HEALTH & WELLNESS PROGRAMS FOR VOLUNTEER FIREFIGHTERS – A LOCAL APPROACH

LEADING COMMUNITY RISK REDUCTION

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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 was the West Manchester Township Department of Fire & Emergency Services (WMTFD) has no health & wellness program for its volunteer firefighters. Knowing that the number one risk to America's firefighters is sudden cardiac death, it is imperative that the WMTFD aggressively pursue the establishment of a program to protect its volunteer firefighters.

The purpose of this applied research project was to identify and evaluate criteria for the development of a health & wellness program for the volunteer firefighters of the WMTFD. The author utilized descriptive research methods to analyze this problem. The following five questions were used to guide the research:

1. What are the key components of an effective firefighter health & wellness program?
2. How can a health & wellness program assist in the management of known risk factors?
3. Can a health & wellness program be successful in a volunteer fire department?
4. What types of firefighter health & wellness programs exist in volunteer fire departments?
5. What impacts can be anticipated related to the implementation of a health & wellness program in the West Manchester Township Department of Fire & Emergency Services?

The procedures utilized in this applied research project included a review of available literature located at the National Fire Academy's Learning Resource Center, the

author's personal library, and the WMTFD reference library. To supplement the literary review, three survey instruments (one internal and two external) were utilized to help determine what strategies volunteer fire departments in York County, PA and throughout the United States were employing to enhance the health and wellness of their firefighters.

The literature data found that health and wellness programs will enrich member health, enhance team performance, and improve department morale. It was discovered that NFPA 1500, 1582, and 1583 provide a guide for the development and management of health and wellness program. Results from both external surveys indicated that an overwhelming majority (100%) of fire departments surveyed value the need for health and wellness programs for volunteer firefighters. Internal survey feedback provided support for the development of a health and wellness program for volunteer firefighters of the WMTFD.

Recommendations made were to appoint a steering committee to address the feasibility of developing and implementing a health and wellness program for the volunteer firefighters of the WMTFD. Based on successes realized by other volunteer or combination fire departments, the steering committee will utilize other's experience to guide the process. It is further recommended that the WMTFD utilize pertinent sections of NFPA 1500, 1582, and 1583 standards to draft the program.

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Introduction

The fire service of the 21st Century is facing a plethora of new challenges including domestic and international terrorism, weapons of mass destruction (WMD's), and managing the rising costs of providing existing services. Over the past decade, the United States fire service has made great improvements in the areas of training, personal protective equipment, apparatus, and the integration of new technologies. Although we have advanced in many areas, there has not been a significant reduction in the number of firefighter line-of-duty-deaths (LODD's) annually. "Each year in the United States and its protectorates, approximately 100 firefighters are killed while on duty and tens of thousands are injured" (United States Fire Administration (USFA), 2002, p. 1). According to the USFA (2002), the leading cause of firefighter death between 1990 and 2000 was heart attack at 44% (p. 1). One strategy that may begin to reduce the heart attack death rate is the implementation of a health and wellness program. Many career fire agencies have incorporated cardiovascular and fitness training into their daily routine. Volunteer staffed fire departments have just recently begun to acknowledge the benefits of health & wellness programs. The problem is the West Manchester Township Department of Fire & Emergency Services (WMTFD) has no health & wellness program for its volunteer firefighters.

The role of the 21st Century fire service manager is to ensure the safety of his/her firefighters both on and off the fireground. Since the data indicate the number 1 risk to firefighters is heart attack, it is imperative that we pursue the implementation of a program to manage this risk. The purpose of this applied research project is to identify and evaluate criteria for the development of a health & wellness program for the

volunteer firefighters of the West Manchester Township Department of Fire & Emergency Services (WMTFD). The author will apply descriptive research methods to analyze this problem. The following five questions will guide the research:

1. What are the key components of an effective firefighter health & wellness program?
2. How can a health & wellness program assist in the management of known risk factors?
3. Can a health & wellness program be successful in a volunteer fire department?
4. What types of firefighter health & wellness programs exist in volunteer fire departments?
5. What impacts can be anticipated related to the implementation of a health & wellness program in the West Manchester Township Department of Fire & Emergency Services?

Background and Significance

The WMTFD provides service to a population of nearly 18,000 people in a diversified community covering 20.2 square miles. The Department is staffed by 50 active volunteer professionals and 1 career fire chief. Volunteer membership is comprised of individuals from the community ranging in age from 15 to 70.

USFA data indicates that an average of 100 firefighters die annually in the line of duty, with approximately 44% being directly related to heart attack. At present, the medical and fitness status of each member is not known. In an effort to proactively address the future risk of firefighter line-of-duty-death from heart attack, this author will identify the key elements of a health and wellness program and evaluate the feasibility of

implementating such a program in a volunteer staffed fire department. Although we cannot definitively predict that a line-of-duty-death will occur, historical data do provide insight on the most likely risk(s). The primary goal of this applied research project is to analyze the feasibility of implementing a health & wellness program in an effort to reduce the risk of sudden cardiac death amongst our firefighters.

This applied research project is relevant to the *Leading Community Risk Reduction* course in the areas of risk assessment and developing intervention strategies. By systematically identifying the key components of a comprehensive health and wellness program, the WMTFD will be able to determine the most appropriate method to develop and implement a program to enhance the health and wellness of its volunteer firefighters. A formal program to evaluate medical status, manage identifiable risk factors, and improve cardiovascular fitness will protect firefighters from the risk of sudden cardiac death.

This applied research project directly relates to the following 5-year operational objectives of the United States Fire Administration (last updated October 20, 2000):

1. By reducing by 25% the loss of life of firefighters.
2. To appropriately respond in a timely manner to emergent issues.

These objectives will be accomplished by ensuring that we identify the key factors related to the development and implementation of a health and wellness program. This will facilitate recognition of existing risk factors amongst our volunteer firefighters, effective management of any risk factors that are discovered, establishment of recurring medical evaluations in accordance with applicable standards, and provisions for ongoing physical fitness initiatives. Although participation in a robust health and wellness

program will not guarantee the prevention of heart disease or other debilitating conditions, the WMTFD will be better equipped to mitigate this known risk.

Literature Review

The purpose of this literature review was to locate, review, and identify those sources that specifically address the key components of an effective health and wellness program for firefighters, with a focus on volunteer staffed agencies. Regardless of pay status, cardiovascular disease does not discriminate between career and volunteer fire service personnel. In fact, statistics will indicate that volunteer firefighters are at a greater risk of heart disease and sudden cardiac death than their career counterparts. During the study period between 1990 and 2000, data indicates that 56.7% of all firefighter deaths were volunteers (USFA, 2002, p. 15).

In contrast to other careers, firefighters are at a higher risk of cardiac death than most occupations. In a comparison of cardiac death rate between firefighters, security guards, police officers, and construction trades, firefighting indicated the highest percentage of deaths from heart attack at 44%. Security guards were 25%, police 22%, and construction had only 13%. In fact, the average of all occupational deaths from heart attack was only 15% according to the Bureau of Labor Statistics (USFA, 2002, p. 26).

The review will provide this author with the pertinent sources and data to determine what criteria exist for health & wellness programs and how best to pursue the development & implementation of one. Literary research will indicate whether or not health and wellness programs can be successful in a volunteer fire department. And finally, the review will shed light on existing programs targeted at volunteer firefighters

and what, if any, benefits are being identified related to managing the risk of cardiovascular disease.

The health risk to firefighters is not a recent epiphany. Available data indicates that the leading cause of firefighter death is cardiovascular disease. In addition to heart attack, other causes of serious injury and death can be linked to health and physical fitness. Foley (1995) writes:

> Given that heart attacks are the number one cause of firefighter fatalities, there is a continuing need to promote a healthful lifestyle that includes medical evaluations, proper nutrition, and exercise. Members who engage in emergency operations shall be evaluated and certified annually as meeting the physical requirements…The (fitness) program should include aerobic and cardiovascular workouts, monitored weight reduction programs, and nutritional information for a proper diet. It should also include an ongoing strength training regimen that tones and strengthens the most commonly used muscle areas (p. 301).

In December 1996, management and labor leaders from 10 North American fire departments gathered in Phoenix, Arizona to discuss physical fitness and wellness programs for their firefighters. It was discussed that many fire departments in the United States and Canada have had wellness and fitness programs in place for many years. Gaines (as cited in Dezelan, 1997) reported that "Fairfax County (Va.) has been working on wellness issues for 19 years" (p. 58).

Discussing the anticipated components of an effective health and wellness program, Dezelan (1997) stated the following:

> The 10 departments reached an early agreement that the overall process would require a consensus by labor and management to long-term, individualized fitness and wellness programs that include medical examinations and remedial support for participants…they identified wellness areas that they felt were important for fire firefighter health, including periodic comprehensive medical exams, vaccinations, an individualized health risk appraisal and follow-up that included referral to primary-care physicians. Fitness program recommendations include evaluations of strength, endurance, flexibility and aerobic capacity (pp. 56-58).

Since 1987, the National Fire Protection Association (NFPA) has published standards related to firefighter occupational health and safety. NFPA 1500, Standard on Occupational Safety and Health Programs is currently in its fourth edition. The purpose of NFPA 1500 is to specify minimum requirements for fire service occupational safety and health programs. In the late 1980's, members from committee for NFPA 1500 worked to form a subcommittee to develop a new standard, NFPA 1582, Standard on Comprehensive Occupational Medical Program for Fire Departments. NFPA 1582 addresses the key components of a health & wellness program.

NFPA 1500 (2002) states that "candidates and members who engage in fire suppression shall meet the medical requirements specified in NFPA 1582…prior to being medically certified for duty" (p. 25). NFPA 1500 (2002) further states that "the fire department shall establish and provide a health and fitness program that meets the requirements of NFPA 1583…to enable members to develop and maintain an appropriate level of fitness to safely perform their assigned functions" (p. 25).

The purpose of NFPA 1582, Standard on Comprehensive Occupational Medical Programs for Fire Departments, 2003 Edition “is to reduce the risk and burden of fire service occupational morbidity and mortality while improving the safety and effectiveness of firefighters operating to protect civilian life and property” (p. 4).

Chapter 6 of NFPA 1582 (2003) outlines the medical evaluations of candidates. The pre-entry medical evaluations shall include the following components.

- Head and Neck
- Eyes and Vision
- Ears and Hearing
- Dental
- Nose, Oropharnyx, Trachea, Esophagus, and Larynx
- Lungs and Chest Wall
- Heart and Vascular System
- Abdominal Organs and Gastrointestinal System
- Reproductive System
- Urinary System
- Spine and Axial Skeleton
- Extremities
- Neurological Disorders
- Skin
- Blood and Blood Forming Organs
- Systemic Diseases and Miscellaneous Conditions
- Tumors and Malignant Diseases

- Psychiatric Conditions, and
- Chemicals, Drugs, and Medications (pp. 8 – 12)

Chapters 7 and 8 of NFPA 1582 (2003) delineate the guidelines for medical and fitness evaluations for members (p. 4). Section 7.3 outlines the timing of the annual occupational medical evaluation for current members. Each member shall receive a medical evaluation every 12 months, ± 3 months. The results of the "annual medical evaluations shall be compared to baseline and subsequent evaluations to identify clinically relevant changes" (NFPA 1582, 2003, p. 13). According to NFPA 1582 (2003), the following medical components shall be provided to current members as part of the annual evaluation.

- Medical History
- Physical Examination
- Blood Tests
- Urine Laboratory Tests
- Spirometry
- Chest Radiographs
- Electrocardiograms
- Mammography
- Immunizations and Infectious Disease Screening, and
- Heavy Metal Evaluation (pp. 13 & 14)

Chapter 8 outlines the annual occupational fitness of members to include weight & body composition and a fitness evaluation. These areas involve the determination of the member's body mass index (BMI) and physical fitness levels. NFPA 1582 (2003)

provides several methods in determining the BMI to include “circumferential measurements, hydrostatic weighing, skinfold measurements, or bio impedance analysis” (p. 15). 1582 (2003) states “that the fitness evaluation shall be conducted on an annual basis” and “shall include a mandatory pre-evaluation procedure”. The components of the annual fitness evaluation include “an evaluation of the aerobic capacity…an evaluation of muscular strength…an evaluation of muscular endurance…and an evaluation of flexibility” (p. 15).

In 2000, NFPA 1583, Standard on Health-Related Fitness Programs for Fire Fighters was approved. The 1583 technical committee “believes that a health-related fitness program will contribute significantly to reducing fire fighter fatalities and injuries” (NFPA, 2000, p. 1). NFPA 1583 (2000) states:

> The health-related fitness program shall include the following components:
>
> (1) The assignment of a qualified health and fitness coordinator
>
> (2) A periodic fitness assessment for all members
>
> (3) An exercise training program that is available to all members
>
> (4) Education and counseling regarding health promotion for all members
>
> (5) A process for collecting and maintaining HRFP (Health Related Fitness Program) data (p. 5)

Chapter 4 of NFPA 1583 (2000) mirrors NFPA 1582 in that “the annual fitness assessments shall consist of …aerobic capacity…body composition…muscular strength…muscular endurance…and flexibility” (p. 6). Chapter 5 of NFPA 1583 (2000), entitled *Exercise and Fitness Training Program*, states that the fire department’s exercise and fitness program shall consist of the following components:

- An Educational Program
- An Individualized Exercise Prescription
- Warm-up and Cool-down Guidelines
- Aerobic Exercise Program
- Muscular (strength & endurance) Exercise Program
- Flexibility Exercise Program
- Healthy Back Exercise Program, and
- Safety and Injury Prevention Program (p. 6)

NFPA standards, 1500, 1582, and 1583 provide the prospective fire department with a robust guideline for establishing and/or maintaining a health and wellness program for both candidates and members alike. Using these three standards as a guideline, a comprehensive health & wellness program should include:

- Regular fitness screenings and medical assessments
- Fitness programs, including cardiovascular, strength, and flexibility training
- Behavioral modification including smoking cessation, hypertension awareness, dietary counseling, cholesterol and diabetes management
- Volunteer member education
- Screening of volunteer candidates and applicants

Studies have indicated that when a program includes all of these components, the volunteers pay more attention to their personal health and wellness, which will improve the department as a whole.

Acknowledging that the number one risk factor for sudden death of America's firefighters is heart attack, it is imperative that fire service manager's implement a

program to assess the cardiac fitness of members and manage this risk. "Several fire departments have documented that improved fitness results in significant cost savings through reduced incidence and severity of on-the-job injuries. Of particular note are reductions in back injuries and improvement in heart disease risk factors" (Pearson, 1995, p. 9).

Pearson (1995) writes "clinical studies show that certain characteristics and lifestyles are statistically linked with heart disease…called risk factors…as the number of risk factors goes up, so does the chance of developing a serious problem" (p. 11). High blood pressure, high blood cholesterol, and cigarette smoking are considered major risk factors to cardiovascular disease. Additionally, physical inactivity has been elevated to the status of primary risk factor. According to Pearson (1995), "typical job activities performed by firefighters do not provide adequate levels of activities to promote fitness" (p. 14). Secondary risk factors for cardiovascular disease include excess weight, diabetes, age, race, hormonal factors, family history, alcohol use, and stress. Identification of these primary and secondary risk factors can aid in their management or elimination. A health and wellness program can effectively facilitate the process of identification, documentation, and medically indicated risk management.

In a three part series for FDSOA Health & Safety, Pearson (1994) stated that "fire service professionals know that well designed physical fitness and health programs reduce injuries and deaths, improve performance, raise morale, and save money through lower insurance, disability, and retraining costs" (September, p. 8). "Most importantly, improved fitness helps counteract risk factors associated with heart disease, responsible for a major portion of firefighter fatalities…without cardiovascular fitness, firefighters

cannot do their jobs either safely or well…aerobic conditioning also reduces the risk of heart disease" (Pearson, October 1994, pp. 5-6). Dr. Paul O Davis, Ph.D. (2001), who is the president of On Target Challenge Inc., the company responsible for the Firefighter Combat Challenge states, "while there is no guarantee of immunity to heart disease through exercise, the risk is substantially decreased in physically active people" (p. 35).

On March 10 & 11, 2004, more than 200 fire service representatives convened in Tampa, Florida to focus attention on methods to reduce the nearly 100 annual firefighter line-of-duty-deaths. This conference, the first ever National Fire Fighter Life Safety Summit, was convened in an effort to "focus on the problems, jointly identify the most important issues, agree upon a set of key initiatives, and develop the commitments and coalitions that are essential to move forward with their implementation" (National Fallen Firefighters Foundation (NFFF), 2004, p. 2). One of the initiatives is to develop a process to implement mandatory medical and physical fitness standards.

> An increased emphasis on health, wellness and fitness is essential to reduce the number of deaths resulting from heart attacks and other cardiovascular causes. Statistics suggest that the most significant reductions in the line of duty deaths are likely to be achieved through increased medical surveillance and physical fitness programs. The need for improvements in this area is most pronounced in the volunteer fire service, where the rate of fatalities due to heart attacks and other cardiovascular causes is now much higher than within the career service. This is a reversal of the situation that existed twenty years ago, when there were more cardiovascular deaths among career firefighters than volunteers (NFFF, 2004, p. 10).

A number of career and combination fire departments promote or offer health and wellness programs for their career members. On the other hand, volunteer fire departments find it difficult to implement and manage health & wellness programs. The number one issue affecting volunteer fire departments is having sufficient staffing resources available for emergency response. Attending training and fund raising activities make up other primary duties of volunteer firefighters. Factors that impact on the volunteer's ability to participate in health & wellness programs include schedule conflicts, time management issues, and insufficient fiscal assets. Volunteer agencies that participated in an external survey as part of this ARP indicated that "insufficient funding" and "lack of time" were limiting factors.

Fire service managers who utilize volunteer firefighters to staff suppression positions have been struggling with the prospect of implementing health & wellness programs for many years. More than 20 years ago on July 7, 1982, a jury ruled in favor of the City of Alexandria in the case of the Alexandria Volunteer Fire Department versus the City of Alexandria. This case (#82-0621-A, trial by jury), heard in the United States District Court for the Eastern District of Virginia, decided whether or not the City had the authority to dictate minimum fitness requirements for its firefighting crews. Based on this case, the City of Alexandria began to mandate minimum fitness requirements for all fire suppression personnel. This ruling established "a two-tiered system that distinguished between volunteers qualified to perform interior operations and those whose duties were outside of the building" (Davis, 1994, p. 24).

Regardless of whether or not one's firefighters are career, paid on call, or volunteer, the fact of the matter is that firefighting is hard, hot, dirty, and sometimes

dangerous work. Davis (1994) states that "individuals who volunteer to go in harm's way should be capable of delivering the service without compromising themselves or the other members of their team" (p. 24). Whether or not we are able to "require" participation in a health & wellness program, fire chiefs must make every effort to provide the means to achieve healthier firefighters. "Just as a department has a preventative maintenance program for its apparatus, so there should also be a program to maintain the combat readiness of its personnel" (Davis, 1994, p. 26).

In January 2004, the USFA published the report *Health and Wellness Guide for the Volunteer Fire Service*. Chapter IV of the report identified 16 volunteer or combination fire departments that have current programs for their members. Only 44% or 7 of the departments surveyed reported a positive reception of the program. The report stated that "63 percent (10) note fire service culture as an impediment to the program". The three greatest problem areas reported are "lack of funding, lack of well-defined requirements, and inability to keep membership motivated" (USFA, 2004, p. 25).

One method to gain acceptance by volunteer members is to involve them in the process of program development. It is imperative that any program be designed in accordance with medical supervision as well as NFPA standards. A successful program needs to be designed around the concept that not all volunteer participants are at the same fitness levels. After completion of the medical component, a fitness assessment will determine the type, frequency, and intensity of physical training. From that, individualized fitness regimens can be designed for each participant. The American College of Sports Medicine has compiled substantial amounts of exercise data to address the needs of both healthy and medically limited individuals. Davis (1994) recommends

the following, “like any medication, exercise must be metered out in doses that are appropriate for the patient…it cannot be prescribed without first knowing the participant’s fitness level” (p. 26).

When considering the development and implementation of a robust health & wellness program, it is vital to research existing programs to evaluate the various components and successes of other fire departments. One of the favorite mottos of the fire service is *“no need to reinvent the wheel”*. The USFA, along with various other fire service professional organizations, has conducted a plethora of research on the topic of health & wellness. As mentioned earlier, the USFA’s report *Health and Wellness Guide for the Volunteer Fire Service* includes data on 16 volunteer and combination departments’ programs. Of the various program components, participants reported offering immunizations, medical physicals, exercise programs, and body fat composition testing. According to the USFA (2004), fire departments surveyed indicated that:

> seventy-five percent of the departments ensure immunizations…sixty-three percent provide full blood laboratory screening and full medical physical examinations…ten departments have an exercise facility at each fire station…and less than one-third of the departments test body fat percentages and establish a body fat reduction plan (p.26).

Program successes are well documented in the USFA report. The Flossmore, IL Volunteer Fire Department (as cited in USFA, 2004) reported “those members who participate in the program love it” (p. 30). The Gates (NY) Fire District (as cited in USFA, 2004) stated “the program’s successes…can be measured by what did not happen

to its members…one member discovered prostate cancer as a result of his program-related screenings, and others have discovered heart problems that would not have been diagnosed without the program's screening regimen" (pp. 30-31).

As identified in the USFA study, 16 fire departments surveyed across the United States indicated experience with health and wellness programs for volunteer firefighters. Looking on a regional or local level, York County, PA fire departments surveyed indicated that 30% (6 of 20) of departments do provide some type of health and wellness encouragement. All six provide a strength training component. Speaking to the benefits of health and wellness programs, 100% of the respondents indicated that there is value in a health and wellness program and they should be a common part of the volunteer fire service (External Survey, 2004, Appendix A-3).

One question that often arises when considering a new program in the fire service is "how are we going to pay for it". DeVico (as cited in Formichelli, 2001) states "fit people cost less money…they're also able to perform better and are simply on the job more" (p. 36). Davis (as cited in Formichelli, 2001) claims "our analysis of one moderately sized fire department revealed that the return in one year was $1.45 for every dollar spent [on fitness and wellness initiatives]" (p.36). Additionally, the Phoenix Fire Department has witnessed similar cost savings. According to Kelly (as cited in Formichelli, 2001) "in six years since instituting a comprehensive wellness and fitness program, the severity of injuries in the department decreased by 46%" (p. 36).

A reduction in the severity of and/or their frequency of injuries can have a profound impact on staffing costs in a career department. Scully (2000), Public Information Officer for the San Jose (CA) Fire Department, reported "over a four-year

period, from 1994 to 1998, lost work days decreased 22%, our incurred cost rate went down 12%, hospitalization payments fell 27%, and indemnity payments diminished by 59%" (p. 36). To support the argument that the implementation of a health & wellness program is an investment in your department, Davis (2000) writes "the data show that the poor-fit employee will cost you twice as much the workers' comp price as the average-fit employee, who will again cost twice the price of the high-fit employee" (p. 29).

In summary, the referenced literature has influenced this applied research project by supporting the need for the development and implementation of a health and wellness program for the volunteer firefighters of the WMTFD. The research has identified the key components of a health and wellness program and how these can assist in the management of known risk factors. Literary sources indicate that although challenging, health and wellness programs can be successful in a volunteer staffed fire department. A program's success or failure is largely dependent on its design and application related to the dynamic lifestyles of today's volunteer firefighters. And finally, research indicates that the initial investment to establish a health and wellness program can pay substantial dividends in the form of a reduction in the number and/or severity of injuries, identification of potentially lethal medical conditions, lower health insurance costs, and fewer work related injuries or illnesses. Data obtained from this literary research may be used to assist in the development and implementation of a formal health and wellness program that is based on professionally recognized standards.

Procedures

The purpose of this applied research project was to identify and evaluate criteria for the development of a health & wellness program for the volunteer firefighters of the

West Manchester Township Department of Fire & Emergency Services. Descriptive research methods were utilized to develop applicable conclusions.

Research and data collection methods included a literature review conducted at the National Fire Academy's Learning Resource Center (LRC) in March 2004. Materials available for review at the LRC were reference books, technical reports, articles published in fire service periodicals, previous Executive Fire Officer ARP's and consensus standards related to firefighter occupational safety & health. A secondary review was conducted on-site at the LRC in May 2004. In addition to reference materials contained at the LRC, research incorporated literary sources contained in the personal library of this author and the library of the WMTFD. Literary research also encompassed a search via the Internet for additional relevant data that was deemed too current to appear in published works.

Collateral investigation involved a review of any applicable local, state, or federal recommendations relating to health & wellness programs for firefighters. This involved research of NFPA standards and state or federal Occupation Safety and Health Administration (OSHA) mandates that relate to firefighter safety and health.

In an effort to ensure the significance of this ARP, all sources of data had to meet the following criteria. First and foremost, the validity of all data, regardless of the source, must be verifiable. Second, all information had to be relevant to the subject matter and intent of the project. Third, the information must be as recent as possible. If the data source was greater than 10 years old, it was utilized when the context had not significantly changed or the content was historically significant. And finally, if the findings identified performance criteria or standards germane to the subject matter, they

had to be consistent with current accepted fire service professional standards or principles.

In addition to the literature review, three survey instruments were conducted. The first survey instrument involved an external questionnaire that was sent to the chief or safety officer from a sample group of 44 volunteer or combination fire departments located within south central Pennsylvania. This survey was designed to identify the relative importance of health & wellness programs and what type, if any, programs were in existence. The goal of this survey was to ascertain which departments currently had health & wellness programs. Of those who indicated YES to existing programs, they were asked to identify or briefly explain which key components were included. The external survey also asked each respondent, regardless of whether or not their department utilized a health & wellness program, if they believed that there is value in a health & wellness program and should they be a common part of the volunteer fire service.

A total of 44 surveys were mailed out on April 19, 2004 with a return date of May 7, 2004. The external survey is included in Appendix A-1 and the list of the departments that received this survey questionnaire is included in Appendix A-2. Each agency included in this instrument is identified as either a volunteer or combination fire department. The results are shown in Appendix A-3.

A second external survey was sent to a control group of 8 volunteer or combination fire departments identified as participants in the Volunteer Health and Wellness Initiative pilot program jointly sponsored by the International Association of Fire Chiefs (IAFC) and the National Volunteer Fire Council (NVFC). These surveys were designed to identify what, if any, programs were being used to evaluate health &

wellness of volunteer firefighters in volunteer or combination agencies. This second external survey instrument is included in Appendix B-1 and the list of departments that received this survey is included in Appendix B-2. The results are shown in Appendix B-3.

The third survey instrument was an internal survey questionnaire completed by 26 volunteer members of the WMTFD at each of two fire company meetings held in April 2004. The internal survey requested each respondent to answer YES or NO to a series of *"set up"* questions pertaining to their perception of the importance of a health & wellness and whether or not they would support such a program. In addition, each member was asked to rank or rate the level of importance and/or need for a particular program component. Respondents were forced to rate the importance in each category from 5 being *"essential"* to 1 being *"not important at all"*. A total of 12 different program areas were included in the survey list. The list of program areas utilized for this survey was derived from an informal consensus polling of members and from a general knowledge of recommended components. In addition to the pre-designated list, an area was provided for each respondent to write in any additional programs that they may feel are important.

This in-house survey was a tool to gather feedback from members in an effort to identify the thoughts and positions of the internal customers. In addition to developing a method to gauge opinion, the results will help prioritize the type and number of program components necessary to design an effective and palatable health & wellness program for our volunteer firefighters. Not only is the program design important, but also acceptance and participation by the membership is imperative for program success.

As with many types of research or survey instruments, there were limitations encountered. For the literature review component, this author was limited to materials located at the LRC, the author's personal library, the WMTFD library, available publications, and additional resources located via the Internet. Speaking to the local external survey instrument, a total of 20 responses were received versus 44 surveys sent out. This reflects a 45% return rate. This relatively low response limited the overall representation of this survey. It is unknown if the balance of the non-respondents would have dramatically changed the results. Due to time, staffing resources, and financial limitations, only a portion of York County fire departments were included in the survey audience. York County's volunteer fire departments represent only a small percentage of the more than 2,000 fire service agencies from across the Commonwealth of Pennsylvania. The overall results may vary if the size of the survey pool were expanded outside of the immediate area.

Lastly, due to the research abilities of this author, additional sources of data related to this topic may have been overlooked or gone undetected. Inclusion of otherwise undetected relevant or collateral sources of information may have altered the results of this applied research project.

Definition of Terms:

Bio Impedence Analysis – By standing barefoot on metal foot plates, an undetectably low voltage electric current is sent up one leg and down the other. By measuring the resistance to the current, the machine estimates the percent body fat.

Candidate – A person who has made application to commence performance as a member of the fire department.

Circumferential Measurements – The subject is measured at abdomen, hips, and neck. These measurements are used in a scientific equation in relation to the subject's height to determine their percentage of body fat.

Hydrostatic Weighing – This method uses Archimedes principle which states that when a body is submerged in water, there is a buoyant counter force equal to the weight of the water which is displaced. A person with a larger percentage of fat free mass will weigh more in the water and have a lower percent body fat.

Member – A person involved in performing the duties and responsibilities of a fire department under the auspices of the organization. A fire department member can be a full-time or part-time employee or a paid or unpaid volunteer.

Skinfold Measurements – The most widely used body composition testing method for assessing percent body fat. Equipment used for this assessment includes a skinfold caliper that is designed specifically for simple accurate measurement of subcutaneous tissue.

Results

The results of the literary review provided the following data regarding research question 1: What are the key components of an effective firefighter health & wellness program?

NFPA 1500, 1582, and 1583 provide the framework for the development of a health & wellness program. Chapter 10 of NFPA 1500, Standard on Fire Department Occupational Safety and Health Program, 2002 Edition, contains the medical and physical requirements. 1500 (2002) states that "candidates and members who engage in fire suppression shall meet the medical requirements in NFPA 1582…prior to being

medically certified for duty" (p.25). It further states that fire departments shall develop physical performance requirements for candidates and members. To facilitate this, the fire department shall establish and provide a health and fitness program that meets the requirements of NFPA 1583, Standard on Health-Related Fitness Programs for Fire Fighters, 2000 Edition. All candidates shall be evaluated prior to entering a training program to become a firefighter. Additionally, all members shall be annually evaluated in accordance with NFPA 1583.

Review of existing programs indicates that an effective program will include the components of medical screening, health education, fitness training, and employee wellness. According the NVFC Health and Wellness Guide, 75% of volunteer departments studied ensure immunizations for Hepatitis B and Tetanus and provide annual flu shots. Sixty-three percent provide full blood laboratory screening and full medical physical examinations, including chest x-ray, stress test, EKG, blood pressure, vision, and hearing tests and testing for high-risk cancers.

Based on the data, the key components of a firefighter health and wellness program are candidate pre-screening in accordance with NFPA 1582, annual medical evaluations for members based on recommended regimen outlined in NFPA 1582, a fitness program as recommended in NFPA 1583, and lifestyle modification programs to include dietary counseling, smoking cessation, and employee assistance programs (EAP).

The results of the literary review provided the following data regarding research question 2: How can a health & wellness program assist in the management of known risk factors?

The candidate pre-screening mentioned in NFPA 1582 is intended to provide a baseline medical status on each prospective member prior to acceptance. If serious medical conditions are noted, the candidate's application may be rejected for medical reasons or his/her membership may be limited to non-suppression duties. Additionally, any serious health conditions noted, such as cancers or heart disease, can be referred to their primary care physician for further evaluation.

If the candidate is successful in passing the pre-screening phase of membership, the initial "pre-employment" physical will provide the member and the department with baseline data for future comparison. Comparison of the initial and recurring medical findings can be useful in identifying either trends or changes in the member's medical and/or physical condition. Should medically significant changes be identified, the member can be placed on inactive status until corrective actions can be taken.

The initial and recurring medical physicals may identify known risk factors to include high blood cholesterol, high blood pressure, smoking, physical inactivity, excess weight, diabetes, alcohol use, and stress, all of which can be modified. Other risk factors that cannot be modified are age, race, family history, and gender. Once known, the individual in consultation with his/her physician can begin to manage those risk factors. Some risk factors are totally dependent on the commitment of the member, such as smoking, alcohol use, and fitness. Others, including hypertension and elevated cholesterol, may require medical supervision. Regardless of the risk or its origin, mitigation cannot begin if the hazards are unknown.

The results of the literary review and the external surveys provided the following data regarding research question 3: Can a health & wellness program be successful in a volunteer fire department?

The answer to this question is simply – YES. The components of a successful health and wellness program have been discussed extensively in this ARP. The most important factor in the success or failure of a program in a volunteer organization is member participation. Successful programs have been documented by the USFA in the *Health and Wellness Guide for the Volunteer Fire Service.* It is noted that the most effective programs ensure confidentiality of each member's individual health and wellness initiatives.

In Chesterfield, VA, the program's success stems from the guarantee that every participant is prescribed a fitness regimen and goals that are appropriate for the member's individual level. Another key to program success involves the use of trained and certified peer facilitators, as they are familiar with the participants and the department as a whole. The program continues to report decreasing incidence of serious injuries and a reduction in the medical costs for treating injuries. The Chesterfield program remains popular today, retaining 90% of participants.

The two external survey instruments asked participants if their programs were considered a benefit to the individual members and the organization. Of the respondents who have a current program, 100 percent indicated that the program was a benefit to both the members and the department. Also, 100 percent of the total respondents stated that they believe there is value in a health and wellness program and that it should be a common part of the volunteer fire service.

The USFA listed the 5 leading causes for program failure. They include lack of information on risk itself, lack of individual goals, lack of appropriate training, lack of time to devote to the program, and lack of motivation. Knowing the reasons for failure, the fire service manager can actively minimize those negative causes.

The results of the external surveys and the literary review provided the following data regarding research question 4: What types of firefighter health and wellness programs exist in volunteer fire departments?

The USFA report, *Health and Wellness Guide for the Volunteer Fire Service*, includes data on health and wellness programs that exist in a study group of 16 volunteer and combination departments from the United States. Program components highlighted include immunization programs, medical physicals, exercise programs, and body fat composition testing. Departments surveyed in the report indicated that 75 percent of the departments verify immunization status and 63 percent provide full blood laboratory screening, full medical physical examinations, and have an exercise facility at each fire station. Only 31 percent of the departments test body fat percentages and establish a body fat reduction plan.

The external survey data indicates that a high percentage of departments that offer health and wellness programs provide medical physicals and strength training. A smaller number provide aerobic training and lifestyle modification programs including smoking cessation and dietary counseling. Some even offer employee assistance programs (EAP) to volunteer members.

The results of the literary review and the external surveys provided the following data regarding research question 5: What impacts can be anticipated related to the

implementation of a health & wellness program in the West Manchester Township Department of Fire & Emergency Services?

As noted on page 19, program successes are well documented in the USFA report. The Flossmore, IL Volunteer Fire Department (as cited in USFA, 2004) reported "those members who participate in the program love it" (p. 30). The Gates (NY) Fire District (as cited in USFA, 2004) stated "the program's successes…can be measured by what did not happen to its members…one member discovered prostate cancer as a result of his program-related screenings, and others have discovered heart problems that would not have been diagnosed without the program's screening regimen" (pp. 30-31).

Speaking from a financial investment point of view, the initial capital outlay to institute a health and wellness program can be frightening. Since this will be a new program, elected officials and fire chiefs often cringe at the thought of finding thousands of dollars for new programs. The literary sources noted in this ARP note that a health and wellness program should be viewed as an investment, instead of a mere expense.

Davis (as cited in Formichelli, 2001) claims "our analysis of one moderately sized fire department revealed that the return in one year was $1.45 for every dollar spent [on fitness and wellness initiatives]" (p.36). Additionally, the Phoenix Fire Department has witnessed similar cost savings. According to Kelly (as cited in Formichelli, 2001) "in six years since instituting a comprehensive wellness and fitness program, the severity of injuries in the department decreased by 46%" (p. 36). Scully (2000), Public Information Officer for the San Jose (CA) Fire Department, reported "over a four-year period, from 1994 to 1998, lost work days decreased 22%, our incurred cost rate went down 12%, hospitalization payments fell 27%, and indemnity payments diminished by 59%" (p. 36).

To support the argument that the implementation of a health & wellness program is an investment in your department, Davis (2000) writes “the data show that the poor-fit employee will cost you twice as much the workers’ comp price as the average-fit employee, who will again cost twice the price of the high-fit employee” (p. 29).

Although much of the cost relative data comes from the career fire service, a correlative comparison can be made. By reducing the incidence or severity of injuries, costs for workers’ compensation and medical insurance should decrease accordingly.

Both external surveys indicated that respondents from departments that currently have a health and wellness program consider it to be a benefit to both members and the department. One-hundred percent (100%) of all external survey respondents indicated that they believe that a health and wellness program should be a common part of the volunteer fire service. Based on the literary information and survey responses, it can be surmised that a health and wellness program will pay dividends in the form of reduced insurance premiums, improved morale, and healthier firefighters.

Discussion

The results of this applied research project clearly indicate that there is both a need and a desire to implement a health and wellness program for the volunteer firefighters of West Manchester Township. Being keenly aware of the risk of cardiovascular disease and heart attack, the members can appreciate the benefits of participating in such a program. The historical data over the past decade is clear; firefighters are at a greater risk from heart attack and cardiovascular disease than any other job related hazard. The USFA (2002) reported that 44% of all firefighter line-of-duty-deaths between 1990 and 2000 were caused by this oftentimes predictable threat.

Fire service managers can provide firefighters with all the latest tools and technologies, and still not reduce this statistic.

Historically the fire service has been reactive in nature; that is we respond to emergencies after they occur. As we transition into the 21st Century, America's first responders have begun to realize the benefits of preventative programs to mitigate known risks. Ask any fire chief if they have a preventative maintenance (PM) program for their motorized apparatus or self-contained breathing apparatus (SCBA) and they will respond in the affirmative. Some do it because it is required by NFPA and others do it to ensure service readiness. Regardless of their reasons, fire service managers acknowledge the benefits of maintaining capital equipment versus costly repairs. Rephrase that same question to address personnel preventative maintenance and most will state that it is an individual responsibility to maintain health and wellness. On the contrary, it is the fire chief's responsibility to maintain the firefighting force in a readiness mode. "Just as a department has a preventative maintenance program for its apparatus, so there should also be a program to maintain the combat readiness of its personnel" (Davis, 1994, p. 26).

Nearly 8 years ago, fire service leaders gathered in Phoenix, Arizona to discuss health and wellness initiatives. Many fire departments had existing programs, with some going back almost 20 years. Gaines (as cited in Dezelan, 1997) reported that "Fairfax County (VA) has been working on wellness issues for 19 years" (p. 58). These participants outlined a consensus plan that included medical examinations, vaccinations, fitness appraisals, strength training programs, and long term medical monitoring. The outcome of this initial summit laid the foundation for the Fire Service Joint Labor

Management Wellness-Fitness Initiative between the International Association of Firefighters (IAFF) and the International Association of Fire Chiefs (IAFC).

Although fitness programs are now considered common in the career fire service, this concept is just catching on with volunteer firefighters. The need for improvements in this area is most pronounced in the volunteer fire service, where the rate of fatalities due to heart attacks and other cardiovascular causes is now much higher than within the career service. This is a reversal of the situation that existed twenty years ago, when there were more cardiovascular deaths among career firefighters than volunteers (NFFF, 2004, p. 10). Knowing that history provides us with valuable data, volunteer fire chiefs need to rethink their priorities. To emphasize volunteer firefighter health and wellness, the USFA and the NVFC joined together to facilitate a pilot program to promote fitness initiatives.

The ARP study results indicate that the members of the volunteer fire service do agree that there is a need for health and wellness programs, but report that with all the other demands on the volunteers they are unable to institute one. The NVFC (2004) reported that "the three greatest problem areas identified are lack of funding, lack of well-defined requirements, and the inability to keep members motivated" (p. ix). Volunteer agencies that participated in the external survey indicated that "insufficient funding" and "lack of time" were limiting factors. Although we acknowledge that a volunteer firefighter's time is limited, we must re-prioritize our goals and objectives to elevate health and wellness to a level commensurate with its corresponding risk of cardiovascular disease. If we truly believe in reducing the number of firefighter line-of-duty-deaths, the fire service must acknowledge the benefits of health and wellness programs.

Since the number one risk to America's firefighters is heart attack and cardiovascular disease, a strategy to mitigate this risk must be implemented in each and every fire department across the United States. The benefits of health and wellness programs are well documented. Both the Flossmore, IL Volunteer Fire Department and the Gates, NY Fire District reported successes in the USFA (2004) report. "The program's successes…can be measured by what did not happen to its members…one member discovered prostate cancer as a result of his program-related screenings, and others have discovered heart problems that would not have been diagnosed without the program's screening regimen" (USFA, 2004, pp. 30-31).

The cost of implementing a health and wellness program should be viewed as an investment in your most important resource – your personnel. According to Davis (as cited in Formichelli, 2001), "one moderately sized fire department revealed that the return in one year was $1.45 for every dollar spent [on fitness and wellness initiatives]" (p.36). The Phoenix Fire Department has experienced a 46% decrease in the severity of injuries over six years since instituting a comprehensive wellness and fitness program (Kelly as cited in Formichelli, 2001, p. 36). And the San Jose (CA) Fire Department, reported that lost work days decreased 22%, the incurred cost rate went down 12%, hospitalization payments fell 27%, and indemnity payments diminished by 59% over a 4-year period between 1994 and 1998 (Scully, 2000, p. 36).

Fire service managers can utilize the pertinent sections of NFPA 1500, 1582, and 1583 as models to design, develop, implement, and manage a comprehensive health and wellness program. It can be said that planning is the most important step in the success of any wellness initiative. The NVFC reported that there is no all inclusive model plan in

existence that will work for all volunteer fire departments. But utilization of model elements and core components can lead to program success. Selection of key ingredients include regular fitness screenings & medical assessments; fitness programs, consisting of cardiovascular, strength, & flexibility training; behavior modification involving smoking cessation, hypertension awareness, dietary counseling, cholesterol & diabetes management; volunteer member education; and screening of volunteer candidates & applicants. Research data indicates that programs that combine these key elements are more successful, individual participants pay more attention to fitness, and overall department improvement is well documented.

The management and membership of the WMTFD must now initiate the process to develop and implement at comprehensive health and wellness program. Based on the research data, the WMTFD can select specific components from the various programs mentioned to design an effective program. The data suggests that to be effective, the WMTFD program should have a medical component, a fitness component, behavioral modification, member education, and applicant screening. It would be impractical to attempt to implement all facets of the program simultaneously. Therefore, it seems prudent to institute a phase-in process.

With any new program, funding must be identified and secured. Several possible sources currently exist that may assist with deferring the cost of program start-up. The Assistance to Firefighters' Grant Program administered by the USFA has awarded funding to fire departments to facilitate the start-up process of health and wellness programs. Other sources of funding may include corporate sponsorship, targeted

fundraising, or re-allocation of existing funds. Regardless of the source, funding must be secured to ensure full program achievement.

One very important component of program success will be the education and behavior modification of WMTFD membership. Member education will involve providing data regarding the risk and lethality of cardiovascular disease on America's firefighters. Providing factual information derived from historical data will segue into behavioral modification techniques. Behavioral modification will include smoking cessation, dietary alterations, and healthy lifestyle practices. These two areas are relatively inexpensive and may begin as independent program elements prior to implementing the more costly components of medical assessments or the purchase of specific fitness equipment. Once funding sources are secured, the remaining parts of the full program can be phased-in.

Through the use of currently acceptable industry standards, such as NFPA 1500, 1582, and 1583, and learning from others who have documented success in the area, the 21st Century Fire Service Executive can facilitate a process to design, develop, and implement a comprehensive health and wellness program for volunteer firefighters. The implementation of a health and wellness program will benefit each individual member, as well as the department as a whole. By improving the medical and fitness status of our firefighters, the WMTFD can increase the level of service to both our internal and external customers. Healthier firefighters are known to be happier, more productive, and cheaper to maintain over their careers.

The results of this applied research project have provided a plethora of justification supporting the need for a health and wellness program for the membership of

the WMTFD. Data supports the goal of phasing in a successful program based on a framework derived from NFPA 1500, 1582, and 1583, and modeled after documented successes referenced by the United States Fire Administration.

Recommendations

The problem, as previously stated, is that the West Manchester Township Department of Fire & Emergency Services (WMTFD) has no health and wellness program for its volunteer firefighters. The purpose of this applied research project is to identify and evaluate criteria for the development of a health and wellness program for the volunteer firefighters of the WMTFD.

The research contained in this ARP has identified that NFPA 1500, 1582, and 1583 are the predominant standards for the development, implementation, and management of fire service health and wellness programs. These standards provide the fire service manager with the framework for a comprehensive firefighter health and wellness program. The internal survey data indicated support for some type of formalized health and wellness program offered on a voluntary basis for the members of the WMTFD. Based on the literary review, survey data, and the analysis of the results, the following recommendations have been developed to facilitate the process for the development and future implementation of a health and wellness program for the volunteer firefighters of the WMTFD.

1. Solicit WMTFD members to serve on a health and wellness steering committee whose mission is to affirm the standards and criteria in an effort to facilitate the design, development, and implementation of a formalized health and wellness program for candidates and members.

2. Explore the feasibility of formally adopting the pertinent sections of NFPA 1500, 1582, and 1583 as the benchmark standards for program development.
3. Ensure that those program components that were identified and ranked high in the internal survey are incorporated into the development of a health and wellness program for the WMTFD.
4. Identify potential funding sources and pursue available grants.
5. Develop a policy to regulate program coordination, management, and participation by members in an effort to ensure maximum benefits to individual candidates, members, and the department as a whole.
6. Ensure that management supports the process toward the implementation of a formalized health and wellness program.
7. Promote open lines of communication between all members of the organization to minimize the possibility of negative perceptions.

It is recommended that the process toward the implementation of the health and wellness program begin as soon as practical. Once appointed, the steering committee can begin to establish program guidelines. Once approved, the program benchmarks will be incorporated into the WMTFD 5-year strategic plan. The benchmark to appoint the committee and begin program development will be by the end of 2004. If the schedule remains valid and funding is available, components of the program may be available by the end of 2005.

Eventual success of any health and wellness program will ultimately depend on the support and involvement of all personnel within our Department. With the support of

the steering committee, membership, and management, the WMTFD can proactively address the number one killer of America's firefighters – heart attack and cardiovascular disease.

Reference List

Davis, P. (1994, October). On Volunteers and Fitness, *Fire Chief*, p. 24.

Davis, P. (2000, December). Have you heard the one about the jogger?, *Fire Chief*, p. 29.

Davis, P. (2001, April). The Need for Fitness, *Fire Chief*, p. 35.

Dezelan, L. (1997, February). Firefighter fitness is now on the front burner, *Fire Chief*, pp. 56-58.

Foley, S. N. (1995). Occupational Safety and Health. In J.R. Bachtler & T. R. Brennan (Eds.), *The Fire Chief's Handbook*, (5th ed, p. 301). Saddlebrook, NJ: Pennwell Publishing Company.

Formichelli, L. (2001, April). The Need for Fitness, *Fire Chief*, p. 36.

National Fallen Firefighters Foundation. (2004, April 15). *Firefighter Life Safety Summit, Initial Report*. p. 10. Retrieved April 19, 2004 from http://www.firehero.org/s1/images/Initial_Summit_Report.pdf

National Fire Protection Association. (2002). *NFPA 1500 Standard on Fire Department Occupational Safety and Health Program, 2002 Edition*. Batterymarch Park, MA: National Fire Protection Association.

National Fire Protection Association. (2003). *NFPA 1582 Standard on Comprehensive Occupational Medical Programs for Fire Departments, 2003 Edition*. Batterymarch Park, MA: National Fire Protection Association.

National Fire Protection Association. (2000). *NFPA 1583 Standard on Health-Related Fitness Programs for Fire Fighters, 2000 Edition*. Batterymarch Park, MA: National Fire Protection Association.

Pearson, J., Hayford, J., & Royer, W. (1995). *Comprehensive Wellness for Firefighters – Fitness and Health Guide for Fire and Rescue Workers*. New York, NY: Vahn Nostrand Reinhold.

Pearson, J. (1994, September). Promoting Wellness in Your Fire Service Organization. *FDSOA Health & Safety*, p. 8.

Pearson, J. (1994, October). Promoting Wellness in Your Fire Service Organization. *FDSOA Health & Safety*, pp. 5-6.

Scully, T. (2000, April). A fit force, *Fire Chief*, p. 36.

United States Fire Administration. (2002). *The USFA Firefighter Fatality Retrospective Study: 1990-2000.* (FEMA Publication No. FA-220). Washington, DC: U.S. Government Printing Office.

United States Fire Administration. (2004). *Health and Wellness Guide for the Volunteer Fire Service.* (FEMA Publication No. FA-267). Washington, DC: U.S. Government Printing Office.

Appendix A-1

National Fire Academy
Executive Fire Officer Program

Volunteer Fire Service Health & Wellness Program External Survey (York County, PA):

Please answer the questions based how you perceive health & wellness as it relates to you personally and as a member of your volunteer fire department.

1. On a scale of 1 to 10 (10 being highest), how would you rate the importance of health & wellness programs in the volunteer fire service? _____

2. Does your organization provide any type of health & wellness program to its volunteer firefighters? YES ____ NO ____ If no, skip to question #7.

3. If yes, it is mandatory ____ or voluntary ____ ?

4. What types of programs are included with your health & wellness program?

Medical Physicals	____	Strength Training	____
Aerobic Fitness	____	Smoking Cessation	____
Dietary Counseling	____	Group Programs	____

5. Do you believe that a health & wellness program is a benefit to your members?
   YES ____ NO ____

6. Do you believe that a health & wellness program is a benefit to your organization?
   YES ____ NO ____

7. If you do not currently have a health & wellness program, are you considering the implementation of one?
   YES ____ NO ____

8. If not, what is the reason? _____

9. Whether or not your volunteer fire department offers a health & wellness program, do you believe there is value in a health & wellness program and should they be a common part of the volunteer fire service? YES ____ NO ____

Appendix A-2

List of York County Fire Departments Surveyed during the External Survey

Reliance Fire Company of West York
Friendship Fire Company of Spring Grove
Dover Twp. Fire Department
Spring Garden Twp. Fire Department
Jacobus Fire Company
Hellam Twp. Fire Department
Manchester Twp. Fire Department
Lewisberry Fire Company
Leo Fire Company of Red Lion
Yoe Fire Company
Yorkanna Fire Company
Wrightsville Fire Company
Hellam Fire Company
Hanover Borough Fire Department
Jefferson Fire Company
Pleasant Hill Fire Company
Eureka Fire Company of Stewartstown
Fawn Grove Fire Company
Glen Rock Borough Fire Department
Seven Valleys Fire Company
Franklintown Community Fire Company
York City Fire-Rescue Department
Lincoln Fire Company of Thomasville
Union Hose Company of Dover
Nashville Fire Company
Springettsbury Twp. Fire Department
York Twp. Fire Department
Manchester Borough Fire Department
Goldsboro Fire Company
Newberry Twp. Fire Department
Rescue Fire Company of Dallastown
Windsor Twp. Fire Department
New Bridgeville Fire Company
East Prospect Fire Company
North Hopewell Winterstown Fire Company
Fairview Twp. Fire Department
Penn Twp. Fire Department
Porters Sidling Fire Company
Airville Fire Company
Delta-Cardiff Fire Company
Shrewsbury Fire Company
Loganville Fire Company
Warrington Twp. Fire Company
Abbottstown Fire Company

Appendix A-3

National Fire Academy
Executive Fire Officer Program

***** 44 Surveys Sent Out - 20 Completed Surveys Returned by Deadline *****

Volunteer Fire Service Health & Wellness Program External Survey (York County, PA):

Please answer the questions based how you perceive health & wellness as it relates to you personally and as a member of your volunteer fire department.

1. On a scale of 1 to 10 (10 being highest), how would you rate the importance of health & wellness programs in the volunteer fire service? (8.25)

2. Does your organization provide any type of health & wellness program to its volunteer firefighters? YES (6) NO (14) If no, skip to question #7.

3. If yes, it is mandatory (0) or voluntary (6) ?

4. What types of programs are included with your health & wellness program?

Medical Physicals	(1)	Strength Training	(6)
Aerobic Fitness	(2)	Smoking Cessation	(0)
Dietary Counseling	(0)	Group Programs	(0)

5. Do you believe that a health & wellness program is a benefit to your members?
   YES (6) NO (0)

6. Do you believe that a health & wellness program is a benefit to your organization?
   YES (6) NO (0)

7. If you do not currently have a health & wellness program, are you considering the implementation of one?
   YES (6) NO (8)

8. If not, what is the reason? Insufficient budget / funding, inadequate facilities, lack of time, not enough support from membership.

9. Whether or not your volunteer fire department offers a health & wellness program, do you believe there is value in a health & wellness program and should they be a common part of the volunteer fire service? YES (20) NO (0)

Appendix B-1

National Fire Academy
Executive Fire Officer Program

USFA and NVFC Health & Wellness Initiative Pilot Program External Survey:

Please answer the questions based how you perceive health & wellness as it relates to you personally and as a member of your volunteer fire department.

1. On a scale of 1 to 10 (10 being highest), how would you rate the importance of health & wellness programs in the volunteer fire service? _____

2. Does your organization provide any type of health & wellness program to its volunteer firefighters? YES ____ NO ____ If no, skip to question #7.

3. If yes, it is mandatory ____ or voluntary ____ ?

4. What types of programs are included with your health & wellness program?

Medical Physicals	____	Strength Training	____
Aerobic Fitness	____	Smoking Cessation	____
Dietary Counseling	____	Group Programs	____

5. Do you believe that a health & wellness program is a benefit to your members?
   YES ____ NO ____

6. Do you believe that a health & wellness program is a benefit to your organization?
   YES ____ NO ____

7. If you do not currently have a health & wellness program, are you considering the implementation of one?
   YES ____ NO ____

8. If not, what is the reason? _____

9. Whether or not your volunteer fire department offers a health & wellness program, do you believe there is value in a health & wellness program and should they be a common part of the volunteer fire service? YES ____ NO ____

Appendix B-2

USFA / NVFC Fire Departments Participating
in the Health & Wellness Initiative Pilot Program

These eight participating fire departments were selected by the International Association of Fire Chiefs (IAFC).

- Bernalillo County Fire and Rescue (Albuquerque, NM)
- Brodhead Fire Department (Brodhead, WI)
- Collinsville Volunteer Fire Department (Collinsville, VA)
- Hartford Emergency Services (White River Junction, VT)
- Mount Airy Volunteer Fire Co. Inc. (Mount Airy, MD)
- Solon Volunteer Fire Department (Solon, IA)
- Southampton Fire Company (Southampton, PA)
- Sutherlin Fire Department (Sutherlin, OR)

Appendix B-3

Results from External Survey #2

***** 8 Surveys Sent Out – 5 Completed Surveys Returned by Deadline *****

National Volunteer Fire Council Health & Wellness Initiative Participant Survey:

Please answer the questions based how you perceive health & wellness as it relates to your agency's participation in the NVFC Health & Wellness Pilot Program.

1. What level of priority on a scale of 1 to 10 (10 being highest) does your agency place on health & wellness programs for volunteer firefighters? (6.8)

2. Did you agency have an existing health & wellness program prior to participating in the NVFC's pilot program? YES (1) NO (4)

3. Reference to your program (existing or new) it is mandatory (2) or voluntary (3)?

4. What types of programs are included with your health & wellness program?
   Medical Physicals (5) Strength Training (5)
   Aerobic Fitness (4) Smoking Cessation (1)
   Dietary Counseling (2) Group Programs (3)
   Other: Fitness Evaluation (1), EAP for Mental Health (1)

5. Do you believe that a health & wellness program is a benefit to your members?
   YES (5) NO (0)

6. Do you believe that a health & wellness program is a benefit to your organization? YES (5) NO (0)

7. Briefly describe any shortcomings or successes of your program(s).
   - Biggest challenge is to find 1 or 2 people to assist personnel reach their fitness goals. (1)
   - Health & wellness must compete with volunteer's limited available time. (1)
   - No minimum requirements and cost are factors. (1)
   - Fewer Workers' Compensation Claims, Healthier / Happier Volunteers. (1)

8. Will you continue with a health & wellness program after the expiration of the pilot program? YES (5) NO (0), reason? Only if able to identify a program coordinator. (1)

9. Do you believe there is value in a health & wellness program and should they be a common part of the volunteer fire service? YES (5) NO (0)

Appendix C-1

West Manchester Twp. Fire & Emergency Services
Health & Wellness Internal Survey

Please answer the questions based on how you perceive health & wellness as it related to you personally and as a member of the department.

1. How often do you receive a medical evaluation / physical? _____

2. Do you believe that the development and implementation of a health & wellness program would benefit our fire department? ___ YES ___ NO

3. Would you be supportive of a health & wellness program?___ YES ___ NO

4. If a program was implemented, would you participate?___ YES ___ NO

5. What elements would you like to see as part of a health & wellness program?

_____
_____
_____

Below is a list of various components related to a health & wellness program. Please indicate its importance as it relates to you personally or the department as a whole based on the following scale:

5 = essential
4 = very important
3 = moderately important
2 = somewhat important
1 = not important at all

HEALTH & WELLNESS PROGRAM AREAS	**5**	**4**	**3**	**2**	**1**
Entry Level Medical Physical					
Periodic Physicals Based on NFPA 1582 (3 Yrs or Less)					
Smoking Cessation Programs					
Dietary Counseling Programs					
Fitness Counseling Programs					
Mandatory Participation (New Members)					
Voluntary Participation (Current Members)					
Strength Training					
Cardiovascular Training					
Flexibility Training					
Individualized Programs					
Team / Group Programs					
Other:					

Appendix C-2

West Manchester Twp. Fire & Emergency Services
Results from Health & Wellness Internal Survey

***** 26 Members Present and Completed the Survey *****

1. How often do you receive a medical evaluation / physical?
   58% Yearly, 27% Every 2 years, 15% > 2 years

2. Do you believe that the development and implementation of a health & wellness program would benefit our fire department? **100% Answered YES**

3. Would you be supportive of a health & wellness program? **100% Answered YES**

4. If a program was implemented, would you participate? **100% Answered YES**

5. **W**hat elements would you like to see as part of a health & wellness program? **Cardiovascular Fitness, Weight Training, Tai Chi, Yoga, Medical Physicals, Personal Trainer,**

Below is a list of various components related to a health & wellness program. Please indicate its importance as it relates to you personally or the department as a whole based on the following scale:

5 = essential
4 = very important
3 = moderately important
2 = somewhat important
1 = not important at all

HEALTH & WELLNESS PROGRAM AREAS	Total Points	Average Points
Entry Level Medical Physical	104	4.00
Periodic Physicals Based on NFPA 1582 (3 Yrs or Less)	107	4.12
Smoking Cessation Programs	88	3.38
Dietary Counseling Programs	92	3.54
Fitness Counseling Programs	103	3.96
Mandatory Participation (New Members)	75	2.88
Voluntary Participation (Current Members)	100	3.85
Strength Training	110	4.23
Cardiovascular Training	115	4.42
Flexibility Training	109	4.19
Individualized Programs	102	3.92
Team / Group Programs	97	3.73
Other: Post Progress of Members (1)	4	4.00