

Running head: EXAMINING CHILD SAFETY SEAT INSTALLATION

Strategies for Community Risk Reduction

Examining Child Safety Seat Installation in the City of Virginia Beach Fire Department

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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 the appropriate credit is given where I have used the language, ideas, expressions, or writings of others.

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Abstract

As part of community risk reduction, the Virginia Beach Fire Department installs child passenger safety seats. This applied research project examines the compliance of the Virginia Beach Fire Department's child safety seat installation program to national standards. The problem is that the child safety seat installation program has not been evaluated for its compliance to national standards.

The purpose of this research is to evaluate the compliance of the Virginia Beach Fire Department's child safety seat installation program to national standards. This research project employed the descriptive research methodology to identify: a) What child safety seat installation standards exist? b) What child safety seat training standards exist? c) What legal and liability issues exist for installing child safety seats? d) What impact does the child safety seat installation program have on the community?

Procedures included a literature review, personal interviews, and surveys sent to members of the Virginia Beach Fire Department and fire departments throughout the country. Results determined national installation and training standards, legal and liability issues, and the impact that a child safety seat installation program has on the community. The recommendations of this applied research project provide options to ensure the child safety seat program meets national standards.

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Child Safety Seat Installation in the City of Virginia Beach Fire Department

Introduction

The Virginia Beach Fire Department (VBFD) provides a Child Safety Seat Installation Program to the citizens of Virginia Beach as part of a community risk reduction initiative. Every year, an average of 1,292 child safety seats are installed by the personnel of the VBFD. The program is managed by the Life Safety Education (LSE) office. The LSE office ensures that the personnel assigned to the fire stations are provided with the materials, training, and equipment to install child passenger safety seats when requested by a citizen.

Community risk reduction has been a value of the VBFD. Fire and injury prevention is the responsibility of the LSE office. The LSE office continues to identify risks to the citizens that can be reduced or mitigated by the VBFD. A risk is defined as an activity or action that has potential for injury or death. Risk has an impact, with effects occurring after the exposure or event. A risk reduction initiative is worthy of consideration if the risk has a potential for loss of life, and economic impact on the community, or an environmental impact (National Fire Academy [NFA], 2007).

Members of the VBFD are required to educate the citizens to install their child passenger safety seats, review lists to determine if seats are recalled, instruct and educate citizens in the proper riding locations, inform them of engineering advances in their vehicles that may injure their child, and ensure that when a citizen leaves the fire station, the child is secured and safely in the vehicle.

In 2007, 1,133 child passenger safety seats were installed by the VBFD. The program continues, but has not been evaluated for its compliance with national standards.

As the program evolves, initial education and retraining standards that firefighters are required to have and maintain, have changed. National standards are defined by the National Highway Traffic Safety Administration (NHTSA).

The problem identified in this research project is that the VBFD's child safety seat program has not been evaluated for its compliance to national standards. Without an evaluation, the department lacks: a) the ability to demonstrate seats are being installed by trained and qualified installers, b) the ability to ensure installers are receiving the necessary retraining to maintain competencies, and c) the ability to quantify the risk of installing child passenger safety seats with the liability associated with installing the seats for the community. The purpose of this research project is to evaluate the compliance of the VBFD's child safety installation program to national standards.

This research project employed the descriptive research method to identify: a) What child safety seat installation standards exist? b) What child safety seat training standards exist? c) What legal and liability issues exist for installing child safety seats? d) What impact does the child safety seat installation program have on the community?

This applied research project (ARP) will provide the members and the senior staff of the VBFD with an evaluation of the child safety seat installation program and provide recommendations, if necessary, to ensure the program is compliant with national standards.

Research procedures includes a survey of firefighters and officers who are responsible for the installation of child safety seats in the VBFD, a survey of various fire departments throughout the region and country who have programs to install child

passenger safety seats, and interviews of members of the VBFD who are responsible for the child passenger safety seat installation program.

Background and Significance

The VBFD installs child safety seats as part of a community risk reduction program. Community risk reduction is a value of the VBFD. Fire and injury prevention is the responsibility of the LSE office. This office continues to identify risks to the community that can be reduced or mitigated by the VBFD. A risk is defined as an activity or action that has potential for injury or death. Risk has an impact, with effects occurring after the exposure or event. A risk reduction initiative is worthy of consideration if the risk has a potential for loss of life, and economic impact on the community, or an environmental impact (NFA, 2007).

The LSE office has been managing this program since the program's inception in 1994. The program installs an average of 1,292 seats per year and has been credited with saving lives and reducing injuries of the citizen's of Virginia Beach.

An example of this success is captured in the following testimonial, which demonstrates the impact and significance that the program has on the citizens and children of Virginia Beach. This testimonial was read at the VBFD's Annual Awards Ceremony on December 5, 2007 (VBFD, 2007):

On May 10, 2007, the Coates Family went to Fire Station 21 to have their car seat installed prior to leaving on their family vacation. The next day, Brett, Sandra, and Sawyer, were traveling from Virginia Beach to Hilton Head, South Carolina, when they were involved in a crash. A Hilton Head Fire and Rescue Battalion Chief witnessed the results of the significance of the child safety seat program and

provide the following statement as a testimonial of the program's success. Chief Thompson, Jr. states, "My Captain and I were returning to Hilton Head from our state fire academy in Columbia on Interstate 95 when we drove up on a motor vehicle collision which had just occurred. A mid-sized SUV had a catastrophic failure of its suspension after running over a piece of debris in the road and rolled approximately four times landing on its top partially in the passing lane of the interstate. As we approached the vehicle the mechanism of injury looked extreme and we expected to find serious injuries or victims ejected. Much to our surprise we found a young couple who had self extricated and were sitting on the median. The female was holding an infant, approximately 12 months old, in her arms. All were conscious, alert, and oriented. The baby did not even have a scratch. Luckily the man and woman were wearing their seat belts and the baby was properly secured in a properly installed car seat. As we started to assess the couple we found out that they were from Virginia Beach and on their way to Hilton Head to see family and vacation. We also learned that the car seat in the vehicle had been installed by the Virginia Beach Fire Department just yesterday. I have no doubt the proper installation of the car seat saved the child from serious injury or worse death. Your personnel definitely made a difference here, even as far away as South Carolina.

The VBFD's LSE office was established in 1975 as part of an initiative to reduce deaths and injuries related to fires and injuries to the community. The office has five full time educators who are provided programs and initiatives to ensure risk reduction and community awareness evolves based on public demand, orders from the fire chief or

governmental direction, or based on laws or standards, e.g., educating students in the schools to satisfy SOL requirements.

In 1994, the LSE office partnered with the American Automobile Association (AAA) to provide the citizens with child safety seat checks and education on how to properly install seats. A comprehensive plan was developed by the LSE supervisor, to train the department. The launch of the program occurred in 1999 when members of the VBFD received a six hour company in-service based training session. This one day session provided no certification, as it provided the basic installation techniques and basic education on vehicle design. The oversight of the program occurred through a public/private partnership between the AAA and the VBFD. Liability forms were provided by the AAA and validated through a review by the City of Virginia Beach's public safety city attorney. The VBFD provided this community risk reduction program as a way to reduce injury to the children of the community.

As the program continued and evolved, the VBFD required recruit firefighters, starting in January 2001, to become certified child safety seat technicians. This was a four day, 32-hour training session that was in compliance with national standards set forth by the NTSHA. Over the next four years, ending in 2004, the VBFD trained 119 recruit firefighters to the certified technician level.

With this influx of certified technicians, the VBFD still required non-technician trained firefighters to continue to install seats. Station assignments of certified personnel were not orchestrated to ensure a certified technician was strategically placed to cover geographical areas of the city. Likewise, citizens were never turned away, or even educated of the firefighter's certification level when they performed the installation.

Since 2004, the VBFD has been training recruit firefighters to a two day, 16 hour course called Operation Kids, Law Enforcement Child Passenger Safety Program. Seventy-seven fire recruits have received this course since 2004. This course is not recognized for certification by the NHTSA and provides firefighters with an awareness of installing child passenger safety seats. Currently, the VBFD continues to check and install seats, but none of the original 119 firefighters who were certified technicians have maintained their certification. Over this same time period, 2004-2008, the VBFD averages 1,292 child passenger safety seat installations per year.

The decision to stop supporting the certified technician course was made due to the financial and time requirements placed by the NHTSA and Safe Kids Worldwide. There is a fee to gain initial certification (\$60) and to recertify (\$40) every two years. Also, there is a structured time commitment to recertify at the technician level. The decision to endorse the two day, non certified course, was made by senior leadership with the commitment to provide all personnel with an annual update and refresher. This has never occurred.

Currently, Safe Kids Buckle Up and Safe Kids Worldwide are the certifying agencies for the national certification. It is the mission of Safe Kids Buckle Up to ensure that all children are restrained in vehicles (Safe Kids Worldwide, 2008). Safe Kids Buckle Up community education occurs in a variety of settings, to include checkup events, permanent inspection stations, and mobile car seat check up vans. The VBFD participates in check up events and offers 19 permanent inspection stations. The 19 fire stations are the focal point of the program, allowing the 440,000 citizens the opportunity to have their seats checked and installed without waiting for a check up event.

This ARP is relevant to the curriculum taught in the Executive Fire Officer Program (EFOP), *Strategies for Community Risk Reduction (SCRR)* (NFA, 2007). There are links between the SCRR course and this ARP in the following units: Unit 2: Assessing Community Risk, Unit 3: Intervention, Program Design, and Evaluation and Unit 5: Organizational and Community policies. This ARP relates to the United States Fire Administration (USFA) operational objective to reduce loss of life of the young by 25% (NFA, 2007). The intent of this ARP is to meet the objectives of USFA and to ensure the child safety seat inspection program is evaluated to national standards.

Literature Review

The literature review focused on the theme of community risk reduction. To understand if the program meets compliance with national standards, four questions were established: a) What child safety seat installation standards exist? b) What child safety seat training standards exist? c) What legal and liability issues exist for installing child safety seats? d) What impact does the child safety seat installation program have on the community?

Motor vehicle crashes are the leading cause of death among children, with these deaths deemed preventable. The NHTSA states “placing children in age and size appropriate restraint systems reduces serious and fatal injuries by more than half (CDC, 2007). The NHTSA reports that in 2005, 1,452 children fourteen years or younger died as occupants in motor vehicle crashes, while 203,000 were injured. The NHTSA concludes that daily, four children are killed and 556 are injured as the result of motor vehicle crashes. Nearly half of the children killed in motor vehicle crashes in 2005 were unrestrained (CDC, 2007). Community risk reduction is relevant when reviewing

statistics provided by the CDC: Seventy-two percent of the observed child safety seat restraint systems were “misused in a way that could be expected to increase a child’s risk of injury during a crash (CDC, 2007).”

As a result, the NHTSA recommends that experienced and certified technicians perform the seat inspections and installations. “Certifications for all participating CPS Technicians must be current (NHTSA, 2008).” The NHTSA (2008) states that the technician is responsible for the following:

The Technician’s main role is as an educator. The Technician is responsible for the inspection of the child safety seat, demonstrating to the parent or caregiver how to properly install the seat and secure the child, and deciding whether or not to replace a seat. In addition, the Technician should also insure that any replaced seats are properly disposed of so as to prevent further use (unless used in a training course).

Child safety seat installation standards are defined by state law. In the Commonwealth of Virginia, the law is named the “Virginia’s Child Restraint Device Law (Code of Virginia article 13 - section 46.2) and the Virginia's Passenger Safety Belt Law (Code of Virginia Article 12 - Section 46-2) (Virginia Department of Health [VDH], 2007).” The VDH (2007) lists the following major requirements of these two laws:

1) Effective July 1, 2007: Child restraint devices are required for children through the age of seven (until 8th birthday). Safety seats must be properly used and approved by Department of Transportation standards. 2) Effective July 1, 2007: Rear-facing child restraint devices must be placed in the back seat of a vehicle. In the event the vehicle does not have a back seat, the child restraint device may be

placed in the front passenger seat only if the vehicle is either not equipped with a passenger side airbag or the passenger side airbag has been deactivated. 3) Effective July 1, 2007: Children can no longer ride unrestrained in the rear cargo area of vehicles. 4) The law applies to anyone (i.e. parents, grandparents, babysitters, friends) who provides transportation for a child in any vehicle manufactured after January 1, 1968. Public transportation (taxis, buses), regulation school buses, and farm vehicles are exempted. 5) The child restraint law and the safety belt law are primary enforcement -- no other violation need be committed prior to ticketing for failure to have a child in an approved seat. 6) A \$50 civil penalty fine is imposed for failure to have a child in a child restraint device. A \$20 civil penalty fine is assessed when persons transporting a child exempted from this law due to medical reasons do not carry a written statement of the exemption. All fines collected go into a special fund to purchase safety seats for low-income families. 7) Effective July 1, 2007: Children age 8 through age 15 (until age 16) must be belted correctly in vehicle safety belts, in vehicles manufactured after January 1, 1968. Exemptions are taxicabs, school buses, executive sedans and limousines.

These laws are the standards for which the community is held accountable. They are designed to ensure children are restrained in the proper device for their age and weight. A study conducted by the NHTSA in the mid-1990s identified that one or more form of child safety seat misuse in 79.5% of seat inspected by child passenger safety professionals (Decina, Lococo, Block, 2005). Critical misuses were designed to identify if the child passenger safety seats were installed to safety standards, as defined the

NHTSA. Areas measured by the study in 2001 were: age and weight appropriateness, direction of the restraint device, placement in relation to air bags, installation and secureness of the safety seat, secureness/tightness of the harness straps and crotch strap of the child safety seat, and use of locking clips for certain vehicle safety belts (Decina, et al., 2005). To understand the effectiveness of child safety seat installation standards, additional studies, conducted by the NHTSA, were completed to determine who was following the law.

There are problems associated with following national child safety seat installation standards, as directed by NHTSA. First, scheduling and staffing inspection stations is difficult when the local emergency response organizations such as police, fire and rescue, and emergency medical services (NHTSA, 2007). Since these organizations respond to and mitigate emergencies, they are subject to call at any time. The installer may be committed to the seat when they have the duty to respond to an emergency. As a result, these organizations, which are committed to injury prevention and this program, have to leave on an emergency response while in the process of installing the seat (NHTSA, 2007).

Another problem is that the organization installing child seats require staff to be trained and certified to the technician level. This is costly to the organization and often they decide to operate child passenger safety inspection stations on a weekly basis due to the limited number of certified installers. The NHTSA (2007) states:

Scheduling on-duty personnel who are trained and certified as CPS technicians to conduct inspections poses a problem if those individuals are called away to respond to an emergency situation. Parents and caregivers can be left waiting at

police stations and firehouses until the CPS technician returns from an emergency call. Many emergency response organizations have tried to resolve this problem by paying off-duty personnel overtime to conduct CPS inspections or having “on-call” back-up technicians available if someone is sent out on an emergency call. All first-responder sites tell CPS clients in advance that the scheduled inspection may be postponed if an emergency call arises.

National standards and standardized child passenger safety training course began in the 1990s. The desire was to increase the use of child safety seats. The initial effort of the program was to distribute child safety seats to low income families and children with special needs. This agreement between the U.S. Department of Transportation and General Motors Corporation desired to distribute seats (Womack, De La Zerda, Block, Guzzetta, 2005 p.1). Yet, research completed by the NHTSA, “underscored that making child safety seats available to everyone was insufficient to achieve the desired level of safety for children (Womack, et al., 2005 p.1).” The study quantified that 80% of the child safety seats were installed with one or more deficiencies. Furthermore, the study identified, “rampant misuses that potentially could cause or exacerbate injuries to children in a motor vehicle crash (Womack, et al., 2005 p.1).” The NHTSA convened a Blue Ribbon Panel in 1995 with the desire “to provide recommendations on ways to improve child safety seat compatibility, child passenger safety technology, and education (Womack, et al., 2005 p.1).” The panel recommended development of a standardized course designed to “teach fundamentals of CSS use to safety professionals and other interested parties. Individuals who successfully completed the course would then educate the public in using child safety restraint systems properly. The added goal was to

produce consistency in CSS instruction across the different regions of the country (Womack, et al., 2005 p.1).”

Launched in 1998, the NHTSA Standardized Child Safety Training Course was a certification process for technicians and instructors. The certification course consisted of 32 hours of instruction, over four days. The technician in training would then be required to be observed in a “real world setting” performing the skills learned while in the technician course (Womack, et al., 2005 p.1). The desire was to provide the public safety professionals with knowledge related to community risk reduction initiatives and injury prevention. These modules include: “basic injury prevention, crash dynamics, federal role and safety standards for occupant protection, vehicle occupant protection systems, selecting and securing children in vehicle restraint systems, correct installation of child restraint systems, misuse and compatibility issues, and occupant protection programs (Womack, et al., 2005 p.2).”

To receive the national technician certification, the public safety professional had to attend the course, successfully complete the hands-on skills test, and pass a written test. The national certifying body for the technician certification, from 1998-2004, was the AAA. In 2004, the National SAFE KIDS Campaign replaced AAA as the certifying body (Womack, et al., 2005 p.2).

The Commonwealth of Virginia has adopted the following options for public safety professionals: 1) The 32-Hour Certification Technician Course: Developed by the NHTSA, this certified technician course is, “designed for personnel to become technically competent to participate and to conduct child safety seat checks. “Upon successful completion of this course, the individual may be eligible for the national

certification technician level by the certifying agency, Safe Kids Worldwide (VDH, 2005).” 2) Operation Kids Training: This two day training is designed for personnel who desire to expand their knowledge in child passenger safety at the introductory level. Material covered includes: basics of correct selection, usage, and installation of child restraints. Upon completion, personnel will be able to educate parents and assist at child safety seat checks (VDH, 2005). Operation Kids training does not offer certification. The VDH (2005) states, “However, this training will provide exposure to the world of child passenger safety for the participants prior to attending the Standardized Certification course, which does offer certification. Either an actively involved certified technician or a technician instructor may instruct Operation Kids.”

For refresher or continued education training, the Commonwealth of Virginia requires one of the following two options, depending on the personnel’s previous certification or course received: 1) Update/ Refresher Child Passenger Safety Training. This is a one day course intended for personnel who have previously attended either the Operation Kids training or the Certified Technician Course prior to January 2005 (VDH, 2005). This refresher course will not reinstate a previously certified technician to current status. The intent is to update their initial training on topics such as design and engineering enhancements and installation techniques (VDH, 2005). 2) The Certification Renewal Course. This course is designed for personnel who were previously certified technicians or instructors of the Certified Technician Course, and have an expired certification (VDH, 2005).

Educating the public is a key to any training course. From advertising to educating parents on the process to proper install their seat, community interaction is

valued. The CDC (2007) states, “Be sure to read the manuals for your car and safety seat, and contact a trained technician in your community for hands-on assistance.”

Departments must be committed to retraining and re-educating their personnel. “Support your technicians by giving them the training and make them as competent as possible. Help them stay abreast to the latest changes in the field of child safety (Weiss and Davis, p. 93)”.

The VBFD offers permanent inspection stations at 19 fire stations. Permanent inspections stations are designated locations within the community that provide child safety seat inspections. It is convenient to the community, as an appointment is not necessary. The organization that provides permanent inspection stations must provides a child safety seat coordinator who oversees program. “They provide ‘quality control’ for the program and coordinate and maintain records for all inspections conducted for the organization. The coordinator is a consistent point of contact to the community for the organization’s operation (NHTSA, 2007 March). The VBFD has a child safety seat coordinator, Kathleen Gill, who is responsible for the program, to include record management, point of contact for the personnel, and the community.

The VBFD is listed by several organizations as having certified technicians to install child safety seats. The NHTSA lists the VBFD as a certified inspection station on its web site. The VBFD is also listed on the Virginia Department of Health’s web site as a Child Passenger Safety Permanent Fit Station. The Virginia Department of Health (VDH, 2006) provides the following statement describing what a citizen can expect by taking their child safety seat to a Virginia Beach fire station:

The Virginia Department of Health has partnered with various Public Health, Law Enforcement, Healthcare, Fire and EMS agencies to develop a network of locations around the State to check the installation of child safety seats. Trained personnel at these locations will check the installation of the seat and identify any manufacturer's recalls and correct any installation problems found. Many of these agencies incorporate inspections into their regular duties as a courtesy to their communities. Please keep in mind that most of these agencies provide the service while protecting their localities during emergencies.

The CDC (2005, p. 10) identifies that improperly secured child safety seats lead to injuries to children. "A survey of 17,500 children found that only 15% of children were correctly harnessed into correctly installed seats." Over the past decade, evidence and science has led to effective interventions to increase restraint use in children. The results of the studies and research conclude that there are laws mandating the use of child safety seats, safety belts, and programs that distribute child safety seats and educate parents about proper use is essential to the safety of children (CDC, 2005 p. 11).

Legal and liability issues exist when installing child safety seats. Several departments in the Commonwealth of Virginia have terminated installing child safety seat due to the liability concerns. Keith Arnold identifies that, (personnel communications, January 31, 2008), the Arlington County Fire Department, Fairfax County Fire and Rescue and the Chesterfield Fire Department have made the decision to cease their child safety seat installation programs due to the liability. Liability is an issue according to the NHTSA. The NHTSA (2007, March) states, "It is advisable to consult

with an attorney and insurance carrier knowledgeable and experienced in liability/risk-reduction issues for specific guidance.”

Due to the liability of manipulating and “installing the seat” the NHTSA (2007, March) recommends:

The installer should teach parents and caregivers how to safely transport their children using the appropriate child safety seat or safety belt correctly. The inspection should include a one-on-one tutorial by a certified CPS technician that provides hands-on instruction on the proper use and installation of child restraints. The parent/caregiver should always be the last person to touch the child safety seat before the vehicle leaves the CPS inspection station.

The NHTSA publishes several options for organizations with respect to liability. These are several ways that municipalities can protect their employees and their organization: 1) The “Good Samaritan” law. Many states allow the Good Samaritan Law to cover inspection stations. 2) The activities of the inspection station may be covered under the general insurance policy (or through an additional rider) of the sponsoring organization. Consult with the sponsoring organization about specific terms and conditions (NHTSA, 2007, March).

The impact that a child safety seat program has on the community, and providing for risk reduction, is well documented. Misuse rates are estimated to be between 70-80% and are not isolated to an individual’s race, socio-economic or educational level (NHTSA, 2008). The NHTSA (2008) states that child passenger safety seat installation is challenging and vehicle technologies make proper installation difficult for parents and caregivers.

The responsibility for proper installation of child safety seats is placed with the parents and other adult caregivers. However, the wide variety of child restraint systems, belt systems and passenger vehicles can make the correct installation of a child restraint system a challenge. Some vehicle designs limit the number of seating positions that can be used with child restraint systems. Some child restraint systems are simply incompatible with certain vehicles. And with so many different vehicle designs, it is difficult for child safety seat manufacturers to illustrate correct use of every child safety seat in every type of vehicle. To properly install the seat, parents must refer to both the child safety seat manufacturer's instructions and the vehicle owner's manual.

The Annals of Emergency Medicine (Vaca, 2004, p. 274) published the following critical forms of misuse: 1) age and weight appropriateness of child restraint system, 2) direction of child restraint system, 3) placement of child restraint system in relation to air bags, 4) installation and secure fit of child restraint system in the vehicle seat, 5) tight/secure straps in the child restraint system, and 6) use of locking clip for certain vehicle safety belts. These areas are taught in the certified technician course. As a permanent inspection station, the community expects these areas addressed when they take their seat to the VBFD. Therefore, the community values the child safety seat program.

Procedures

This ARP used the descriptive research method to evaluate the compliance of the VBFD's child safety seat installation program to national standards. Research procedures followed in this ARP include:

- A survey of randomly selected members of the VBFD to determine 1) who installs child safety seats in the VBFD, 2) how many firefighters or personnel install child safety seats, 3) what best describes your level of training received prior to installing child safety seats 4) what type of retraining or continued educational opportunities have members of the VBFD received?
- A survey of metro-fire departments from neighboring cities in Hampton Roads, as well as departments from across the nation. Hampton Roads, VA is defined as the geographical area of southeastern Virginia. The cities of Virginia Beach, Norfolk, Portsmouth, Hampton, Newport News, and Suffolk make up Hampton Roads. Population of this area is approximately 1.7 million people (Wikipedia, 2008). This survey was distributed to determine 1) who installs child safety seats in the their department, 2) how many firefighters or personnel install child safety seats, 3) what best describes the level of training personnel received prior to installing child safety seats 4) what type of retraining or continued educational opportunities have members of their department received?
- Interviews with the Life Safety Education Supervisor, Keith Arnold, Life Safety Education Specialist Kathleen Gill, program manager of the Child Safety Seat program for the VBFD, and the VBFD's Deputy Fire Chief Randy Journigan to determine the program history, what standards exist, what training standards exist,

and what legal liability issues exist for the VBFD when a child safety seat is installed. Interview questions are contained in Appendix A.

- Review of studies completed by the NHTSA relating to the proper use and misuse rates of child passenger safety seats.
- A review of statistics and program materials compiled by the Life Safety Education office, VBFD.

A survey with cover letter was distributed through interdepartmental mail to 90 randomly selected members of the VBFD on April 25, 2008 (Appendix B). The surveys were to be returned by May 15, 2008. Seventy-two of the 90 surveys were received back, which is an 80% response rate.

The intent of this survey was to identify who in the VBFD installs child safety seats, the number of firefighters who install the seat, the level of training that firefighters received, and what in-service or retraining has been received?

Similar surveys were sent to 35 fire departments in the Hampton Roads region, the mid-Atlantic region, as well as fire departments throughout the United States on March 3, 2008 through electronic mail. The surveys were to be returned by March 15, 2008. Thirty-two departments, 91%, returned the survey. Criteria used to choose these departments were based on demographics, population, proximity to the VBFD, and the number of personnel in their fire department. A copy of the survey is provided in Appendix C, with the fire departments that responded to the survey listed in Appendix D.

The intent of this survey was to identify who is most likely to install child safety seats in other municipal fire departments, how many firefighters usually install the seats, what level of training did the members of the municipal fire department receive to install

child safety seats, and to what extent did firefighters in other municipal fire departments receive re-training or continued education.

Interviews were conducted on January 31, 2008 with Life Safety Education Supervisor Keith Arnold and on January 25, 2008 with the Life Safety Education Specialist, and the child safety seat program manager, Kathleen Gill. Deputy Chief Randy Journigan was interviewed on May 29, 2008. The intent of these interviews were 1) to gain perspective into the history of the child safety seat program at the departmental, local, state, and national level, 2) understand the mandates and laws set forth by the Commonwealth of Virginia through the Virginia Department of Health, and the federal government through the NHTSA, and 3) gain insight into the processes and for compliance with national standards. Liability issues were also discussed.

Data was reviewed to determine the importance of this program to the community. Studies were conducted to determine the number of firefighters who were trained in the one day in-service level, the two day Operation Kids course, and the four day certified technician level course (Table 1). The political impact of continuing or discontinuing this program was discussed with a desire to better the quality of the program for the VBFD.

Table 1

The number of firefighters who were trained to the one day in-service level, the two day, non-certified Operation Kids course, and the four day certified technician level course.

Number of VBFD firefighters who received the one-day, in-service level, training	Number of VBFD firefighters who received the two-day, Operation Kids, course	Number of VBFD firefighters who received the four-day, technician level course	Total Number of Uniform Firefighters and Officers in the VBFD
239	77	119	435

Finally, studies conducted by the NHTSA were reviewed. These studies concentrated on the misuse of child restraints, the use of child restraints in 2004 and 2006, the use of booster seats in 2006, and statistics from the Commonwealth of Virginia and the nation regarding fatality and injuries suffered by children related to use and misuse of child safety seats.

Assumptions and Limitations

Assumptions of this research and the procedures focused on the referenced materials. It is assumed that the data collected was accurate and from unbiased research. The results of the surveys distributed were based on the information provided by the firefighters and officers of the VBFD, and from fire departments from Hampton Roads and the nation. The information provided by all the respondents to the surveys is based on their knowledge and expertise of the subject. The results are not based on scientific sampling.

Limitations regarding the research include compiling the survey results from the two surveys distributed. Ninety surveys were randomly distributed through out the VBFD, with 72 returned. That is 80%. Likewise, 35 surveys were distributed across the

region and nationally, with 32 returned. That is 91%. In both cases, the 95% confidence level was not satisfied.

Results

The VBFD installs child passenger safety seats as part of a community risk reduction initiative. The VBFD is not unique, as fire departments in Hampton Roads and across the nation, install child safety seats. Serving the community is important to the VBFD, and the need to serve the citizens is defined by the statistics compiled by the LSE office. On average, 1,292 child safety seats are installed each year by the VBFD.

The answers to the questions presented in the introduction of this ARP were attained through the methods outlined in the procedures section. The goal is to determine if the VBFD's child safety seat program has been evaluated for its compliance with national standards.

Question number one:

What child safety seat installation standards exist? To answer this question, research was conducted using the National Fire Academy's Learning Resource Center, the Internet, and interviews to determine if any standards existed. Research found that the NHTSA conducted multiple studies, over the past six years, related to the misuse of child passenger safety seats. To determine misuse, the NHTSA used installation standards as a bench mark. With national misuse rates of child safety use is as high as 80%, installation standards were not achieved (NHTSA, 2008). The responsibility of proper installation is on the parents and caregivers. "However, the wide variety of child restraints systems, belt systems, and passenger vehicles can make the correct installation of a child passenger system a challenge (NHTSA, 2008)." Installation standards do exist.

This is evident as parents and caregivers must refer to two manuals to ensure a proper installation occurs. The child safety seat manufacture's instructions and their vehicle's owners manual must be referenced to ensure proper installation.

To help codify this gap, the gap of the confused end-user, and the high misuse rates, the research found the "National Child Passenger Certification Policies and Procedures" manual. This manual provides details of the Safe Kids Worldwide policies and procedures for the National Standardized Child Passenger Safety Training Program (Safe Kids Worldwide, 2008 February 5, p.1). Likewise, a National Child Passenger Safety (CPS) Board exists. The Safe Kids Worldwide (2008, February 5) states the purpose of the board is:

This National CPS Board strives to improve the quality and integrity of CPS information and materials. It provides recommendations and guidance to NHTSA and Safe Kids Worldwide regarding curriculum and test development and serves as a panel of experts and advocates for the program. The CPS Board provides program direction and technical guidance to states, communities, and organizations as a means to maintain a credible, standardized CPS training and certification program. Its members include representatives from child restraint manufactures, vehicle manufactures, law enforcement, the medical and public health fields, the insurance industry and other CPS advocates. (p.1)

With standardized training, the NHTSA and Safe Kids Worldwide solicited public safety agencies, like the VBFD to serve the community and reduce the high misuse rate. Amy Lebeau, a Public Education Communication Manager at the National Fire Protection Association (NFPA, 2005 p. 34) states, "If you are unsure whether you've

installed your child's seat correctly, many areas have local organizations, usually the police or fire department, that have certified car seat technicians on staff to help you."

Also, the research reveals a national standardized child passenger safety certification program exists. According to Womack, et al. (2005), national standards were developed for the following reasons:

- 1) Over 15 separate curriculums were being used across the country, 2) Significant public interest in the field drove the national certification efforts, 3) Increased communication between manufactures because of scientific, non-opinion based research, 4) Blue Ribbon Panel urged better communication between advocates and manufactures, and 5) Linking certification to the curriculum assured that everyone providing information to the public, medic, etc. met a minimum standard and could show credentials attesting to successful course completion.(p.4)

Finally, the research has determined that when an organization or agency meets the NHTSA installation standards, that agency or organization is advertised and listed on web sites and literature as having certified technicians. The NHTSA, on their "Child Safety Seat Inspection Station Locator", lists the VBFD as an inspection station (NHTSA, n.d.). Likewise, the VBFD is listed on the VDH's website as a Child Passenger Safety Permanent Fit Station location (VDH, n.d.).

The Commonwealth of Virginia, through the Department of Health, recognizes certified technicians as its standard. An interview of the program manager of the child safety seat program of the VBFD, Kathleen Gill (personal communication on January 25,

2008), offered this interesting perspective into the necessity of having “certified” technicians:

Having certified technicians is the standard. For example, when the Virginia Department of Health wanted to offer materials to the VBFD, they wanted the VBFD to sign an agreement that the VBFD had certified technicians assigned to the locations to be an official child safety seat location. The VBFD did not sign because they did not comply.

Question number two:

What child safety seat training standards exist? Research has concluded that a National Standardized Child Passenger Safety Training Program (NSCPSTP) does exist. This program allows for initial certification and certification renewal (NHTSA, 2004 p. i). Through an interview with Life Safety Education Supervisor, Keith Arnold on January 31, 2008, he explains the national training certification:

The current national certification is a twenty-four hour course that is considered a technician. Safe Kids Worldwide is the certifying agency for this national certification. The VBFD is not meeting this national standard by the training we provide. The training we provide our firefighters is a sixteen hour “Operation Kids Law Enforcement Course” that is not certified and has not been updated since February 2003.

Advantages of becoming a nationally certified child passenger safety technician include: the certification is accepted from state to state; a central place to gather and share information; serves a political platform for fund raising, product development, and

regulation and policy changes; and information is disseminated using a neutral platform (Safe Kids Worldwide, 2008).

Research determines a distinction between certification and non-certification courses. Completion of a two-day Operation Kids course will not certify the firefighter. The International Association of Chiefs of Police (IACP) Operation Kids program manual states (2003):

Operation Kids will **NOT make you a child passenger safety expert** but after participating in this program, the individual will be able to:

1. Provide *basic* information that will assist caregivers select and secure children in appropriate child restraint systems (CRS) according to best practices guidelines.
 - a. This is **NOT a certification class** and should not be confused with NHTSA Standardized CPS Workshop.
2. Install some CRSs in multiple types of vehicles according to CPS best practice guidelines.
3. Provide *current basic* information to others about installing CRSs and how to properly restrain children in motor vehicles according to CPS best practice guidelines.
4. Assist at a CRS Checkup Event. (p.1)

Therefore, the research concludes a child safety seat training standard does exist.

Question number three:

What legal and liability issues exist for installing child safety seats? Having nationally certified child passenger safety technicians protects the technician, the

organization, and agency from potential liability issues. Safe Kids Worldwide (2008) states:

The federal government does not, at this time, recognize self-certification because there is decreased confidence that such a program has been properly implemented, tested, or graded. National certification has the seal of approval of the federal government. Absence of such a certification and practicing as a child passenger safety technician (CPST) exposes the participant to additional liability. Provided a CPST practices within the scope of the certification, should a legal incident occur, the weight of the entire CPST community, federal partners, and national organizations will be behind them.

Quality assurance is a concern of the NHTSA and the National CPS Board.

Liability is reduced when training occurs using a certified CPS instructor. Safe Kids Worldwide (2008) states: “To maintain the highest quality if training possible and help ensure that all CPS Technicians are trained according to the standardized curriculum, only certified CPS Instructors and officially approved instructor candidates are allowed to teach the national CPS certification course.”

The Commonwealth of Virginia, through Chapter 293 of the Code of Virginia, sections 8.01-226.5 (1999), *Immunity for installers and inspectors of child restraint devices*, states:

Any person who has successfully met the minimum required training standards for installation of child restraint devices established by the National Highway Traffic Safety Administration of the United States Department of Transportation, who in good faith and without compensation installs, or inspects the installation

of, a child restraint device shall not be liable for any damages resulting from an act to omission related to such installation, unless such an act or omission was the result of the person's gross negligence or willful misconduct.

In Virginia, research has concluded that the Department of Health has established the minimum required training standards established by the NHTSA as the two-day Operation Kids course, with the following stipulations: 1) participation in a child safety check is required and successful completion of a written test, 2) installers must have contact with a technician or instructor for supervision or guidance as needed, and 3) annual update training and refresher course is highly recommended (VDH, 2005).

The VBFD's Child Safety Seat Program Manager, Kathleen Gill, on January 25, 2008, provided a response to the liability of non-certified personnel in the VBFD. Gill stated:

Since we are not certified technicians, we teach the members of the VBFD to teach and educate the public to install their own seats. The goal of our program is to educate the public to do it for themselves. If we install the seat, we take responsibility and assume the liability of the installed seat. The VBFD is trained to educate the parents and caregivers in installing their own seats, not certified.

We cannot tell the public that we are certified, we must tell the public that we are trained. If they desired a certified person, then the station must refer them to one of the three life safety educators, who are the only three certified technicians in the VBFD.

Question number four:

What impact does the child safety seat installation program have on the community? Research has concluded that the community needs and desires to have trained child passenger safety technicians in the community. Unintentional injuries is the leading cause of childhood injuries, with motor vehicle crashes representing 42% of all unintentional injury related deaths (NHTSA, 2004 p. 5). Also, with an estimated 80% of the child safety seats misused, the community desires to have a place to have their child safety seats inspected and installed by certified technicians.

The NHTSA recognizes the difficulty parents and caregivers face when installing child safety seats. The statistics issued by the NHTSA on February 8, 2007 state: five children are killed each day and another 640 are injured. Car seats, booster seats and other restraints are proven to keep children safe. National Highway Traffic Administrator Nicole Nason (NHTSA, 2007, February 5) states, “Properly installing a car seat should not be a daunting process for our parents. Our children are precious and parents and caregivers must have the information they need to properly install their car seats. We want to make children as safe as possible, give the best information and make the technology available to protect children in vehicles.”

The NHTSA (2007) acknowledges that most parents and caregivers need assistance with the following: 1) Using the correct seat for the age and size of the child, 2) installing the seat correctly, 3) placing the child in the seat correctly, and 4) obtaining information and experience that will lead to the self-sufficiency for future use. Hands-on inspection and installation is a proven safety intervention, according to the NHTSA. Either a child safety seat clinic, or a permanent inspection station, the public should have access to trained personnel educated and trained to install child safety seats.

The VBFD averages 1,292 installations (Table 2) each year. This statistic demonstrates the community’s use of the program. The community comes to one of the city’s 19 fire stations for assistance in installing their child passenger safety seat. The community desires to reduce the risk of injury to their children. The public desires and appreciates this program. The NHTSA (2008) documents the need for permanent inspection stations based on the national statistic that 80% of child safety seats misused, which is not isolated to race, socio-economic or education level.

Table 2

Number of child safety seats installed by the City of Virginia Beach Fire Department.

Year	2004	2005	2006	2007	Average
Number	1,622	1,129	1,282	1,133	1,292

Two surveys were instituted for this research project. The first survey was distributed to 90 randomly selected members of the VBFD. The intent of this survey was to identify who in the VBFD installs child safety seats, the number of firefighters who install child passenger seat, the level of training that firefighters received to install the seats, and what in-service or retraining has the firefighters received since they received their initial training?

Similar surveys were sent to 35 fire departments in the Hampton Roads, VA region, as well as fire departments throughout the United States. The intent of this survey was to identify who is most likely to install child safety seats in other municipal fire departments, how many firefighters usually install the seats in their department, what level of training did the members of the municipal fire department receive to install child

safety seats, and to what extent did firefighters in other municipal fire departments receive retraining or continued education to maintain certification?

The results are as follows: 90% of the installers of a child safety seat in the VBFD are probationary firefighters or the most junior firefighter in the station. Ninety percent of the time, two firefighters install the child safety seat in the VBFD. Forty-six percent of the respondents from the VBFD received the one-day, eight hour, company in-service training, while 22% percent has received the two-day Operations Safe Kids Law Enforcement Course. Thirty-two of the respondents received a certified technician course. Finally, 92% of the respondents from the VBFD indicated they had received no retraining or continued education since they received their initial training. The results of the survey questions are detailed in a chart in Appendix E.

The survey results from Hampton Roads and across the nation revealed the following results: Forty-one percent of the installers of a child safety seat were probationary firefighters or the most junior firefighter in the station. Sixteen percent were the senior firefighter while nine percent was a life safety educator. Thirty-four percent of the respondents indicated they do not install seats in their department. Two of the respondents indicated their department did not install seats, yet the police department did. The Indianapolis Metropolitan Police Department and the California Highway Patrol install child passenger safety seats in place of the fire department.

Of the departments who install seats, 52% of the time, one firefighter installs the child safety seat. Thirty percent of the respondents indicated two members install seats, while 18 % of the respondents who install seats indicated three firefighters or more install the seats. Of the 23 departments who install seats, 96% of the respondents have received

a certified technician course. Only one, or 4% of the respondents, indicated they had received a two day, non-certified Operations Safe Kids Law Enforcement Course. Finally, 47% of the respondents indicated they receive at least four hours of continued education per year. Thirty-five percent of the respondents indicated they had received no retraining or continued education since they received their initial training, while 28% indicated their department did not install child passenger seats. The results of the survey questions are detailed in a chart in Appendix F.

Comparing the results of the surveys between the VBFD and other departments indicates the VBFD has a wide range of training amongst its personnel. From the one-day in-service to the certified technician training, there is no standard. Likewise, the VBFD has provided no retraining or continued education program since providing the initial training. Of the departments who responded to the survey that install child safety seats, the majority, 96%, are trained to the certified technician level and 65% receive reeducation and continue education programs. Eighty-two percent of the respondents from Hampton Roads and the nation indicated “certain members at designated stations” install safety seats. The VBFD does not designate stations and a citizen can travel to any one of the nineteen stations to have their seat installed. The remaining 18% had their seat installed by “only civilian life safety educator”. Therefore, the VBFD is unique by allowing all 19 of the fire stations to be a permanent inspection station. This means, that of the respondents from other departments who installed child safety seats, zero of the respondents indicated that every station and every member install seats, like the VBFD.

Discussion

The intent of this research project was to evaluate the compliance of the VBFD's child safety seat installation program to national standards. The results indicate that the VBFD's child safety seat program does not comply with national standards. There are similarities between the research questions and literature reviewed. First, there are national standards for installing child safety seats. It is the intent of the manufacture of the child safety seats and the automobiles to allow parents and caregivers to use the owner's manual and instructions provided as a guide to install the seat. Yet, this desire is failing as the national surveys by the NHTSA reveal a misuse rate of up to 80%. As a result, the national standard for installing a safety seat is a valid "certification" as a safety seat technician. It does not have to be a public safety agency, yet the person installing the seat must have the certification through the NHTSA's certifying agency, Safe Kids Worldwide. The key is having the credential to install the seat. The NHTSA recommends that experienced and certified technicians perform the seat inspections and installations. "Certifications for all participating CPS Technicians must be current (NHTSA, 2008)." The NHTSA (2008) states:

The Technician's main role is as an educator. The Technician is responsible for the inspection of the child safety seat, demonstrating to the parent or caregiver how to properly install the seat and secure the child, and deciding whether or not to replace a seat. In addition, the Technician should also insure that any replaced seats are properly disposed of so as to prevent further use (unless used in a training course).

Also, child safety installation standards are defined by state law. In the Commonwealth of Virginia, the law is named the "Virginia's Child Restraint Device

Law” and the “Virginia's Passenger Safety Belt Law” (VDH, 2007). Proper use of seats is required by law. According to the Code of Virginia, article 13-section 46.2 (VDH, 2007), “Child restraint devices are required for children through the age of seven (until 8th birthday). Safety seats must be properly used and approved by Department of Transportation standards.” The Department of Transportation standards are defined through the NHTSA. The NHTSA lists the VBFD as a Child Safety Seat Inspection Location. Therefore, a citizen would infer that by choosing to bring their child passenger seat to a fire station in the City of Virginia Beach, they are meeting Department of Transportation standards, and thus satisfying the intent of the Code of Virginia.

An interview with Life Safety Education Supervisor Keith Arnold determined that there are only three certified technicians in the VBFD. The three certified technicians are life safety education specialist and are not uniform members. Of the 435 uniform firefighters in the VBFD, no one is currently certified as a technician. The survey results indicate that fire departments in the region and across that nation do not support this program without having certified technicians. Of the twenty-three departments who install seats, 94%, or 22 departments train their personnel to the certified technician level.

The next research question posed was what child safety seat training standard exists? The literature identified that national standards for training started in the 1990s when the U.S. Department of Transportation and General Motor Corporation desired to distribute seats (Womack, et al., p.1). The standard training desire took a different approach, after the NHTSA convened a Blue Ribbon Panel in 1995 with a desire “to provide recommendations on ways to improve child safety seat compatibility, child passenger safety technology, and education (Womack, et al., p.1).” The NHTSA indicated that the

complexity of installing child passenger seats led to the need to develop a standardized course. The panel recommended a standardized course designed to “teach fundamentals of CSS use to safety professionals and other interested parties. Individuals who successfully completed the course would then educate the public in using child safety restraint systems properly. The added goal was to produce consistency in CSS instruction across the different regions of the country (Womack, et al., p.1)”. Launched in 1998, the NHTSA Standardized Child Safety Training Course was a certification process for technicians and instructors who teach the technician course. The certification course consisted of thirty-two hours of instruction, over a four day class. The technician in training would then be required to be observed in a “real world setting” performing the skills learned in the technician course (Womack, et al., p.1). The desire was to provide the safety professionals with knowledge and related to community risk reduction initiatives and injury prevention.

Authors agreed that misuse rates are high and that installing a child passenger seat is difficult for parents and caregivers. In the *Annals of Emergency Medicine*, Vaca (2004 p. 274) published the following critical forms of misuse: 1) age and weight appropriateness of child restraint system, 2) direction of child restraint system, 3) placement of child restraint system in relation to air bags, 4) installation and secure fit of child restraint system in the vehicle seat, 5) tight/secure straps in the child restraint system, and 5) use of locking clip for certain vehicle safety belts. The goal of the course was to reduce the misuse rates and decrease the risk of fatal injury. The American Academy of Pediatrics (AAP) advertises that the child passenger safety technicians are

available to assist the public. They advertise that if you possess any questions regarding installation of your child safety seat, “find a certified CPS technician (AAP, 2007).”

The training standard has become the technician level and the authors agree. Weiss and Davis, (2006, p. 93) wrote:

Certification and recertification of technicians to perform child safety seat inspections is conducted nationally by Safe Kids. Training courses take 32 hours, and technicians must pass a 100-question test. Certification and recertification are important because there’s an ever-changing variety of makes and types of seats, as well as vehicles.

(p.93)

The third research question examined the legal and liability issues associated with installation of child safety seats. The authors determined that liability is an issue when municipal fire services install child safety seats. Several departments in the Commonwealth of Virginia have terminated installing child safety seat due to the liability concerns. LSE supervisor Keith Arnold for the VBFD indicates that the Arlington County Fire Department, Fairfax County Fire and Rescue and Chesterfield County Fire Department have made the decision to cease this program in their departments, as liability is an issue (personnel communication, January 31, 2008).

Review of the surveys conducted indicates that of the departments that install safety seats, maintaining a certification as a technician is required due to liability. Liability concerns prompt fire departments to only allow certified technicians to install seats, unlike the VBFD who requires every member, regardless of certification level to install seats. This liability is shared by the NHTSA. Due to the liability of manipulating and “installing the seat” the NHTSA (2008, March) recommends:

The installer should teach parents and caregivers how to safely transport their children using the appropriate child safety seat or safety belt correctly. The inspection should include a one-on-one tutorial by a certified CPS technician that provides hands-on instruction on the proper use and installation of child restraints. The parent/caregiver should always be the last person to touch the child safety seat before the vehicle leaves the CPS inspection station.

As a result, the certified technician is who is recommended to install seats by the NHTSA. The literature agrees that the child safety seat program has a positive impact on the community.

The literature agrees that the misuse rates of child passenger safety seats are between 70 to 80%, and the installation is a challenge to the parents or caregivers. Having a central location, with certified and trained personnel to assist, educate, and secure the child passenger seats, benefits the community. The NHTSA (2007) agrees that the community benefits and describes how challenging seat installation is to parents and caregivers:

The responsibility for proper installation of child safety seats is placed with the parents and other adult caregivers. However, the wide variety of child restraint systems, belt systems and passenger vehicles can make the correct installation of a child restraint system a challenge. Some vehicle designs limit the number of seating positions that can be used with child restraint systems. Some child restraint systems are simply incompatible with certain vehicles. And with so many different vehicle designs, it is difficult for child safety seat manufacturers to illustrate correct use of every child safety seat in every type of vehicle. To properly install the seat, parents

must refer to both the child safety seat manufacturer's instructions and the vehicle owner's manual.

“Installation can be made safer and easier (NHTSA, 2007).” Child passenger safety technicians can help, the NHTSA tells parents and caregivers. It advertises and promotes the following, “If you have more questions about installing your car safety seat, find a certified CPS Technician. A list of certified CPS Technicians is available by state or ZIP code on the NHTSA Web site (NHTSA, n.d.).

The authors agree that parents and caregivers are restraining their children in vehicles. Donna Glassbrenner (2005) stated “98% of infants and 93% of children ages 1-3 observed in passenger vehicles stopped at a stop sign or stoplight in 2004 were restrained in some type of restraint, whether a rear or front facing safety seat, a booster seat, or safety belt”. Moreover, the authors found that demographics do not play a role in restraint rates, especially in the children 1-3 years of age. “Children 1 to 3 years were restrained a high use rates (roughly 90% or higher), regardless of their race, ethnicity, gender, height, or weight (Glassbrenner and Ye, 2007, DOT HS 870 797)”. As a result, the community is using child passenger seats, yet the community benefits for the CPS inspection stations from the VBFD because of the high misuse rates. Critical misuses in 1995 were at 80%, and now, nearly three out of four (73%) of child restraint systems displayed one or more types of “critical misuse” (Vaca, 2004, p. 274).

Recommendations

The following recommendations will serve as a way to bring the VBFD's child safety seat installation program into compliance with national standards. The recommendations

will also serve to increase the effectiveness of the program to ensure citizens receive a community risk reduction program that is valued and compliant. First, the senior staff of the VBFD has to determine the extent that it will support the program. As there are fees associated with training personnel to the national standard. The organization must consider alternatives. Regardless of the option adopted by the senior staff, it is necessary to implement a standard operating guideline (SOG). This SOG will define to scope, purpose, and guidelines of the program. Included in this SOG will be the following: training standards that are required for initial certification and a matrix that identifies the hours needed per year for recertification. The SOG will be in concert with the training and reeducation requirements of the national certifying agency, which is currently Safe Kids Worldwide. All members who are identified by the VBFD’s senior staff to install child passenger safety seats will be required to maintain the technician certification. This will be done at the VBFD’s expense (\$60 for initial certification and \$40 every two years to recertify).

Next, based on the research, the following options are recommended to the VBFD’s senior staff. These options will ensure the VBFD has certified technicians that comply with national standards:

- a. Option #1: Certify one station per Battalion (8 firefighters x 4 battalions x 3 shifts = 96 firefighters)

Initial Certification for 96 Firefighters @ \$60.00/person	\$5,700.00
Recertification: every two years @ \$40.00/person	\$3,840.00
Total (only for initial training and 1 recertification)	\$9,540.00

- b. Option #2: Certify one Station per Battalion with two Firefighters per shift (2 firefighters x 4 battalions x 3 shifts = 24 firefighters)

Initial Certification for 24 Firefighters @ \$60.00/person	\$1,440.00
Recertification: every two years @ \$40.00/person	\$960.00
Total (only for initial training and 1 recertification)	\$2,400.00

- c. Option #3: Certify two firefighters per station per shift (2 firefighters x 19 stations x 3 shifts)

Initial Certification for 114 Firefighters @ \$60.00/person	\$6,840.00
Recertification: every two years @\$40.00/person	\$4,560.00
Total (only for initial training and 1 recertification)	\$11,400.00

- d. Option #4: Certify all uniform firefighters (435)

Initial Certification for 435 firefighters @ \$60.00/person	\$21,600.00
Recertification: every two years @ \$40.00/person	\$17,400.00
Total (only for initial training and 1 recertification)	\$39,000.00

- e. Option #5: Hire and employ one person that will oversee and install all child safety seats that are installed by the VBFD. This person would become a full time, permanent employee with the VBFD, and become the program manager. They would be assigned to the LSE office and all child safety seat installs would be performed at one location, at the Fire Training Center. The VBFD would support the members of the LSE office in maintaining their technician certification.

Initial certification for new employee @ \$60.00:	\$60.00
Initial certification for two members of LSE @\$60.00/person:	\$120.00
Recertification of new LSE employee and 5 LSE members @ \$40.00/person:	\$240.00
Salary plus benefits and uniforms and office space to include computer for new employee:	\$45,000
Salary per year to include benefits:	\$40,000
Total (only for initial training and 1 recertification):	\$85,000

In today’s litigious society the City of Virginia Beach and the VBFD needs to be proactive and not reactive. Regardless of the option that the senior staff chooses, implementation of a SOG and compliance with national installation and training standards must occur.

Two additional options are recommended for consideration of the senior staff:

1. Using certified NHTSA instructors, train the members of the VBFD to the national standard (certified technician), and elect not to pay for their certification through the national certifying agency, Safe Kids Worldwide. Issue an agency having jurisdiction (AHJ) certification and the personnel will be trained to the national level, yet not receive a national certification from Safe Kid Worldwide. This would save the VBFD \$60.00 per person who takes the certification course. Likewise, every two years, the VBFD would have to ensure the members who are trained to the national standard receive

the same recertification curriculum that Safe Kids Worldwide requires. Using the AHJ model, the VBFD would save \$40.00 per person every two years.

The VBFD must maintain all records, similar to Safe Kids Worldwide, and must demonstrate that the initial AHJ certification course and the recertification requirements were identical to Safe Kids Worldwide, so that they maintain compliance with the NHTSA. The public safety city attorney would have to review this option for liability and legal considerations.

2. The final option is to terminate the program. If the senior staff determines the financial and time constraints placed by the certifying agency is to extreme, coupled with the liability placed on the organization, termination is an option. Other municipal fire departments in the Commonwealth of Virginia have terminated their child safety seat installation programs.

Some immediate changes are recommended to provide all members of the VBFD with retraining and reeducation on the installation of child passenger safety seats and the technologies of passenger vehicles. These recommendations are only designed to bridge the gap of the current program, which is not in compliance with national standards, until senior staff can decide which option is best for the organization and community, and implement the new program. This recommendation would provide training on child passenger safety seats to the entire department, over a two month period, and would be accomplished in the following venues:

1. Company In-Service: This will provide eight hours of refresher and reeducation training, both didactic and hands-on experiences.

2. Officer In-service: This would cover liability concerns; provide case reviews and expectations for quality and accurate data collection and customer service.
3. Produce a segment on child passenger safety seats on the VBFD's video production series, "Frontline Firefighter": Use video training to update the members of the VBFD on the program, changes in the technologies, and child passenger safety seat recall notices.
4. Provide the firefighters and the company officers educational materials from the VDH and the NHTSA that will allow the firefighters to educate the community as they come to the advertised permanent inspection locations to have their child safety seats installed.

Regardless of the option that the senior staff chooses, a follow up evaluation will be provided to each member of the VBFD. This evaluation will be collected to determine if the changes implemented meet desired outcomes and expectations. This would be done at the end of each fiscal year. The Program Manager will report to the Battalion Chief of Prevention, with trends, accomplishments, statistics, and best practices. As the program evolves, it will be continually evaluated to ensure national installation and training standards are met. If necessary, the SOG will be modified and revised to reflect changes and maintain the program to national standards. This will provide the citizens and visitors of Virginia Beach with a quality risk reduction program.

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Appendix A

Interview Questions for Life Safety Education Specialist Kathleen Gill and Life Safety

Supervisor Keith Arnold

1. What is the difference between a certified four day course and a non-certified two day course?
2. What training has the members of the VBFD received since the inception of the Chief Safety Seat program?
3. What fees are required to certify members of the VBFD to the certified standard?
4. Why has the VBFD opted not to continue with the certified course?
5. What is the goal of the community risk reduction program, Child Safety Seat installation?
6. What is the relationship between the VBFD and the Virginia Department of Health with regards to installing Chief Safety Seats?
7. Do Child Safety Seat Installation standards exist?
8. What training standards exist?

Appendix B

Virginia Beach Fire Department (VBFD) Child Safety Seat Installation Program
(April 2008)

The purpose of this research paper is to evaluate the City of Virginia Beach Fire Department’s Child Safety Seat Installation Program. This project aims at identifying the means of improving the quality of the child safety seat installation program by the Virginia Beach Fire Department.

Please read each question below. Place a “X” mark in the one box that best answers the question asked.

Please return to Mike Barakey at the FTC by May 15, 2008!

#1 Who installs the Child Safety Seats at you fire station?

When a citizens comes to the fire station to have their seat installed, who is most likely to install the seat?

Who installs child safety seats at your fire station?	Please place an “X” in the most appropriate box.
Probationary FF or the most junior firefighter in the station.	
Senior Firefighter or Master Firefighter	
Officer or acting officer	

Continue next page→

#2 When a citizen comes to the fire station to have their child safety seat installed, how many firefighters assist in the installation?

How many firefighters or personnel install child safety seats most often?	Please place an "X" in the most appropriate box.
One (1)	
Two (2)	
Three (3)	
Four (4)	

#3 Training

What level of training did you receive to install child safety seats for the Virginia Beach Fire Department?

Please "X" the box that identifies the level of training that best describes how you were trained to install child safety seats for the VBFD.

What best describes your level of training you received, or your personnel receive, prior to installing child safety seats for your department?	Please place an "X" in the most appropriate box.
None, self taught	
One day, 8 hour, company in-service.	
Two day, 16 hour, non-certified child safety installation class (Operation Safe Kids Law Enforcement Class) usually taught in recruit school.	
Four day, 32 hour, NHTSA or SAFE KIDS child safety seat technician class.	
Other: Please specify	

Continue next page→

#4 Retraining and continued education:

How many in-services or continued educational opportunities have you been part of to retrain you since your initial child safety seat training?

Please “X” which best describes the number of in-services or continued educational opportunities you have had since your initial training.

What best describes the number of in-services or continued educational opportunities you have had since your initial training	Please place an “X” in the most appropriate box.
None	
One per year (4 hours)	
Two per year (8 hours)	
Other: Please specify	

Demographic Data
(This information is for statistical purposes only)

Position:
 Firefighter/Master Firefighter
 Captain
 Chief Officer

Years in the Fire Department
 5 years or less
 6-10 years
 11-15 years
 16-20 years
 Over 20 years

Thank you for your time!

Appendix C

Virginia Beach Fire Department (VBFD) Child Safety Seat Installation Program
(February 2008)

The purpose of this research paper is to evaluate the City of Virginia Beach Fire Department’s Child Safety Seat Installation Program. This project aims at identifying the means of improving the quality of the child safety seat installation program by the Virginia Beach Fire Department.

Please read each question below. Place a “X” mark in the one box that best answers the question asked.

Please return to Mike Barakey at mbarakey@vbgov.com by March 15, 2008.

#1 Who installs Child Safety Seats at your fire station or in your Fire Department?

Who installs child safety seats at your fire station or fire department?	Please place an “X” in the most appropriate box.
Probationary FF or the most junior firefighter in the station.	
Senior Firefighter or Master Firefighter	
Officer or acting officer	
Life Safety Educator	
None, we don’t install seats	

#2 When a citizen comes to the fire station to have their child safety seat installed, how many firefighters installs the seat?

How many firefighters or personnel install child safety seats most often?	Please place an “X” in the most appropriate box.
One (1)	
Two (2)	
Three (3) or more	

#3 Training

What level of training did you receive, or do your personnel receive, to install child safety seats for your department?

What best describes your level of training you received, or your personnel receive, prior to installing child safety seats for your department?	Please place an "X" in the most appropriate box.
None, self taught	
One day, 8 hour, company in-service.	
Two day, 16 hour, non-certified child safety installation class (Operation Safe Kids Law Enforcement Class) usually taught in recruit school.	
Four day, 32 hour, NHTSA or SAFE KIDS child safety seat technician class.	
Other: Please specify	

#4 Retraining and continued education:

How many in-services or continued educational opportunities have you been part of to retrain you since your initial child safety seat training?

What best describes the number of in-services or continued educational opportunities you have had since your initial training	Please place an "X" in the most appropriate box.
None	
One per year (4 hours)	
Two per year (8 hours)	
Other: Please specify	

Please answer the following questions:

1. Does your department maintain certified Child Safety installers who are certified by National Highway Traffic Safety Administration (NHTSA) or SAFE KIDS? Yes or No
2. If you, or members of your department, are NHTSA or SAFE KIDS certified Child Safety Seat Technician, do you “recertify”, or ensure members in your department recertify? Yes or No
3. How many members in your department install child safety seats?
Every member
Certain members at designated stations
Only civilian life safety educator’s

Demographic Data
(This information is for statistical purposes only)

Position:

- Firefighter/Master Firefighter
Captain
Chief Officer

Years in the Fire Department

- 5 years or less
6-10 years
11-15 years
16-20 years
Over 20 years

Population Served by your Department

- Less than 50,000
50,000 -100,000
100,000-250,000
250,000-500,000
Greater than 500,000

Name of Fire Department: _____

Appendix D

Fire Departments that participated in the Research Survey

1. Bowling Green, KY
2. Colonial Heights, VA
3. Charlottesville, VA
4. Chesterfield County, VA
5. Chesapeake, VA
6. Fort Lauderdale, FL
7. Grapevine, TX
8. Hampton, VA
9. Henrico, VA
10. Honolulu, HI
11. Indianapolis Police Department, IN
12. James City County, VA
13. Kettering, OH
14. Los Angeles City, CA
15. Los Angeles County, CA
16. Livermore-Pleasanton, CA
17. Memphis, TN
18. North Las Vegas, NV
19. Newport News, VA
20. Norfolk, VA

21. Orange County, TX
22. Parker Fire District, CO
23. Phoenix, AZ
24. Pittsfield, MA
25. Portsmouth, VA
26. Poudre Fire Authority: Fort Collins, CO
27. Richmond, VA
28. San Diego, CA
29. Saint Charles, MO
30. Suffolk, VA
31. Williamsburg, VA
32. York County, VA

Appendix E

Results of VBFD Survey Evaluation

#1 Who installs Child Safety Seats at your fire station or in your Fire Station?

Who installs child safety seats at your fire station?	Probationary FF or the most junior firefighter in the station	Senior Firefighter or Master Firefighter	Officer or acting officer
	.90	.10	0

#2 When a citizen comes to the fire station to have their child safety seat installed, how many firefighters assist in the installation?

How many firefighters or personnel install child safety seats most often?	One	Two	Three
		.90	.10

#3 Training

What best describes your level of training you received, or your personnel receive, prior to installing child safety seats for your department?	None, self taught	One day, 8, hour, company in-service.	Two day, 16 hour, non-certified child safety installation class (Operation Safe Kids Law Enforcement Class).	For day, 32 hour, NHTSA or SAFE KIDS child safety seat technician class.
		.46	.22	.32

#4 Retraining and continued education:

What best describes the number if in-service or continued educational opportunities you have had since you have had your initial training?	None	One per year (4 hours)	Two per year (8 hours)	Other
	.92	.07		.01

Appendix F

Results of Regional/National Reporting Evaluation

Results of VBFD Survey Evaluation

#1 Who installs Child Safety Seats at your fire station or in your Fire Station?

Who installs child safety seats at your fire station or fire department?	Probationary FF or the most junior firefighter in the station	Senior Firefighter or Master Firefighter	Officer or acting officer	Life Safety Educator	None, we don't install seats
	.41	.16		.09	.34

#2 When a citizen comes to the fire station to have their child safety seat installed, how many firefighters assist in the installation?

How many firefighters or personnel install child safety seats most often?	One	Two	Three
	.38	.22	.13

#3 Training

What best describes your level of training you received, or your personnel receive, prior to installing child safety seats for your department?	None, self taught	One day, 8, hour, company in-service.	Two day, 16 hour, non-certified child safety installation class (Operation Safe Kids Law Enforcement Class).	For day, 32 hour, NHTSA or SAFE KIDS child safety seat technician class.	N/A: My Department does not install seats
	.03		.03	.69	.25

#4 Retraining and continued education:

What best describes the number if in-service or continued educational opportunities you have had since you have had your initial training?	None	One per year (4 hours)	Two per year (8 hours)	Other	N/A
	.25	.28	.095	.095	.28

Follow-up questions: Please note, that twenty-two of the thirty two departments have certified installers. As a result, these questions the percentages are based on the twenty-two departments who answered “yes” to question one below and who stated they received the certified technician course in question three above.

1. Does your department maintain certified Child Safety installers who are certified by National Highway Traffic Safety Administration (NHTSA) or SAFE KIDS? 22 departments answered “yes”
2. If you, or members of your department, are NHTSA or SAFE KIDS certified Child Safety Seat Technician, do you “recertify”, or ensure members in your department recertify? Yes .73 or No .27
3. How many members in your department install child safety seats?
 - i. Every member: None
 - ii. Certain members at designated stations .82
 - iii. Only civilian life safety educator’s .18