

The department realizes that there is a better than average chance of a drowning emergency occurring within our jurisdiction. The Mount Dora fire department would like to prevent these occurrences rather than respond to them. The National Fire Academy Executive Fire Officer Program course P274 Strategies for Community Risk Reduction (SCRR) is directly linked to this research in the following ways:

- Addressing a risk reduction challenge present in the home community.
- Allowing the EFO Executive Fire Officer to implement and lead community risk reduction initiatives.
- Developing a clear vision of a safer and healthier community as a result of a risk reduction initiative.
- Assessing community risk by analyzing the community, identifying hazards and casual factors, assessing vulnerability and creating risk reduction objectives.
- Building Support through identifying community stakeholders, engaging the community and building community equity.

- Identifying Intervention strategies by considering acceptable solutions, establishing objectives utilizing the cost versus benefit process and creating an effective evaluation program.

This ARP is directly linked to the United States Fire Administration (USFA) operational objectives by promoting within communities a comprehensive, multi-hazard risk-reduction plan led by the fire service organization and responding appropriately to an emerging issue in a timely manner.

LITERATURE REVIEW

The focus of this literature review will surround the five research questions that have been developed to address the problem statement and to accomplish the purpose of the applied research project. (1) What types of information are available to inform the public in regards to water safety and drowning prevention? (2) How have other communities with a similar problem approached the issue successfully? (3) What support agencies are available to assist the Mount Dora Fire Department in establishing a drowning prevention program in the City of Mount Dora? (4) Why should the fire department take an active role in the prevention of drowning within our community? (5) What codes and regulations can be identified and adopted by the City of Mount Dora in order to assist in the prevention of drowning?

To begin answering the first question, the author has discovered that there are enormous amounts of information available on both water safety and drowning prevention. The information available on these particular subjects is very comprehensive and provided in a variety of different formats, making it easy for most anyone to access.

Based on the continual frequency of drowning and the devastating emotional impact that it has on society, the family, and on the local community, information is abundantly available

and continually generated in an effort to inform the public that this tragedy can and does occur. Much of the information generated about drowning, near drowning and its prevention is usually found to be both statistical and describing certain facts.

Drowning is the second leading cause of unintentional injury-related death among children ages 1-14. The majority of drownings and near drownings occur in residential swimming pools and open water sites. However children can drown in as little as one inch of water and therefore they are at risk of drowning in wading pools, bathtubs, buckets, diaper pails, toilets, spas and hot tubs. Drowning usually occurs quickly and silently. Childhood drownings and near drownings can happen in a matter of seconds and typically occur when a child is left unattended or during a brief lapse in supervision. Two minutes following submersion, a child will lose consciousness. Irreversible brain damage occurs after four to six minutes and determines the immediate and long term survival of a child. (National SAFE KIDS *campaign* 2004). Based on the fact that children are at such a high risk, the safe kids program has put a lot of effort in educating the public in this area. According to the SAFE KIDS *campaign* (2004), there is substantial information relating to kids and drowning facts.

This information is vital and necessary to building a prevention program. It is important to know that more than half of all drownings among infants (under the age of 1) will occur in the household bathtub. The document further indicates that more than half of the drownings among children ages 1 – 4 are pool related. Children 5 -14 are more likely to drown in open water sites. Utilizing this factual information effectively directs the prevention efforts in educating parents and guardians of children in regards to strict necessary supervision of children while they are in bathtubs, swimming pools and open water sites.

Information is also available to show that a lack of supervision is not the only cause of accidental drowning. There are other risk factors associated with drowning and near drowning accidents including but not limited to:

- Recreation in natural water settings (such as lakes, rivers, or the ocean). The percent of drownings in natural water settings increases with age. These locations represent the majority of drownings in those over 15 years of age (Gilchrist 2001, 2002).
1. Recreational boating. Boating carries risks for injury. In 2005 the U.S. Coast Guard received reports for 4,969 boating incidents; 3,451 participants were reported injured and 697 died in boating incidents. Among those who drowned, 87% were not wearing life jackets. Most boating fatalities from 2005, 70% were caused by drowning; the remainder was due to trauma, hypothermia, carbon monoxide poisoning, or other causes. Open motor boats were involved in 45% of all reported incidents, and personal watercraft were involved in another 26% (U.S. Coast Guard [USCG], 2005).
 2. Alcohol use. Alcohol is widely used in association with recreational aquatic activity in the United States. Evidence suggests that alcohol is an important risk factor for drowning associated with recreational aquatic activity. Specific studies provide good evidence supporting this, but the extent of increased risk associated with alcohol use, and the risk attributable due to alcohol use, is not well characterized. Drowning appears to be the overwhelming cause of death in those with alcohol detected in the blood in 30% -70% of those persons who drown while involved in this activity. Driscoll, Harrison, Steenkamp (2004)

3. Seizure disorders. For persons with seizure disorders, drowning is the most common cause of unintentional injury death, with bathtub as the site of the highest drowning risk. (Quan, 2006)

There is also a substantial amount of information pertaining directly to water safety. These are proactive methods and measures that can be implemented anytime people and water come together. The water safety information strives to be proactive in the prevention of drowning by educating and informing people about how to be safe when interacting with water. One popular method found on water safety is referred to as Layers of Protection. This method simply implies that many protective measures can be applied to assist in protecting people from drowning. According to the (National Drowning Prevention Alliance [NDPA], 2006) these layers are:

1. Never leave a child unattended near water in a pool, tub, bucket or ocean.
There is no substitute for adult supervision.
2. Designate a “water watcher” to maintain constant watch over the children in the pool during gatherings.
3. The home should be isolated from the pool with a fence at least 60” tall, with a self-closing, self latching gate. The gate should open away from the pool, and should never be propped open.
4. Doors and windows should be armed to alert adults when opened. Doors should be self-closing and self-latching.
5. Power operated pool safety covers are the most convenient and efficient.
Solar/floating pool covers are not safety devices.

6. Keep a phone at poolside so that you never have to leave the pool to answer the phone, and can call for help if needed.
7. Learn CPR and rescue breathing.
8. Keep life-saving ring, shepherd's hook and CPR instructions mounted at poolside.
9. Do not use flotation devices as a substitute for supervision.
10. Never leave water in buckets or wading pools.
11. If a child is missing, always check the pool first. Seconds count.
12. Remove toys from in and around the pool when not in use.
13. Don't use floating chlorine dispensers that look like toys.
14. Instruct babysitters about potential pool hazards, and emphasize the need for constant supervision.
15. Responsibilities of pool ownership include ensuring children in the home learn to swim, and that adults know CPR.
16. Do not consider children "drown proof" because they've had swimming lessons.

The next question addresses how other communities with a similar problem approached the issue successfully. The author decided to research a neighboring county to assist in answering this question. Orange County Florida is located in the Central Florida region and is known for having a great deal of tourism and similar risks are presented when it comes to drowning and near drowning incidents. Additionally the author believed that the call volume for these types of emergencies would be relatively higher due to the respective size of the County

and the population. An internet search of their website indicated that Orange County Fla. had created a Childhood Drowning Prevention Task Force (Appendix C).

The task force had a formal mission to increase water safety awareness by promoting water safety and education throughout the county by providing resources and opportunity to prevent childhood drowning. Additionally the task force had established clear goals including the reduction of the number of deaths by childhood drowning in the community, promoting collaboration among water safety stakeholders, implementing aquatic health and safety education, developing high risk group drowning prevention activities and promoting levels of safety. The task force had information posted on the website acknowledging a task force committee consisting of thirty two members coming from twenty eight different agencies that serve as representatives making decisions to strengthen the taskforce. The task force had a variety of participants that included, but was not limited to American Red Cross, municipal Fire Departments throughout the County, the Medical Examiners office, the County health department, the area YMCA and the U.S. Coast guard.

In Seminole County Fla., which is also located in Central Florida near our City, have an aggressive drowning prevention class (Appendix D) that is advertised and offered through the fire department. This course is called Drowning Prevention/CPR and it is available on a monthly basis taught by department paramedics. The course is a non-certification class designed for those not in the medical field that desire to learn CPR. It is three hours in length and teaches how to safeguard the home from accidental drowning as well as CPR for both children and infants.

Another popular approach taken is the posting of educational and statistical information on agency websites. This information often describes the potential for drowning within the respective community. For example, the Phoenix Fire Department has created an elaborate

website, listing all of the annual fatalities from drowning in both adults and children for the past three years. These statistics are available and accessible by the general public and they serve as a grim reminder that drownings can and do occur. Additionally the fire department follows up with great educational information on what can be done to prevent drowning.

Whether forming a prevention coalition, teaching a class, or presenting information to the public, all of these initiatives involve communicating with the citizens and providing them with assistance and information that will enable them to make better decisions about how they react and what precautions they take around water.

Question three of the research asked what agencies were available to assist the Mount Dora Fire Department in establishing a drowning prevention program within the City. There are many widely known and popular organizations that promote not only safety but specifically drowning prevention. One such organization is the YMCA. The author reviewed the web site for the Central Florida YMCA and discovered that a program called Safe Start existed.

According to Safe Start USA (2007), the program begins at six months of age where children are taught to turn from face down in the water to face up and into a comfortable back float position; at 12 months of age they begin to learn how to repeat the floating steps while continuing the process through learning to swim to safety. This swim-float-swim sequence enables the child to independently swim at their pace toward the safety of the pools edge or the shore of a pond or lake. Teaching kids to swim from the earliest age is one of the most productive steps that can be accomplished to reduce accidental drowning.

The YMCA is a national organization that has locations throughout the United States. “Youth Progressive swimming is the YMCA’s third most widely offered program

nationwide.”(Central Florida YMCA, 2007) They are committed to providing swimming lessons for infants, children and adults.

Another group that is committed to the safety of children is Safe Kids Worldwide. They are a global network existing for the purpose of preventing childhood injury. Safe Kids provides education and information to assist in protecting families and making the lives of children safer. Safe Kids has an enormous amount of informative and educational materials to assist any fire department in the creation of a drowning prevention program.

Most fire departments are very familiar with the NFPA, National Fire Protection Association. NFPA through a series of technical committees set forth the suggested and required fire codes in which fire department nationwide adopt and follow. In addition they are very active in promoting fire prevention and public education materials for the general public as a method of attaining higher levels of safety compliance. As part of this public education initiative, NFPA has created the Risk Watch Program.

According to *Risk Watch* NFPA (1998), this is the first comprehensive injury prevention program available for use in schools. It was developed with co-funding from the Home Safety Council and in collaboration with a panel of respected safety and injury prevention experts. Risk Watch is a school based curriculum that enables teachers to interact with the community, safety experts and the parents.

As part of this program eight areas have been identified that poses the greatest risk to kids ages 14 and under. One of these areas is water safety and drowning prevention. With this program, a fire department can utilize the NFPA as an informative resource for teaching children about water safety in five age-appropriate teaching modules. These are Pre-K, Kindergarten, Grades 1-2, Grades 3-4, Grades 5-6 and grades 7-8. The CDC, Center for Disease Control and

Prevention also provides excellent information to assist in educating the public about drowning and near drowning in the United States.

The fourth question in this research was designed to determine the reasoning behind the fire department taking an active role in the prevention of drowning within the community. The mission of the fire service has always been to protect life and property. As such it is obvious by the information contained within this research that there is a great need to prevent both the drowning and near drowning events that are statistically occurring throughout all communities.

It is further understood that the State of Florida has a significantly higher rate of incidence for these types of accidents therefore, if fire departments in this State truly desire to protect life, a drowning prevention program is imperative. It has been proven that prevention is effective.

According to *SAFE KIDS campaign* (2004), installation of four sided isolation fencing could prevent 50 to 90 percent of childhood residential swimming pool drownings and near drownings. Pool alarms when used correctly can add an extra level of protection. It is also estimated that 85 percent of boating related drownings could have been prevented if the victim was wearing a personal flotation device. Educational efforts focused on PFDs and safe boating practices are effective in increasing PFD usage. As an organization within the community, most fire departments are readily poised to begin a drowning prevention program.

Many fire departments already have a public education program where elements of water safety and drowning prevention can be easily integrated into an already functioning program that has the attention of the citizens and children in the community. The last question seeks to determine what codes or regulations can be identified and adopted by the City of Mount Dora in order to assist in the prevention of drowning.

Many communities have already enacted certain and specific safety regulations governing both in-ground and above ground swimming pools. Strict enforcement and continual compliance of these laws, regulations are recommended to reduce the numbers of drowning incidents associated with swimming pools.

One source that serves as a comprehensive guideline for safety barriers has been developed by the U.S. Consumer Product Safety Commission. An extensive study was conducted by the USCPSC in the States of Florida, California and Arizona regarding the popularity of swimming pools in these states linked with fatal drownings and near fatal submersions. The following were facts uncovered in this comprehensive study that involved children under 5 years old.

- Seventy-five percent of the submersion victims studied by USCPSC were between 1 and 3 years old; 65 percent of this group were boys. Toddlers, in particular, often do something unexpected because their capabilities change.
- At the time of the incidents, most victims were being supervised by one or both parents. Forty-six percent of the victims were last seen in the house; 23 percent were last seen in the yard or on the porch patio; and 31 percent were in or around the pool before the accident. In all 69 percent of the children were not expected to be at or in the pool, yet they were found in the water.
- Submersion incidents involving children usually happen in familiar surroundings. 65 percent of the incidents happened in a pool owned by the child's family and 33 percent of the incidents happened in a pool owned by friends or relatives.

- Pools submersions involving children happen quickly. A child can drown in the time it takes to answer a phone. 77 percent of the victims had been missing from sight for 5 minutes or less.
- Survival depends on rescuing the child quickly and restarting the breathing process, even while the child is still in the water. Seconds count in preventing death or brain damage.
- Child drowning is a silent death. There's no splashing to alert anyone that the child is in trouble. (U.S. Consumer Product Safety Commission [USCPSC], 1993)

Subsequent to the study the Commission developed a guideline for safety barriers around home swimming pools. The commission decided that the best way to reduce the number of childhood drownings in residential pools was for the owners to construct, provide and maintain barriers to prevent young children from gaining access to pools. Some local governments have decided to incorporate the guidelines that are offered by the USCPSC into their building code requirements.

According to the USCPSC (1993) a successful barrier is one that would prevent a child from getting OVER, UNDER, or THROUGH and keeps the child from gaining access to the pool except when supervising adults are present. There are ten guidelines provided by the USCPSC for swimming pools.

1. The top of the barrier should be at least 48 inches above grade on the side of the barrier facing away from the pool. The maximum vertical clearance between grade and the bottom of the barrier should be 4 inches. If the barrier is mounted on an above ground pool on top of the pool structure, the maximum vertical

clearance between the pool structure and the bottom of the barrier should be 4 inches.

2. Openings in the barrier should not allow passage of a 4 inch diameter sphere.
3. Solid barriers, which do not have openings, should not contain indentations or protrusions.
4. Where the barrier is comprised of horizontal and vertical members and the distance between the tops of horizontal members is less than 45 inches, the horizontal members will be located on the pools side of the fence.
5. Spacing between vertical members shall not exceed 4 inches. Decorative cutouts should not exceed $1\frac{3}{4}$ inches.
6. Maximum mesh size for chain link fence should not exceed $1\frac{3}{4}$ inch unless the fence is provided with slats fastened at the top or bottom which reduce the opening to no more than $1\frac{3}{4}$ inches.
7. Where the barrier is composed of diagonal members such as in the case of lattice fence, the opening formed should be no more than $1\frac{3}{4}$ inches.
8. Access gates should be equipped to accommodate a locking device. Pedestrian gates should open outward away from the pool and should be self-closing with a self-latching device. Where the release mechanism is located less than 54 inches from the bottom of the gate, it should be located on the pool side of the gate. Gates shall have no more than $\frac{1}{2}$ inch between the gate and the barrier.
9. All doors with direct access to the pool should be equipped with an audible warning alarm when the door is opened. The alarm should sound for a continuous 30 seconds within 7 seconds after the door is opened. The sound should be a

minimum of 85 dBA at 10 feet and be distinctive from other household alarms.

The deactivation pad should be mounted no less than 54 inches from the floor.

10. When an Above ground pool structure is used as the barrier and the means of access is a ladder or steps, they should be capable of being secured, removed or locked to prevent access.

Another source that was identified is found in the Florida State Statutes. Florida legislature has created the Residential Swimming Pool Safety Act found in Chapter 515 of the statutes. In this chapter the legislature identifies drowning as the leading cause of death in young children in the state and also outlines it as a significant cause of death in the elderly population. The legislative findings further notes adult supervision as key in reducing the number of submersion incidents that relate to incalculable costs including but not limited to health care costs, loss of lifetime productivity, as well as legal and administrative costs. This act took effect on January 1, 2002 and describes various safety requirements. All residential swimming pools must have at least one safety device in place in order to pass a final inspection and receive a certificate of completion. (Residential Swimming Pool Safety Act, 2003).

To summarize, it has been revealed through this research that drowning is the second leading cause of unintentional injury related death among children ages 1 – 14. Drowning usually occurs quickly and silently. Childhood drowning and near drowning incidents can happen in a matter of seconds. There are many risk factors involved with drowning and near drowning incidents including but not limited to recreation in natural water settings, recreational boating, Alcohol use and seizure disorders.

There are many proactive measures that can be implemented to provide water safety when people and water come together. Educating people on water safety measures has proven to

assist in the reduction of both drowning and near drowning incidents. Some fire departments have already developed drowning prevention programs and others are participating in a drowning prevention task force. Both of these initiatives are provided to accommodate the overall goal of reducing these tragic accidents.

There are numerous organizations available that serve to assist in the education of the public in regards to drowning prevention. Organizations such as the YMCA, Safe Kids, NFPA and others are specifically focused on safety and the prevention of accidents. They are excellent sources of support when creating a program for drowning prevention.

There are numerous resources to support the adoption of codes and regulations that will provide greater levels of protection for unnecessary drowning accidents related to children having unrestricted access into swimming areas. By enforcing these with strict compliance, safer environmental conditions will be present within the community. This research discovered that the best way to reduce the number of childhood drownings in residential pools was for the owners to construct, provide and maintain barriers to prevent young children from gaining access to pools. (USCPSC 1993). A drowning prevention program coupled with utilization of the right resources, assisting agencies and proper code regulations can go along way in reducing the tragedy of drowning or near drowning.

PROCEDURES

This applied research was conducted primarily utilizing the descriptive research method through collecting information that would provide the basis for determining the elements needed to create, implement and maintain a drowning prevention program in the City of Mount Dora. Information on drowning, near drowning, drowning prevention, water safety and several organizations that are involved with all of these elements was retrieved from the internet via the

world wide web and selected books, all of which are referenced within this applied research paper. An important part of this research focused on collecting data from other fire departments throughout the State of Florida and the Central Florida region through the development of a survey.

Fire Department Survey

This survey (Appendix A) was developed in order to collect information from other fire departments in regards to participation in drowning prevention. A total of seven specific, multiple choice questions were developed to analyze the involvement, activity level, success, education and effectiveness of a drowning prevention program within their respective fire departments and communities. Two of the seven questions in the survey, allowed for additional feedback.

Population of the Fire Department Survey

The survey was distributed electronically to a total of fifteen municipal fire departments selected at random throughout Florida and the Central Florida areas. (Appendix B) The departments that were selected for distribution provided geographic locations that were both coastal and inland within the State. The distribution was issued to each fire department on October 1, 2007 with an explanation of why the information was being requested. The Fire Chief of each respective department was given 15 days to return the survey with the completed information. The researcher believed that these selected departments would be able to provide a reasonable, ample and diverse amount of information pertaining to the involvement of fire departments in Florida in regards to drowning prevention.

Limitations and Assumptions

The survey was limited to departments located within the State of Florida. This limits the information that could have been obtained from other fire departments throughout other areas of the United States. Out of the fifteen surveys that were sent out electronically over the internet, two of the fire departments or 13% did not respond back with a reply. This survey was also limited to municipal government fire departments, with no information collected from a county fire agency. It is assumed that a significant amount of information has been collected in order to assist in the development of a drowning prevention program for our department. It is further assumed that because this information is from the Florida area, it represents the challenges and struggles that other fire departments in Florida have gone through in gathering information related to the prevention of drownings.

Statistical Analysis

The results of the survey have been calculated to reveal the overall responses and they are presented and explained in the results section of this research in a narrative format.

Definitions

Drowning – to suffocate by submersion in water.

Fire Chief – The executive officer in charge of the administration and direction of a fire department.

Fire Department – An organization that exists for the purpose of protecting life and property.

Drowning Prevention Program – pro-active program that is designed, created, implemented and maintained to prevent a person from suffocating to death by submersion in water.

RESULTS

A total of fifteen surveys were sent out to selected fire departments. Thirteen of these surveys were returned with information presented. All of the information that has been presented has been broken down into percentages, with the percentages and commentary listed below.

Question # 1 inquired as to whether they believed their respective fire department should be involved in drowning or near drowning prevention. Dramatically all of the thirteen fire departments (87%) that responded and returned the survey listed yes as their answer. Two departments or (13%) did not respond and for the purposes of these results, their lack of response will not be considered in the percentage breakdowns. The response to the first survey question strongly indicates that those surveyed believed that drowning or near drowning prevention should be in the scope of what fire departments are involved in.

Question #2 was designed to determine if the fire department surveyed currently had a drowning prevention program. Out of the thirteen departments that responded, five fire departments (38%) currently had a program in place. Eight of the fire departments (62%) did not currently have a program in place. This provided information that the majority of those returning surveys did not currently have a program in place, while all of them surveyed believed that their fire department should be involved.

Question #3 inquired as to how long each fire department had a drowning prevention program. Eight fire departments (62%) of the thirteen that returned the survey skipped the question. This would indicate these departments did not have a drowning prevention program. Out of the five that did indicate participation, three departments (60%) indicated that their programs were within 0-2 yrs old. Two departments (40%) stated that they had had a program in

the 2- 5 year range. Of those responses received for this question, none of the fire departments have had a program for more than five years.

Question # 4 was designed to determine if the drowning prevention program was successful in their respective community. Again eight fire departments (68%) answered no. The author believes from reading the previous responses, that this is because they did not have a program and therefore it could be constituted as successful. Five fire departments (32%) answered yes that the program was successful in their communities. This would indicate that of those surveyed that have programs in their community, they are viewed as a successful.

Question #5 focused on what organizations assisted their respective fire departments with a drowning prevention program. The author had listed some of the popular organizations that were discovered during the course of this research for them to select from. Of the thirteen returned surveys, none of the departments (0%) selected NFPA as an assisting agency in their drowning prevention program. Four departments (30%) selected the Safe Kids organization. Five departments (39%) indicated they were utilizing the National Safety Council. Four of the thirteen responding fire departments (31%) did not answer the question. Of those that answered this question, it would indicate that two of the three listed agencies are being utilized as support information and assistance in providing their drowning prevention program.

Question #6 asked what methods of delivery were found to be most useful for educating the public on drowning prevention. Four of the departments responding (31%) indicated that they utilized the media as their most useful delivery method. Six fire departments (46%) stated that their educational delivery method was through printed materials such as flyers and brochures. Three departments (23%) of the thirteen that returned surveys skipped the question. The author believes that these were those that previously answered that they did not currently have a

program. None (0%) of the departments were utilizing public presentations as an educational delivery method for informing the public.

Question #7 asked if the respective fire department surveyed evaluated their drowning prevention program to determine if it had been successful in reducing actual drowning or near drowning in their community. All thirteen fire departments (100%) responding to the survey answered no that they did not evaluate the effectiveness of their prevention program in reducing drowning or near drowning.

DISCUSSION

Built into the mission of any fire department is the undeniable responsibility to protect life and property. In the State of Florida, the Fire Service has ample opportunity to meet the challenge of saving life through drowning and near drowning prevention. Based on the literature review, the author of this research has come to the conclusion that there is a definite need for the Mount Dora Fire Department to create, implement and maintain drowning and near drowning prevention program within the City of Mount Dora.

Drowning is the leading cause of unintentional death in children under the age of 5 and it is the second leading cause of injury-related death for children ages 1 through 14 years. (National SAFE KIDS *campaign*, 2004). These facts are startling and reason enough for any fire department to take action. According to the Central Florida YMCA (2007), Florida is highest ranked in the nation for drowning related deaths. The author believes that all fire departments especially in Florida need to be sensitive to the fact that children are highly vulnerable to a drowning related death and are losing their lives to this type of tragedy in astonishing numbers. It is incumbent upon all fire departments to recognize the dangers and hazards that threaten the lives of the citizens and visitors within their respective communities.

Fire Departments must both define and implement measures to proactively meet the challenge of reducing the risk to any loss of life in order to truly be successful in protecting life. Research has revealed that after two minutes of submersion in water, a child will lose consciousness and irreversible brain damage occurs after four to six minutes. (National SAFE KIDS *campaign*, 2004). This provides a very short window of opportunity for success in reviving the children that become victims of this tragedy. The majority of emergency responses to drowning victims do not end up with positive results.

Analyzing and utilizing statistical data available in regards to these types of incidents can provide prevention methods that are targeted and focused on specific areas that are currently being neglected. These prevention methods can be the key to reducing the number of drowning and near drowning incidents within any community at risk.

The research conducted further suggests that there is an enormous amount of information available on water safety. This information can and should be utilized to assist in the development of a successful public education program on drowning and near drowning prevention. As noted in the research, the local government of Orange County Fla. (Appendix C) created a drowning prevention task force whereby their formal mission was to increase water safety awareness by promoting water safety by providing informative education and literature throughout the county on both drowning prevention and water safety.

The literature review pointed out that there are many agencies available to assist the fire department in establishing a drowning prevention program. It was noted that these organizations offer a wide variety of support. As an example the YMCA is a national organization that strives to teach children to swim. According to Safe Start USA (2007), youth progressive swimming is there third most widely offered program. Teaching kids to swim plays a vital part and key role in

reducing the overall drowning statistics. Another agency reviewed was the Safe Kids organization. It is a global network existing for the purpose of preventing childhood injury. The Safe Kids organization is heavily involved in providing education and information to assist in protecting families and making the lives of children safer.

This research explored these and other agencies to determine their benefit and impact in drowning prevention along with their ability to assist the fire department in this effort. The author of this research believes that these different can assist in developing a drowning prevention program agencies would serve as beneficial resources in this effort.

A number of fire departments were surveyed as a result of this research. These surveys were limited to municipal fire departments within the State of Florida. From those departments that responded to the survey all indicated that they believed their respective department should be involved in drowning and near drowning prevention. This response would indicate that most fire departments surveyed believe that this is highly important and furthermore that they need to be involved in this effort. While all believed we should be involved the survey only confirmed that five departments currently had a program.

From the information and statistics collected, the author of this research believes that fire departments without a drowning and near drowning prevention program will experience a stable, if not increasing number of emergency responses to victims of this tragedy with very few positive results in regards to saving lives.

It was interesting to note that none of the fire departments responding to the survey indicated that they evaluated the effectiveness the program had on their community. In order to assure a reduction in the number of drowning and near drowning victims within the community it is essential that a process for documentation and tracking of these incidents is created and

maintained. Through this research, another prevention element that is very helpful is the use of codes and regulations to bring about a safer environment for children by reducing their unrestricted access to water. According to the USCPSC (1993), the best way to reduce the number of childhood drowning in residential pools is for the owners to construct, provide and maintain barriers to prevent young children from gaining access to pools. The commission has developed a guideline that can be adopted as a code by any community requiring safety barriers around pools.

In the State of Florida the legislature has created a Residential Swimming Pool Safety Act found in Chapter 515 of the Florida Statutes. This Florida law requires at least one safety device to be in place in order to pass a final inspection and receive a certificate of completion. These types of codes and regulations all serve to make a safer environment and reduce the numbers of drownings throughout the State and the community.

The author of this research intends to utilize all of the information collected and analyzed to develop a list of recommendations and create a drowning and near drowning prevention program within the jurisdictional responsibility of Mount Dora, while encouraging other fire departments nearby to do the same.

RECOMMENDATIONS

Based upon the information collected and reviewed the researcher would make the following recommendations:

1. Gather and collect vital information that will assist in the formation of a drowning and near drowning prevention program.

2. Provide a forum for getting important information out to the public relating to the dangers associated with water and the precautionary proactive measures that can be utilized to prevent drowning or near drowning.
3. Provide education to City officials, citizens and Fire Department personnel on the statistics and tragedies associated with drowning, while providing realistic and pertinent information regarding our ability to do something about it.
4. Establish a committee within the fire department to begin creating and implementation of a drowning and near drowning prevention program for the City of Mount Dora.
5. Partner with outside safety and injury/accident prevention organizations to supply resource, informational support and participation in forming a drowning prevention coalition, while fostering a network of useful information.
6. Create a form to be utilized by department EMS personnel that will track all of the pertinent data relating to drownings and near drownings that occur within our community.
7. Work with the building department within the City to assure that appropriate codes and regulations are established and maintained in regards to water safety and drowning prevention.
8. Gain internal Administrative support and direction from City officials for a drowning prevention and near drowning prevention program to include participation in a created prevention task force.

9. Promote a public education element that teaches the specifics of water safety including the proper use of personal flotation devices and also encourages non swimmers of all ages to take swimming lessons.
10. Provide an in-depth evaluation of the program at regular intervals on a continuing basis in order to determine the effectiveness in reducing the number of drownings and near drownings that occur within the community.

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APPENDIX A

Fire Department Survey

My name is Ronnie Snowberger and I am the Fire Chief for the City of Mount Dora, Florida. I have recently completed the second course in Executive Fire Officer Program at the National Fire Academy entitled (*Strategies of Community Risk Reduction p-274*).

I am currently writing an applied research paper on *Drowning: A Preventable Tragedy!* Would you please take a few moments to complete this survey and return it within 15 days? I sincerely appreciate your assistance with this request.

1. Do you believe that fire departments should be involved in drowning or near drowning prevention?
 Yes No

2. Does your fire department currently have a drowning prevention program?
 Yes No

3. How long has your fire department had a drowning prevention program?
 0-2 yrs. 2-5 yrs. 5-15 yrs. 15 > yrs.

4. Has the drowning prevention program been successful in your community?
 Yes No

5. Which of the following organizations does your fire department utilize to assist with a drowning prevention program?
 NFA SAFE KIDS National Safety Council
 Other (please specify) _____

6. What methods of delivery do you find most useful for informing or educating the public on drowning prevention?
 Public presentations Printed materials (flyers, brochures)
 Media (news, tv, radio, etc.) Other (please specify) _____

7. Do you evaluate your drowning prevention program to determine if it has been successful in reducing drowning or near drowning in your community?
 Yes No

APPENDIX B

Fire Chief/Fire Department**Survey Contact List**

City	Fire Chief	E-mail	Telephone
Deltona	Bill Godfrey	bgodfrey@deltonafl.gov	386-860-7177
Maitland	Ken Neuhard	knuehard@itsmymaitland.com	407-539-6225
Spring Hill	JJ Morrison	jmorrison@springhillfire.com	352-688-5030
Daytona Beach	Dwayne Murray	murraydwayne@dbfd.us	386- 671-4000
Clearwater	Jamie Geer	Jamie.geer@myclearwater.com	727-562-4334
Apopka	L. Bronson	lbronson@apopka.net	407-703-1756
Clermont	Carl Bishop	cbishop@clermontfl.org	352-394-7662
Dunnellon	Joseph Campfield	dunnellongfrchief@aol.com	352-465-8595
Lakeland	Mike Mohler	Michael.mohler@lakelandgov.com	863-834-8200
New Port Richey	Dan Azzariti	azzariti@cityofnewportrichey.org	727-853-1032
Port Orange	Thomas Weber	tweber@portorange.org	386-506-5900
St. Cloud	Charlie Lewis	clewis@stcloud.org	407-957-8488
Tallahassee	Cindy Dick	dicke@talgov.com	850-891-6600
Tavares	Richard Keith	rkeith@tavares.org	352-742-6391
Ocoee	Richard Firstner	Rfirstner@ci.ocoe.fl.us	407-905-3140

APPENDIX C

Orange County Florida - Drowning Prevention Program

Childhood Drowning Prevention & Water Safety Task Force

Central Florida Drowning Prevention & Water Safety Task Force



The Task Force's mission is to increase water safety awareness by promoting water safety and educating the community on resources and opportunities to prevent childhood drowning.

The goals of the Task Force are (1) to reduce the number of children drowning in the community; (2) to promote collaboration among water safety stakeholders to implement aquatic health and safety education programs; (3) to develop high-risk group drowning prevention activities; and (4) to promote Levels of Safety.

Levels of Safety are adult supervision, barriers, poolside telephone for emergency use, learn cardiopulmonary resuscitation (CPR), and swimming lessons.

Task Force Agencies

American Red Cross of Central Florida
Central Florida YMCA
City of Orlando
County Commissioner Linda Stewart, District 4
District 9 Medical Examiner's Office (Orange & Osceola)
District 24 Medical Examiner's Office (Seminole)
Every Child a Swimmer
Family Services of Metro Orlando
Florida Hospital
Fort Gatlin Recreation Complex
Gift of Swimming
Kissimmee Fire Department
Orange County Fire Rescue Department
Orange County Health and Family Services Department
Orange County Health Services

Orange County Parks and Recreation

Orange County Head Start

Orange County Health Department

Orange County Sheriff's Department - Children's Safety Village

Orange T.V. and Vision T.V.

Orlando Regional Healthcare

Osceola County Health Department

Osceola Fire Rescue Department

Seminole County Health Department

Southwest Aquatics

St. Cloud Fire Department

U.S. Coast Guard

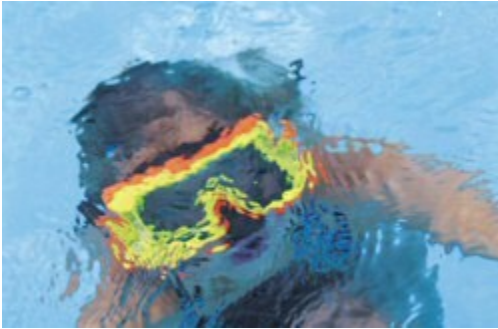
Winter Park Fire Department

APPENDIX D

Seminole County Florida - Drowning Prevention Program

EDUCATIONAL PROGRAMS

Drowning Prevention/CPR Class



Seminole County Fire Department and Safe Kids Seminole County offers Drowning Prevention/CPR classes to the public. Seminole County Fire Department is a training site for the Emergency Care Safety Institute - teaching the Infant and Child CPR course

The Drowning Prevention/CPR course is a basic (non-certification) CPR course for persons wanting to know how to conduct CPR, but not for those who are in the medical field. This three hour course includes information on how to safeguard your home from accidental drowning and how to conduct CPR on

children and infants. It also includes what to do when a person is choking. The adult version of CPR is not covered in this class. The course is limited to 15 people and is taught monthly. Donations are requested at \$ 5, which includes usage of the mannequins and instruction. Click [here](#) to view the class schedule for 2007.

To sign up for Drowning Prevention/CPR course, simply call 407-665-5126, fill out the [information request form](#), or [e-mail us](#).

If you are interested in holding a "Healthcare Provider" course or a certification course in CPR, call the American Heart Association at 1-877-242-4277 or the American Red Cross at 407-894-4141.