

Running head: IMPLEMENTING A FIREFIGHTER EMERGENCY INCIDENT

Implementing a Firefighter Emergency Incident Rehabilitation Program in Seminole County

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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 Seminole County Fire Department and the fire department agencies within the Seminole County first response system have not implemented a formal firefighter emergency incident rehabilitation program. Without a formal program inconsistencies exist and firefighters run the risk of not receiving adequate emergency incident rehabilitation as outlined by the National Fire Protection Association 1584 *Standard on the Rehabilitation Process for Members During Emergency Operations and Training Exercises*. Because the work of a firefighter is extremely taxing on the body, the lack of a formal rehabilitation program on emergency incidents increases the potential risk of firefighter injury or death. The purpose of this research was to identify an action plan to implement a successful firefighter emergency incident rehabilitation program. Descriptive research was used to answer the four research questions: a) What steps are associated in implementing a formal firefighter emergency incident rehabilitation program?, b) What are the benefits, challenges or obstacles associated with implementation of a rehabilitation program?, c) What organizational influences or behaviors are associated with the implementation of a formal rehabilitation program?, d) How would the program be evaluated to ensure successful implementation? A literature review and firefighter rehabilitation survey was conducted which identified the need for the development and delivery of a comprehensive firefighter emergency incident rehabilitation training program for all agencies responding within the Seminole County first response system. The firefighter rehabilitation survey identified behaviors that would need to be addressed in a formal training program in order for the rehabilitation program to be successful. Recommendations included a training program with lecture and practical application along with case scenarios.

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Implementing a Firefighter Emergency Incident Rehabilitation Program in Seminole County

Introduction

The Seminole County Fire Department (SCFD) responds to emergency incidents through a first response system with the city fire departments within the county. Regardless of jurisdictional boundaries, emergency units that are closest to an incident provide fire and emergency medical services (EMS) to all residence of Seminole County. Though this first response system has proven to be an invaluable asset, it comes with operational inconsistencies, especially in the area of firefighter emergency incident rehabilitation.

The problem is the Seminole County and Cities Incident Management System (SCCIMS) has not implemented a formal firefighter emergency incident rehabilitation program. Without a formal program implemented, firefighters from all agencies responding throughout the Seminole County area run the risk of not receiving adequate rehabilitation as outlined by the National Fire Protection Association (NFPA) 1584. Because the work of a firefighter is extremely taxing on the body, the lack of a formal rehabilitation program on emergency incidents increases the potential risk of firefighter injury or death.

The purpose of this research project is to identify an action plan to implement a successful emergency incident rehabilitation program for all firefighters responding within the Seminole County first response system. Descriptive research was used to answer the following research questions: a) What steps are associated in implementing a formal firefighter emergency incident rehabilitation program?, b) What are the benefits, challenges or obstacles associated with implementation of a rehabilitation program?, c) What organizational influences or behaviors are associated with the implementation of a formal rehabilitation program?, d) How would the program be evaluated to ensure successful implementation?

Background and Significance

The SCFD and city fire departments within Seminole County respond to incidents by automatic aid through a county-wide first response system. This system ensures the closest emergency unit will be dispatched to an incident regardless of jurisdictional boundaries. All fire department agencies within the first response system work from a set of guidelines from the SCCIMS manual. Though the manual included a tremendous amount of response information, it lacked a guideline for implementing a rehabilitation group on emergency incidents. Because of this, firefighter rehabilitation has suffered enormous inconsistencies from all the fire department agencies. There have been several incidents where firefighters were rendered EMS care on long duration alarms only to be released back to the incident without proper EMS documentation. Furthermore, continuous medical care should have included a physician follow-up, but each fire department agency within Seminole County operates under different operational guidelines in regards to firefighter health and wellness issues.

This research project was a two-part applied research project which began with the identification of inconsistencies with the establishment of firefighter emergency incident rehabilitation. Because there was no set guideline for agencies to follow, the first research project led to the development of a formal emergency incident rehabilitation program guideline. Though the program was initially submitted for approval through the SCFD, the goal of the program was to be used as the basis to implement a rehabilitation program within the SCCIMS. This would require approval from all agencies of the first response system which included Sanford Fire Department (SFD), Lake Mary Fire Department (LMFD), Longwood Fire Department (LFD), Casselberry Fire Department (CFD), Oviedo Fire Department (OFD), Orlando/Sanford Airport Fire Department (OSAFD) and the SCFD,

As the largest fire department within the SCCIMS, SCFD has provided leadership in the many areas of the incident management system and the Seminole County first response system. Over the last several years, SCFD has provided multi-agency training at its training facility and has required the implementation of pre and post vital sign assessments from all firefighters who participate. When the implementation of vital sign assessment policy began, there was some opposition from some of the city fire departments. However, it has become a part of normal operations for all agencies who participate in training at the Seminole County Fire Department Training Center. Even though vital sign assessments have become standard operations at training sessions, it rarely takes place during emergency incidents where firefighters exert a tremendous amount of physical energy. The vital sign assessment policy during physically demanding training was implemented in 2008 when SCFD experienced its first line of duty death after a physically demanding training session in May 2005 (National Institute for Occupational Safety and Health [NIOSH], 2006). Though NFPA 1584 requires firefighter rehabilitation on emergency incidents as well as training events, this research project only focused on emergency incidents.

Over the last few years, the SCCIMS has been undergoing revisions and updates. This has provided the perfect opportunity to implement the firefighter emergency incident rehabilitation program as part of the revised manual. This research project was a requirement for the National Fire Academy's final Executive Fire Officer Program course, Executive Leadership and correlates to the Executive Leadership curriculum in regards to leadership and influencing people and their behaviors. Additionally, this research paper relates to the United States Fire Administration (USFA) operational objective to improve the response and recovery efforts from fire service and emergency services personnel (2009). As the fire service begins to place

emphasis on firefighter health and wellness it has taken steps towards ensuring firefighter safety and survival on emergency incidents. The implementation of a multi-agency firefighter emergency incident rehabilitation program would assist in a much needed behavioral and cultural change in the fire service.

Literature Review

Ensuring the wellbeing of firefighters can be a challenging job. Attitude towards safety on emergency incidents is required of everyone on scene. However, the attitude towards firefighters taking a reset period during an emergency incidents can come with a stigma. The USFA stated firefighters are proud individuals who have a can-do, invincible attitude. This macho type approach during emergency incidents, when physical exertion is at its peak, lends to firefighters not recognizing the signs and symptom of overexertion and the dangers it poses (2008).

Clinging to fire department traditions is not always a good thing and has caused problems over the years. Sullivan explains, “Most firefighters don’t like to be placed on the sidelines, regardless of the reason” (1996, ¶ 3). Sullivan (1996) explains that insufficient time and planning assist in the reasons why crews don’t go to a rehabilitation section. He also indicated that some firefighters feel it is more important to mitigate the incident even if it means overexertion than to be assigned to a rehabilitation section. It is notable that many firefighters die of heart attacks, but firefighters rarely link it to the fact that overexertion played a role. Sullivan stated:

Tragic events do—at least for a while—affect how we do our job. Loss of life causes us to pause and think critically about what we do and how we do it. But we don’t have to wait until our comrades die before we do it right (1996, ¶ 28).

Zimmerman, Olsen, & Bosworth explain that physicians experience challenges when attempting to change the behaviors of their patients. Behavioral changes do not happen instantaneously except in rare situations when patients endure a medical crisis and imminent change is necessary for survival. Therefore behavioral change is a gradual situation. Examples used were individuals who smoke or have high cholesterol as they experience a sense of loss even though the benefits they gain from cessation or reducing their cholesterol far outweigh the loss (2000). “Most behaviors, including physical activity, are learned and maintained under fairly complex schedules of reinforcement and anticipated future rewards” (Grizzell, n.d., ¶ 2).

Several NIOSH reports were reviewed as part of the literature review. The findings revealed recommendations to ensure a comprehensive rehabilitation program was in place prior to training events as well as incident scene rehabilitation (NIOSH 2005).

Training is a tool used to change policy into practice (Monaco, 2008). Monaco concludes, “...training can be a key variable in constructively effecting policy implementation” (2008, p. 1). Individuals need time to understand the new policy and share experiences in order for the policy change to be successful (Cummings, 2008). Cummings concluded that leadership is the real issue when implementing new policies (2008).

The term firefighter duty-to-die syndrome was researched in the literature review for this research project. Crawford (2007) refers to this term as a firefighter’s need to take unnecessary risk or exhibits unsafe behavior in order to achieve a level of satisfaction. Crawford stated some firefighters are predisposed to taking unnecessary risks and others will do whatever it takes to avoid a stressful situation. Risky behavior that is praised by others will enable the firefighter to believe their actions are acceptable. If discipline is not received the firefighter’s risk taking

actions will increase and the opportunity to be recognized may result in extreme risky behavior (Crawford, 2007).

Implementing firefighter emergency incident rehabilitation is essential in the prevention efforts of line of duty deaths. The extreme physical excursion and stress of firefighting can exacerbate cardiac problems and cause a cardiac event (Smith & Haigh, 2006). Dehydration, cardiovascular strain, thermal strains are factors that lead to cardiac events. “Successful rehab is all about attitude” (Smith & Haigh, ¶ 18). Smith noticed a helmet sticker that portrayed firefighter rehabilitation in a negative light. The message the firefighter was conveying to other firefighters was that rehabilitation was not important just like not wearing a seatbelt in a fire engine while traveling 50 miles per hour down the road (2008). “Training is the key to making partnerships with outside agencies successful” (Smith & Haigh, ¶ 26).

Discipline can be positive or negative. Positive discipline is associated with performance and high standards while negative discipline is used to correct poor behaviors (NFPA, 2006). The chapter covers how empowerment is an effective method of positive discipline and firefighters who complain they have no control over their work environment should take a proactive approach and identify the problems. Company officers must lead by example and carry out the department’s rules and regulations so that the overall objective is achieved (2006).

McEvoy explains firefighter rehabilitation is perceived as a reason to remove perfectly good firefighters from the fire scene. He refers to this as the elephant on the fire ground. He stated that ongoing education is the key factor to being NFPA 1584 compliant (2008).

Bledsoe (2009) wrote a comprehensive guide to NFPA 1584. The guide was used extensively in the development of the SCCIMS Firefighter Emergency Incident Rehabilitation Program and was referenced throughout the literature review. The guide contains information

pertaining to firefighter fitness, preparedness, site establishment, medical monitoring, implementation of a rehabilitation area, and best practices in rehabilitation.

Lindsey (2006) explained the Knowles theory as the adult method of learning. Adults must know why they are learning something and then treat learning as a problem solving event. Lindsey stated adults learn best when they feel there is something to gain from the topic they are learning. Lindsey described the adult learner as a self-learner who does not like to be told what to do. He explains the adult learner has past experiences that add to the learning experience. Motivating the adult learner can be accomplished if the instructor can show relevance (2006).

Lindsey (2006) discussed the learning theories and conditions of learning as well as the three domains of learning; cognitive, psychomotor, and affective. The methods described for evaluating each domain included written examinations for cognitive learning, competency examinations for psychomotor learning, and role-modeling/class participation for affective learning (2006). Educating different generations at the same time can be quite challenging. Lindsey (2006) list the generations as: Futuristic, Millennial, Generation X, Hackers, Boomers, Traditionalist, and GI, Depression/Seniors.

“Active training involves a three-prong approach: fostering attitudes, developing and practicing skills, and promoting understanding the concepts and models behind the subject” (Silberman, 2006, p. 15).

Procedures

Procedures for this research project began with a literature review and a detailed survey completed by SCFD personnel. Resource materials for the literature review included trade journals, governmental publications, and books regarding methods and techniques of instruction as well as course development. The literature review was performed at the National Fire

Academy's Learning Resource Center in Emmitsburg, Maryland. Additional resource materials were obtained from the SCFD library located at the Fire Training Center in Longwood, Florida. Other related materials were obtained through an internet search using Google as the search engine. Keywords used on the Google search included firefighter attitudes, firefighter demeanor, implementing rehabilitation programs, and active training. The literature review provided a general structure in order to answer several of the research questions as well as assist with the development of the survey questions.

The second step of the research process included the use of a survey. The purpose of the survey was to gain insight to the organizational influences and firefighter behaviors associated with the implementation of an emergency incident rehabilitation program. Expectations of the survey responses were to identify current or future problems that would need to be addressed in order to ensure successful implementation of the program. Only fire personnel working on one of the three SCFD shifts were administered the rehabilitation survey. This was due to the fact that shift personnel would be the individuals implementing the program and their influences and behaviors would play a tremendous role in successful program outlook. The survey was administered through the use of an online training program called Target Safety. Target Safety is an online training medium used for records management, training, web conferencing and more (Target Safety, n.d.). There were three options available to administer the firefighter survey. The first option was to use a paper version of the survey, but this meant the researcher would have to manually issue the survey and manually calculate the results. With over 300 firefighters participating throughout the 15 SCFD fire stations over three shifts, this option was unpractical and would yield a limited response. The second option was to use the Seminole County intranet site, but this meant each firefighter would have to personally log off of the station computer and

log-on under their personal county account. Though the firefighter would receive notification to complete the survey through Target Safety, the odds of firefighters actually taking the additional extra steps to log on to the county's intranet site were slim. Even though the intranet site required extra steps for the firefighter to complete the survey it provided a means for this researcher to receive the compiled data in any format requested. A decision to utilize Target Safety to administer the firefighter survey was done due to the fact each firefighter had to complete the survey assignment within a set deadline. In cases where firefighters did not complete the survey assignment as required, their supervisors were notified and the surveys were then completed. Because there were no extra steps in logging on to the system as with the Seminole County intranet, it was perceived as being the best chance to obtain full participation from the SCFD firefighters. Participants included in the survey were firefighters, firefighter/paramedics, lieutenants, lieutenant/paramedics and battalion chiefs. Each participant was given one month to complete the 16 question survey with three questions being related to age, rank, and years of employment with SCFD. This was done to identify groups related to generations and to arrange and evaluate data. Limitations were noted as only SCFD firefighters completed the rehabilitation survey even though the overall goal was to implement a rehabilitation program to the Seminole County first response system participants. There was no reasonable way to administer and obtain completed survey results with the other six fire department agencies.

The survey questions were developed and relevant to NFPA 1584 or SCFD current procedures or guidelines. A total of 321 surveys were administered through Target Safety and a total of 318 surveys were completed and used for data collection. Survey questions included personal opinions on when firefighters thought emergency incident rehabilitation should be

implemented and what their expectation of rehabilitation was. Additionally, the firefighters were asked if they felt a rehabilitation program was already implemented and if firefighter rehabilitation was really necessary. Two questions pertained to each firefighter's decision to ask for medical assistance while on an emergency scene which included follow up questions as to why or why they would not state they have a chief medical complaint. Limitations of the rehabilitation survey included the fact the survey data was mostly subjective as it dealt with personal feelings and perceptions. The survey is located in Appendix A.

Results

The results of the information obtained from the literature review assisted in answering several of the research questions. The first question asked what steps are associated with implementing a formal firefighter emergency incident rehabilitation program. Because the subject of a firefighter emergency incident rehabilitation program was a two-part project, the development of the program was completed the previous year using a comprehensive literature review and a nationwide search for other agencies' preexisting firefighter rehabilitation programs. Though the research yielded the development of a firefighter emergency incident rehabilitation program, implementing the program became a challenge as other fire department agencies within the Seminole County and Cities IMS and first response system were involved and the program had to be agreed upon by all parties. Direction had been given to this researcher in regards to implementing the program just within the SCFD. Even though SCFD firefighters responded to emergency incidents with the city fire departments, it was argued that SCFD had to take the lead on such an endeavor until full participation could be agreed upon by all agencies within the Seminole County first response system.

Lindsey stated, “Create a lesson plan, given a topic, audience characteristic, and a standard lesson plan format, that the job performance requirements for the topic are achieved, and the plan included learning objectives, a lesson outline, course materials, instructional aids, and an evaluation plan” (2006, p. 30). In order for firefighters to fully participate in firefighter rehabilitation on emergency incidents they must undergo a training session and understand why they need to take a class in the first place. Students must understand the benefit and relevancy in what they are learning and what they will be expected to do (2006). Lindsey concluded most adult learners need to utilize the skill shortly after it has been learned. Therefore, a practice scenario after the classroom session would be beneficial. This would include set up of the SCFD rehabilitation truck, implementation of the rehabilitation group accountability board and completion of all required paperwork. The presentation strategies should include lecture, case studies, videos, discussion, visual aids, and a practical training exercise (2006).

Lindsey (2006) explains instructors must know how to deal with several different generations in the classroom. The training session would need to reach all generations attending the training in order to effectively get the buy-in from all firefighters for successful implementation. In an effort to influence change during the training session over the firefighter’s behaviors regarding rehabilitation, a survey was developed and administered. The survey was broken down into three generation categories: Millennial age group 18-26, Generation X age group 29-46, and Baby Boomers age group 46 and above. Though there are other generation groups listed by Lindsey, the three mentioned best identified the SCFD firefighters who responded to the firefighter rehabilitation survey. The results are included in Table 1. Crawford (2007) explained there are psychological properties that make the cultural beliefs of a firefighter feel as though they have a duty to die. This behavior is compounded by the fact some firefighter receive

praise for performing unsafe acts an exhibiting risky behavior. Crawford uses the example of a firefighter exceeding the recommended speed limit in order to arrive first to an incident. When the firefighter performs a victim rescue, he/she is praised for the action of the rescue driving, but is not disciplined for the risky behavior prior to the rescue. Crawford concludes this behavior will snowball unless the cognitive components are addresses (2007).

“A variety of objectives need to be accomplished to effectively provide sound and appropriate rehab services” (Smith & Haigh, 2006, ¶ 10). Agencies willing to form relationships with other organizations will maximize their rehabilitation resources and minimize the risk to firefighters who work at emergency incidents (2006). “Training is the key to making partnerships with outside agencies successful” (Smith & Haigh, ¶ 26). Therefore, a training program would be the first step in identifying an action plan to implement a rehabilitation program. A second step towards implementation would be to acquire the behaviors and influences of the firefighters in order to create an effective training program.

Table 1

Responses to SCFD Firefighter Rehabilitation Survey

1. Select all that apply from the list below of what you consider firefighter emergency incident rehabilitation to be:
 - a. A brief resting period
 - b. Restore to a condition of good health
 - c. Rest, recovery, and rehydration
 - d. Calorie and electrolyte replacement
 - e. Medical monitoring

- f. Member accountability
 - g. Medical treatment in accordance with local protocols
 - h. Release from the incident
 - i. Implementation of Citizens Emergency Response Team (CERT)
2. In your opinion, firefighter rehabilitation is currently implemented on :
- a. Some incidents 155
 - b. Every incident 20
 - c. Only fire incidents with long duration 140
 - d. Never Occurs 4
3. Is there currently a firefighter incident rehabilitation procedure/guideline in place within the SCFD?
- a. Yes 173
 - b. No 75
 - c. Don't Know 70
4. In your opinion, is it necessary to have a formal firefighter emergency incident rehabilitation program/guideline in place?
- a. Yes 286
 - b. No 32
5. In your opinion, is it necessary to implement firefighter rehabilitation on all emergency scenes?
- a. Yes 55
 - b. No 264

6. If a firefighter emergency incident rehabilitation program/guideline was developed, what functions should the group perform? List as many as you can. Answers ranged from water, sport-type drinks, food, cold towels, chairs, fans and other related items.
7. Do you ever recall experiencing significant signs/symptoms such as chest pain, nausea/vomiting, dizziness, shortness of breath, etc., on an emergency fire incident and did not seek care?
 - a. Yes 69
 - b. No 249
8. Would you be hesitant to report any serious signs/symptoms to your supervisor while on scene?
 - a. Yes 52
 - b. No 266
9. If you answered yes to question 8, why would you be hesitant to report serious signs/symptoms to your supervisor while on an emergency scene?
 - a. Fear of being sent to the emergency room 23
 - b. Fear of admonishment 16
 - c. Fear of harassment 17
 - d. Fear of letting down crew members 31
 - e. Fear of making a big deal out of what you perceive as being nothing 41
 - f. Fear of being placed on light duty if a medical condition exists 26
 - g. Other 11

10. If you selected “other” in question 9, please list your reason(s).
- a. Being categorized as dishonest, weak or unable to do this job with fear of termination
 - b. Wanting to get back to the fire scene
 - c. Looked at as less than premium fireman
 - d. Ego
 - e. Concern with how the department would perceive me
 - f. Losing my job for a health condition
 - g. Not being allowed to continue working the fire scene
 - h. The possibility of being taken off high risk employment
 - i. It is called hard work, I would seek attention if condition persisted
 - j. No fear, just make it happen
 - k. I didn't think it was a big deal, but it was
11. If you were directed to report to the rehabilitation group after 45 minutes of strenuous work on an emergency incident and your vital signs did not recover to a “normal” limit, what would be your expectations? Fill in the blank.
- a. Wait additional time to recover 254
 - b. Circumstantial 11
 - c. Seek further medical advise 2
 - d. Do nothing as long as the person feels fine 1
 - e. Medical monitoring until vitals returned to normal limits 6
 - f. Transport to hospital 32
 - g. Would not return to fire scene 5

- h. Treatment 7
 - i. Get in shape 3
 - j. Hydration 5
12. If a baseline assessment of your resting blood pressure was needed prior to responding to an incident to ensure proper recovery after an incident, you would recommend it to be performed:
- a. At the beginning of each shift 145
 - b. Once per month 41
 - c. Once per week 36
 - d. Only prior to training exercises 63
 - e. Never 34
13. If you were tasked with implementation and management of a firefighter rehabilitation area, what would be your initial response?
- a. Excited for the opportunity and responsibility 18
 - b. Disappointed 43
 - c. Whatever needs to be done 242
 - d. Request reassignment 15
14. Please identify your rank in the Department from the following selections:
- a. Firefighter 133
 - b. Firefighter paramedic 97
 - c. Lieutenant 21
 - d. Lieutenant/Paramedic 53
 - e. Chief Officer 14

15. Please identify your years of service as a firefighter from the following selections:

- a. 1-5 years 90
- b. 6-10 years 71
- c. 11-15 years 26
- d. 16-20 years 62
- e. Above 20 years 69

16. Please identify your age group from the following selections:

- a. 18-28 70
- b. 29-46 171
- c. 47 and above 77

The second research question dealt with the benefits, challenges or obstacles associated with implementing a rehabilitation program. Because implementation of such a program would involve a rehabilitation training session as indicated in answering research question one, an attempt to identify the feelings, attitudes, needs and perception of the SCFD firefighters was accomplished through the administration of a subjective survey. A total of 318 out of 321 firefighters responded to the questions on the survey. The survey began with asking the firefighter what they thought firefighter rehabilitation should be. This subjective questionnaire provided for an array of answers as the firefighters were instructed to select all that applied from the nine selections. Forty-eight out of the 318 firefighters only listed a single response to question one. Nine firefighters selected (a) a brief resting period when needed. Only three firefighters selected (b) Restore to a condition of good health. A total of 28 firefighters made a single selection of (c) Rest, recovery, and rehydration. Though there was no right or wrong

answer, all the answers applied to NFPA 1584 in the establishment of an emergency incident rehabilitation group. NFPA 1584 (2008) states:

Rehabilitation efforts shall include providing the following:

- (1) Relief from climatic conditions
- (2) Rest and recovery
- (3) Active and/or passive cooling or warming as needed for incident type and climate conditions
- (4) Rehydration (fluid replacement)
- (5) Calorie and electrolyte replacement, as appropriate, for longer duration incidents
- (6) Medical monitoring
- (7) Member accountability
- (8) Release (p. 1584-6).

There were 290 firefighters who selected more than one answer for their interpretation of what applies to firefighter emergency rehabilitation for question one. There was no consistent answer throughout the 318 surveys received. It was apparent there was more than one firefighter opinion of what firefighter rehabilitation should be. However, the answers selected by the majority of the SCFD firefighters indicated that many did not feel medical monitoring was a necessary aspect of firefighter emergency incident rehabilitation and the firefighter rehabilitation group could be managed by the Seminole County CERT.

The second survey question was to identify the firefighters feeling and beliefs as to when firefighter rehabilitation occurs on emergency incidents. Though there is no current formal guideline or program in place, some firefighter rehabilitation takes place; however, it is inconsistent from fire department to fire department and incident (Ward, 2010). Forty-nine

percent of the firefighters who participated in the survey indicated that firefighter rehabilitation occurs at incidents. However, it is unclear as to what their interpretation of firefighter rehabilitation is due to the answers received in survey question one. Forty-nine percent of firefighters indicated that firefighter rehabilitation only occurs on long duration incidents. Only 20% of firefighters indicated rehabilitation occurs on every incident.

The third survey question was to identify if an actual firefighter emergency incident rehabilitation program exists. Fifty-four percent of the firefighters surveyed had the understanding that a firefighter rehabilitation procedure or guideline actually exist. Only 24% of the firefighters stated there was no current procedure or guideline in place and an unexpected finding of 22% indicated they did not know if a policy existed.

Survey question four was asked in an effort to understand if a formal firefighter emergency incident rehabilitation program needed to be implemented. Ninety percent of firefighters surveyed indicated a formal program or guideline was necessary.

With 90% of firefighters indicating that a formal rehabilitation program or guideline was necessary, it was unexpected to see that 83% of the firefighters indicated it was not necessary to implement firefighter rehabilitation on all emergency scenes. With that, the firefighters were asked to list the rehabilitation functions they felt should be performed as part of a rehabilitation program or guideline. This was a fill in the blank questions and rendered an array of responses. One of the most important functions of a rehabilitation group is medical monitoring (NFPA, 2008). USFA indicated most incidents would warrant self rehabilitation, meaning each person was responsible to ensure they received rest and rehydration. However, the answers to the survey questions indicated most of the SCFD firefighters did not consider self rehabilitation a type of rehabilitation. Ward (2010) documented the function of medical monitoring during

emergency incidents did not occur on most emergency incidents even though it is recommended by NFPA 1584.

Survey question seven was asked in an attempt to see if any of the SCFD firefighters had experienced any significant medical signs or symptoms during an emergency incident and did not report their medical complaint or seek care. Only 22% of firefighters stated they had experienced medical problems and did not seek medical care during an emergency incident. In addition to question seven, question eight asked if firefighters would be hesitant to report such medical complaints to their supervisor while working an emergency incident. Only 16 percent answered yes to question eight with 26 firefighters indicating they feared their chief complaint would be perceived as a big deal when they felt it was not. There were 11 firefighters who selected “other” as their answer. In this case, the answers ranged from firefighter ego to losing one’s job due to health reasons.

The firefighters were asked what they felt was an appropriate action if their vital signs did not return to a normal limit after being sent to a firefighter rehabilitation section. An overwhelming response of 254 of the 318 firefighters indicated they should be given additional time in the rehabilitation section.

Bledsoe explained that knowing a firefighters resting blood pressure prior to going into rehabilitation after working an emergency incident can help with the interpretation of what might be perceived as not normal (2009). Predetermine work predictions include an individual’s blood pressure, pulse, and body temperature while resting. Having this information on file takes some of the guess work out of interpreting a firefighter’s vital signs while in the rehabilitation section (Bledsoe, 2009). In an effort to better interpret the SCFD firefighter’s vital signs, question 12 inquires when would be the best time to assess vital signs prior to an incident. Forty-six percent

indicated they would take their vital signs at the beginning of each shift, 13% stated they would prefer to take vital signs once per month and 11% stated they preferred once a week. However, 20% of the firefighters indicated they only wanted to assess their vital signs prior to training exercises, while 11% stated they did not want to participate at all.

The overall response to being assigned as a rehabilitation group supervisor solicited a can-do attitude from 75% of the firefighters who participated in the survey. Only six percent stated they would be excited to take on such an endeavor, while 14% stated they would be disappointed. Though the answer of request reassignment was listed as one of the multiple choice selections, it is not an option during emergency incidents and was only placed in the survey to solicit behavioral responses.

The literature review provided direction for answering the second research question which asked what benefits, challenges or obstacles would be associated with the implementation of a rehabilitation program. The benefits are numerous as Bledsoe (2009) refers to rehabilitation as restoring a firefighter to a condition of good health. If done properly, firefighter rehabilitation can assign responsibilities and ensure accountability and safety for those working on an emergency incident. A formal rehabilitation program, in accordance with NFPA 1584 recommendations, can provide the best practices for all involved (2009). With heart attacks being a large cause of firefighter line of duty deaths, implementation of a rehabilitation program will assist in reducing the stressors that exacerbate cardiac conditions (Smith & Haigh, 2006).

There are several challenges associated with implementing a firefighter rehabilitation program in the Seminole County first response system. First, it is the fact that multiple fire department agencies work together in the Seminole County first response system and all the agencies would have to agree on the implementation of a formal rehabilitation program in order

for the program to be consistent and effective. Additionally, there are costs associated with implementing a firefighter rehabilitation program. Smith & Haigh stated, “Although firefighter health is a compelling reason to institute such a program, many departments are challenged to find feasible ways to implement a program given the limited resources of time, money and, personnel” (2006, ¶ 16). This challenge would also have to be agreed upon within the fire department agencies that make up the Seminole County first response system. Besides agreement on a program and funding, there is the challenge of getting full participation from all the firefighters involved. “Training is the key to making partnerships with outside agencies successful” (Smith & Haigh, 2006, ¶ 26). McEvoy (2008) stated the challenge is making sure the function of rehabilitation on emergency incidents helps the firefighter work as efficiently as possible. Implementation consistency is a challenge as 49% of the SCFD firefighters survey stated rehabilitation occurred on some incidents compared to 44% who stated rehabilitation only occurred on long duration incidents. A total of 54% percent of the firefighters stated there was a rehabilitation policy currently in place compared to 24% who stated there was not a policy in place. Ninety percent of the firefighters surveyed stated it was necessary to have a formal program or guideline in place, but 83% of the firefighters stated it was not necessary to implement firefighter rehabilitation on all emergency scenes. Challenges such as these would have to be addressed in a formal training program as indicated in the answer to research question one.

One obstacle noted was the initial response of being assigned to manage a rehabilitation area. Only 6% of the firefighters surveyed stated they would be excited for the opportunity and responsibility to manage the rehabilitation area; however, 75% of the firefighters stated they would do whatever needed to be done to get the job done. The position of firefighter made up

42% of the individuals surveyed while 31% were firefighter/paramedics. The rank of lieutenant made up for 7% of the individuals who participated in the survey and 16% were noted as being lieutenant/paramedics. Four percent of the individuals surveyed were ranked as chief officers. When analyzing the data from the rehabilitation survey, two chief officers stated they would request a reassignment before managing a rehabilitation area during an incident.

Obstacles associated with implementing a rehabilitation program included teaching the program to the various generations. Lindsey (2006) explains Baby Boomers are considered the “Me” generation whereas Generation X is referred to as the generation without a childhood or the latchkey kids. He also stated the Millennial generation is considered the generation of hope (2006). The Millennial generation made up 22% of the SCFD firefighters surveyed. Whereas 54% of the firefighters surveyed belong to either Generation X or Hackers. Twenty-four percent of the firefighters surveyed belong to the Baby Boomers generation (Lindsey, 2006). Generation X and Millennial place a high priority on learning and don’t accept unclear objectives. Baby Boomers tend to see this as a sign of being disrespectful (2006). The differences in the generations will be an obstacle to deal with during a rehabilitation training program.

What organizational influences or behaviors are associated with the implementation of a formal rehabilitation program? Answering the third research question began with the literature review. Crawford (2007) stated firefighters exhibiting careless behavior have a lack of regard for safety in the workplace. These individuals disregard national standards and have a high number of accidents and injuries. McEvoy explains, “In many departments, rehab is perceived as an obligatory or forced medical screening that does little more than remove qualified, willing, and able personnel from the front lines of battle-the quintessential [elephant] on the fire ground” (2008, ¶ 3). Firefighters do not like to be told when and how to participate in rehabilitation and

the stigma that rehabilitation becomes a problem on the fire ground (2008). The SCFD firefighter emergency incident rehabilitation survey revealed 22% of the firefighters surveyed had experienced significant medical signs and symptoms such as chest pain, nausea and vomiting, dizziness, and shortness of breath while on an emergency incident. Furthermore, 16% of the firefighters surveyed stated they would not report any signs or symptoms to their supervisor. Reasoning for not reporting included fear of being sent to the emergency room, fear of letting down their crew members, fear of being placed on modified duty, and most of all, fear of making a big deal out of what they perceive as being nothing. Several firefighters stated they worried how their complaint would be perceived and did not want to be categorized as dishonest or weak. Some stated they were concerned over losing their job due to a health condition or not being able to receive high risk retirement benefits. Several firefighters stated there was no fear involved, it was just hard work and they just had to make it happen.

There are additional influences within the other fire department agencies in the Seminole County first response system. Several NIOSH reports were reviewed during the literature review. The following recommendations appeared on the majority of the NIOSH Firefighter Fatality Investigation and Prevention Program reports. “Provide annual medical evaluations to all fire fighters” (NIOSH, 2009, p. 1). “Perform annual physical performance [physical ability] evaluation” (NIOSH, 2009, p. 1). “Phase in a comprehensive wellness and fitness program for fire fighters” (NIOSH, 2009, p. 1). Though these recommendation have merit, some of the city fire department agencies within the Seminole County first response system do not have a health and wellness program nor provide annual physical evaluations to their firefighters.

The fourth research question was answered with materials from the literature review. How would the program be evaluated to successful implementation? Lindsey (2006) suggests

there must be identical elements in the original and new learning situations. The learner must feel that the response goes together with the stimuli. Lindsey concluded that most human behavior is learned from observing behaviors and attitudes from other individuals. A formative evaluation should be completed to ensure the instructional goals meet the objectives for the course. Additionally, a summative evaluation should be completed at the end of the course to ensure the overall objectives were met and understood (2006).

Discussion

The results from the literature review revealed most behaviors are learned and can be reinforced if there is a benefit for the learner. “Most behaviors, including physical activity, are learned and maintained under fairly complex schedules of reinforcement and anticipated future rewards” (Grizzell, n.d., ¶ 2). “Physicians should remember that behavior change is rarely a secret, single event” (Zimmerman et al., 2000, ¶ 5). The firefighter emergency incident rehabilitation survey administered to the SCFD firefighters indicated behavioral changes were needed. First, there was a tremendous amount of discrepancy in what each firefighter considered emergency incident rehabilitation to consist of. Though the firefighters were given multiple choice answers and instructed to select all that applied, 60 of the 318 firefighters indicated that emergency incident rehabilitation should only consist of rest, recovery, and rehydration. The fact that medical monitoring or accountability did not appear to be of any importance during the rehabilitation function. “If you don’t know a problem exists, how can you fix it?” (McIntyre, n.d., ¶ 3) The survey results indicated 49% of SCFD firefighters assumed proper firefighter emergency incident rehabilitation did, in fact, occur on emergency incidents and 44% indicated rehabilitation only occurred on long duration incidents. It was remarkable to find inconsistencies in the firefighter’s expectation of what firefighter emergency incident rehabilitation should

consist of in survey question one with the fact that 49% of firefighters believed proper rehabilitation occurred on some incidents. Furthermore, 54% of the firefighters surveyed indicated the SCFD already had a rehabilitation procedure or guideline in place. This topic was discussed in the first part of this research project in which Ward (2010), indicated only a vague policy in reference to a rehabilitation group supervisor in the SCCIMS manual existed. The reference did not, in any way, meet NFPA 1584 standards.

Though the SCFD firefighter emergency incident rehabilitation survey revealed 90% of the firefighters agreed it was necessary to implement a formal program or guideline, 83% indicated that firefighter rehabilitation was not required on all emergency scenes. This indication is relative to the fact that the majority of SCFD firefighters understand the need for emergency incident rehabilitation, they just need to be educated as to the levels, duties, and responsibilities of the rehabilitation function. USFA (2008) explained self rehabilitation process would take place on some emergency incidents. Additionally, time, complexity, and intensity of the incident would play an important role in how detailed a rehabilitation function would be (Bledsoe, 2009). This information could be delivered through an active training program.

“Most firefighters don’t like to be placed on the sidelines, regardless of the reason” (Sullivan, 1996, ¶ 3). Between fire department traditions and the stigma of being considered weak by taking rest periods at emergency incidents it has become problematic with firefighters not recognizing serious medical signs and symptoms associated with overexertion (USFA 2008). Coupled with a case of duty-to-die as indicated by Crawford (2007) it can lead to serious injuries and death for firefighters on emergency incidents. Risky behavior praised by others tends to enable firefighters who feel their actions are acceptable (2007). The SCFD fighters who participated in the rehabilitation survey indicated 22% recalled having significant medical signs

and symptoms while on an emergency incident. Sixteen percent of the firefighters stated they would be hesitant to report such medical concerns to their supervisors. Reasons for not reporting the medical concerns included: fear of admonishment, fear of harassment, fear of being sent to the emergency department, fear of being placed on restricted duty status, fear of letting their crew members down, and fear of making a big deal out of what they perceived as being nothing. Eleven firefighters wrote in their own answer to survey question nine stating they would not report a significant medical concern to their supervisor because they just wanted to get back to the fire scene or their ego would not let them make a chief complaint. The can-do attitude as describe in USFA (2008) did apply to some of the SCFD firefighters who participated in the rehabilitation survey, thus requiring a behavioral change through education and training.

There are times were tragic events changed the way firefighters do their job. Sullivan stated:

Tragic events do—at least for a while—affect how we do our job. Loss of life causes us to pause and think critically about what we do and how we do it. But we don't have to wait until our comrades die before we do it right (1996, ¶ 28).

This was the case in the SCFD when a lieutenant died after performing physically demanding firefighter training (NIOSH, 2005). Repercussions of the incident introduce the implementation of a firefighter health and wellness program as well as an operational guideline mandating vital sign assessments prior to physical training (Ward, 2010). Though the policy plays an important role in the overall health and safety of the SCFD firefighter, the importance of firefighter emergency incident rehabilitation did not gain any attention from the tragic event and has remained inconsistent on incidents, if accomplished at all. “Physicians should remember that behavior change is rarely a discrete, single event” (Zimmerman et al., 2000, ¶ 5). Though tragic

events can change behavior as researched in the literature review, the change is slow and must be “...reinforced with anticipated future rewards” (Grizzell, n.d., ¶ 2).

The implementation of the SCFD vital sign assessment guideline prior to physical training events initially prompted an increase in worker’s compensation claims (Ward, 2010). The increase was due to elevated blood pressures not considered within acceptable limits in accordance with the department’s policy. Firefighters who did not have their vital signs within the required parameters could not participate in the scheduled training and were sent to the Seminole County physician or available physician for medical assessment. Though initially, the vital sign assessment guideline was perceived negatively by the SCFD firefighters it has become an expected normal routine for training exercises (Ward, 2010). However, the stigma of being sent to the Seminole County physician or emergency room for out of range vital signs remains a negative response from the SCFD firefighters as indicated in the rehabilitation survey results. This behavioral change would also need to be addressed by education and training.

Another area of concern with implementing a rehabilitation program with vital sign criteria is the enforcement of such with the other fire department agencies in the Seminole County first response system. Though the agencies agree that rehabilitation on emergency incidents is a necessary function, some departments do not offer annual physicals to their firefighters let alone remove them from duty to be medically cleared by a physician because their vital signs did not return to an acceptable limit. Survey question 11 indicated 254 out of the 318 firefighters who participated in the survey expected firefighters to wait an undetermined amount of time for their vital signs to recover to a normal range instead of starting medical treatment. Though NFPA 1584 has not been a topic of discussion or training with the SCFD firefighters, the recommendation gives ample guidance procedurally when these situations occur.

In order to change the behaviors of the SCFD firefighters, training must take place. Monaco (2008) indicated that training is the tool used to change policy into practice. He concludes, "...training can be a key variable in constructively effecting policy implementation" (2008, p.1). Developing an effective training program would be a good start to the implementation of a formal firefighter emergency incident rehabilitation program. Though this training program could easily be delivered to the SCFD firefighters, the problem of getting all firefighters within the SCCIMS to perform the same, consistent rehabilitation function remains to be a challenge. Development of firefighter emergency incident rehabilitation training could be accomplished through an active training program. "Active training involves a three-prong approach: fostering attitudes, developing and practicing skills, and promoting understanding of the concepts and models behind the subject" (Silberman, 2006, p.15).

Adult learners are typically self-learners who want to know they will gain something from the topic they are learning from (Lindsey, 2006). Development of an active training program must take into consideration the various generations of firefighters who would be participating. The SCFD firefighter survey revealed over 50% of the firefighter currently employed with SCFD ranged from age 29-46. Other age groups included 18-28 and above 47 years of age.

Recommendations

The results of the SCFD firefighter rehabilitation survey indicated education and training on emergency incident rehabilitation is a must. An active training program would assist in fostering better attitude towards the rehabilitation function as well as provide the opportunity to develop and practice skills. By developing an active training program for firefighter emergency incident rehabilitation, firefighters would know what the rehabilitation expectations are on

emergency incidents and fully understand the departmental and personal benefits of rehabilitation implementation. The development of a comprehensive training program is recommended. In order to ensure successful delivery of the program, an evaluation process consisting of pre and post examinations would be required. Long term evaluation process should include a peer review of rehabilitation on scene paperwork and incidents to ensure proper benchmarks were accomplished and firefighter rehabilitation and medical treatment was successfully administered.

The training program should include information pertaining to firefighter deaths and injury statistics in order assist in fostering better attitudes towards the rehabilitation function. Additionally, the training program should be presented in a manner to accommodate all learning types as well as relate to the variety of generations participating in the program. Books, visual aids, PowerPoint presentations, case studies, and a practical exercise should be part of the training program to ensure all firefighters understand their roles and responsibilities as well as why they are participating in the training program.

Approval of the current firefighter emergency incident rehabilitation guideline is pending from the SCCIMS review board. Once approved, implementation would be accomplished through multi-agency training through the recommended active training program. Participation within the SCCIMS would provide a potential improvement in the implementation of firefighter emergency incident rehabilitation throughout the Seminole County first response system. Successful implementation assists in the efforts to ensure firefighter health and wellness.

Even with approval for such a program from all the participating fire department agencies in Seminole County, the topic of what to do with firefighters whose vital signs do not recover to acceptable limits will need to be addressed.

Fire departments looking to implement a firefighter rehabilitation program will have success locating reference material. USFA, NFPA, International Association of Fire Chiefs (IAFC) have provided ample guidance in the area of firefighter rehabilitation. Though NFPA 1584 covers emergency incidents and training events, only the emergency incident portion of the standard was utilized due to SCFD implementing its own vital sign assessment training policy years ago. Both training and emergency incidents should be addressed. Assessing a department's influences and attitudes can be a helpful tool when attempting to change behaviors. Education and training is the key to changing behaviors and potentially saving firefighter's lives through proper rehabilitation.

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Appendix A

Seminole County Fire Department Emergency Incident Rehabilitation Survey

- 1) Select all that apply from the list below of what you consider firefighter emergency incident rehabilitation to be:
 - a. A brief resting period when needed
 - b. Restore to a condition of good health
 - c. Rest, recovery, and rehydration
 - d. Calorie and electrolyte replacement
 - e. Medical monitoring
 - f. Member accountability
 - g. Medical treatment in accordance with local protocols
 - h. Release from the incident
 - i. Implementation of CERT

- 2) In your opinion, firefighter rehabilitation is currently implemented on:
 - a. Some incidents
 - b. Every incident
 - c. Only fire incidents with long durations
 - d. Never occurs

- 3) Is there currently a firefighter incident rehabilitation procedure/guideline in place within the SCFD?
 - a. Yes

- b. No
- c. Don't know

4) In your opinion, is it necessary to have a formal firefighter emergency incident rehabilitation program/guideline in place?

- a. Yes
- b. No

5) In your opinion, is it necessary to implement firefighter rehabilitation on all emergency scenes?

- a. Yes
- b. No

6) If a firefighter emergency incident rehabilitation policy/guideline was developed what functions should the group perform? List as many as you can.

- a. _____ b. _____ c. _____ d. _____
- e. _____ f. _____

7) Do you ever recall experiencing significant signs/symptoms such as chest pain, nausea/vomiting, dizziness, shortness of breath, etc., on an emergency fire incident and did not seek care?

- a. Yes
- b. No

8) Would you be hesitant to report any serious signs/symptoms to your supervisor while on scene?

- a. Yes
- b. No

9) If you answered yes to question 8, why would you be hesitant to report serious signs/symptoms to your supervisor while on an emergency scene? (Select all that apply.)

- a. Fear of admonishment
- b. Fear of harassment
- c. Fear of letting your crew down
- d. Fear of making a big deal out of what you perceive is nothing
- e. Fear of being sent to the emergency room
- f. Fear of being placed on light-duty if a medical condition exist
- g. Other (please list) _____

10) If you were directed to report to the rehabilitation group after 45 minutes of strenuous work on an emergency incident and your vital signs did not recover to a “normal” limit, what would be your expectations?

a. _____

11) If a baseline assessment of your resting blood pressure was needed prior to responding to an incident to ensure proper recovered after an incident, you would recommend it be performed:

- a. At the beginning of each shift
 - b. Once a week
 - c. Once a month
 - d. Only prior to training exercises
 - e. Never
- 12) If you were tasked with implementation and management of a firefighter rehabilitation area, what would be your initial response?
- a. Excited at the opportunity to be in charge
 - b. Disappointed
 - c. Whatever needs to be done type attitude
 - d. Request a reassignment

The following questions are for demographic purposes only as your name will not be associated with the results of this survey:

- 13) Please identify your rank in the Department from the following selections:
- a. Firefighter
 - b. Firefighter/Paramedic
 - c. Lieutenant
 - d. Lieutenant/Paramedic
 - e. Chief Officer

- 14) Please identify your rank in the Department from the following selections:
- a. Firefighter
 - b. Firefighter/ Paramedic
 - c. Lieutenant
 - d. Lieutenant/Paramedic
 - e. Battalion Chief
- 15) Please identify your years of service as a firefighter from the following selections:
- a. 1-5 years
 - b. 6-10 years
 - c. 11-15 years
 - d. 16-20 years
 - e. 20 and above
- 16) Please identify your age group from the following selections:
- a. 18-28
 - b. 29-46
 - c. 47 and above