Running Head: EMT-P EDUCATION PROGRAM ENROLLMENT FACTORS

Executive Development

Emergency Medical Technician-Paramedic Education Program

Enrollment Factors for Howard County Department of Fire and Rescue

Emergency Medical Technician – Basic Personnel

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Appendices Not Included. Please visit the Learning Resource Center on the Web at http://www.lrc.dhs.gov/ to learn how to obtain this report in its entirety through Interlibrary Loan.

Certification Statement

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Abstract

Howard County Department of Fire and Rescue has been experiencing low enrollment of Firefighter/EMT-Basics in paramedic education programs. In efforts to increase enrollment, this descriptive research identified factors that Firefighter/EMT-Basic employees felt were encouraging or discouraging about paramedic education programs and about paramedic job issues, and evaluated solutions employed by other agencies with similar problems. Procedures included a department-wide questionnaire and literature review.

Results indicated Firefighter/EMT-Basics value providing high quality care, using state-of-the-art equipment, and prefer on-duty paramedic programs taught by HCDFRS instructors.

Recommendations include equalizing suppression opportunities for Firefighter/EMT-Paramedics, reinforcing EMS values, establishing appealing, department taught, EMT-Intermediate and EMT-Paramedic bridge courses, establishing an EMS quality and research position, and hiring EMT-Paramedic candidates when available prior to scheduled recruit classes.

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Introduction

The Problem addressed by this research is that the Howard County Department of Fire and Rescue Services (HCDFRS) is experiencing low enrollment of their career Firefighter/Emergency Medical Technician – Basic (EMT-B) certified personnel in Emergency Medical Technician-Paramedic (EMT-P) educational programs. This has contributed to a decrease in the number of career Firefighter/EMT-Ps (FF/EMT-Ps) within the department. If this trend continues, this will negatively impact Emergency Medical Services (EMS) quality by forcing a reduction in Advanced Life Support (ALS) service.

This reduction in ALS service has already manifested itself, and could continue to do so in many ways. In the last year, HCDFRS has initiated a change that allows ALS to be provided by a single provider certified only at the level of Emergency Medical Technician – Intermediate (EMT-I), requiring only a brief exam by an EMT-P. Previously, while EMT-Is could still provide ALS care during the initial response and participate as an ALS team member, the presence of at least one EMT-P licensed provider during transport was assured for each ALS patient. This assured the highest level of care allowed by the state of Maryland for the duration of the incident. Additional reductions in EMS service could occur, as it may become necessary to staff fewer ALS ambulances and ALS support apparatus in the near future. Increasing the number of FF/EMT-P providers within HCDFRS would negate these and future concessions from having to be made, and allow a return to the previous EMT-P standard of care.

The purpose of this research is to identify the factors that discourage and encourage enrollment in EMT-P educational programs by HCDFRS EMT-B personnel. The method of this research is descriptive. Three research questions have been identified:

1. What do HCDFRS Firefighter/EMT-Bs (FF/EMT-Bs) perceive as the negative (discouraging) and positive (encouraging) aspects being a HCDFRS Firefighter/EMT-Paramedic (FF/EMT-P)? It is hoped that answering this question will allow HCDFRS to reinforce the encouraging aspects of being an EMT-P for the department, and to develop policies that eliminate or minimize those aspects perceived to be negative. This should serve to encourage employees to want to be EMT-P providers and to enroll in EMT-P training programs.

2. What do FF/EMT-Bs perceive as negative (discouraging) and positive (encouraging) attributes of EMT-P education programs, including their impression of the current department sponsored program? It is hoped that answering this question will allow HCDFRS to provide EMT-P educational opportunities in the future that are considered positive by FF/EMT-B employees. HCDFRS currently sponsors and supports a local community college based program.

3. What are other organizations doing to encourage EMT-Bs to become EMT-Ps that might apply to HCDFRS? By answering this question, it is hoped that ideas, policies, and programs that have been successful for other agencies might be adapted for use.

Background & Significance

HCDFRS is the sole provider of fire, rescue, and emergency medical services (EMS) in Howard County, Maryland. The service provided consists of both Basic Life Support (BLS) and ALS scene response and transport. HCDFRS serves approximately 275,000 citizens over an area of 254 square miles. Areas of coverage include small urban, suburban, and rural areas, as well as

an industrial corridor and numerous freeways, to include a portion of the Interstate-95 corridor between Washington and Baltimore.

HCDFRS is a combination department consisting of 287 uniformed career county employees and six volunteer fire departments that are private corporations. There is one small private fire department within Howard County, located at the Johns Hopkins Applied Physics Laboratory (JHAPL). The head of this Howard County government department is a Fire Chief that is appointed by the County Executive. The Fire Chief maintains oversight of all fire, rescue, and EMS activities within the County, including the establishment of operational policies for the career department and the volunteer corporations. This results in well-integrated operational performance.

Support services for HCDFRS are provided by the career personnel and civilian employees, and include fleet management, training, administration, life safety, inspections, community education, communications, information technology, and fire investigation. HCDFRS is also charged with providing emergency management for the County and citizens.

Each HCDFRS career uniformed employee is cross-trained to be a firefighter (FF) and either an EMT-B, EMT-I, or an EMT-P. Volunteer personnel are not required to be cross-trained. JHAPL personnel are cross-trained as FF/EMT-Bs. Five of the six volunteer stations have a shift of career personnel assigned to their station at all times. One volunteer department manages their own staffing for four full-time equivalent positions with part-time paid employees.

HCDFRS operates 11 front-line ambulance transport units. Suppression and rescue apparatus are equipped to provide ALS if staffed by an FF/EMT-I or FF/EMT-P.

Beginning in 1998, HCDFRS operations ensured that every response to a 911 call that was deemed to be ALS in nature included an ambulance staffed with at least one EMT-P.

Similarly, a department goal was established that, if the 911 call was deemed critical in nature, a second EMT-I or EMT-P would be dispatched to the scene to assist. This provider often arrived as part of an engine, tower, or rescue company. These policies were based on recommendations of a 1995 "EMS Taskforce," a citizen advisory panel that reviewed and gave recommendations regarding EMS system issues within the County.

To maintain this system, HCDFRS set forth a goal of maintaining 88 career FF/EMT-P providers. This would allow for two FF/EMT-P providers assigned to each shift, and for the required FF/EMT-P officer positions that existed within the department.

HCDFRS is currently experiencing a shortage of EMT-P licensed personnel. Efforts to maintain enough incoming personnel licensed as EMT-Paramedics have been unsuccessful. In 2005, it is now estimated that the department will need to increase to 130 the number of FF/EMT-P providers in order to continue the current level of service. This increase is partially due to many of the once non-officer FF/EMT-P personnel being promoted to positions that do not allow a regular ambulance assignment. As personnel get promoted and retire, there have gradually become fewer EMT-Paramedics that are available to staff ambulances. There are currently 42 FF/EMT-Ps in the Firefighter rank, four apparatus drivers, 15 Lieutenants, 10 Captains, and five Battalion Chiefs.

Recent efforts by HCDFRS to hire personnel that are already EMT-P licensed have thus far proven inadequate. The most recent effort to hire 14 EMT-Paramedics resulted in the successful employment of only two EMT-P personnel.

Attempts to recruit employees to the sponsored Community College EMT-P program have not been successful. To date, not one career employee has successfully completed this program and gone on to practice ALS for HCDFRS.

This shortage of FF/EMT-P licensed personnel is now endangering the quality and standard of care provided on HCDFRS ambulances. The department has been forced to modify its operational policy assuring a FF/EMT-P staffed ambulance will be dispatched for each ALS 911 call. Instead, FF/EMT-I certified personnel can staff the ambulance, and only an exam by an EMT-P is called for in the policy. This effectively reduces the standard of care available for those patients during transport to the hospital.

Additional impacts that the shortage has created include increased job stress for FF/EMT-P personnel, FF/EMT-P providers not getting an adequate chance to gain firefighting experience, and increasing signs of overall dissatisfaction with their job. As a result, FF/EMT-B providers are hesitant to enroll in EMT-P educational programs and become paramedics for the department.

No organization operates in a vacuum. There are several factors that exist at the national level that are beyond the control of HCDFRS control that probably contribute to the existing shortage of paramedics in Howard County's workforce. These include an increased level of competition for EMT-P qualified applicants due to an increase in demand for EMS and other allied health workers, and the negative impact of changes to the EMT-P and EMT-I national standard curriculum and other national EMS leadership initiatives.

The U.S. Department of Labor predicts that the employment of EMTs and related allied health workers will grow faster than the average through 2012, citing population growth, urbanization, and aging baby boomers as factors that will increase the demand for full-time paid EMT-Bs and EMT-Ps ("*Occupational Outlook Handbook*," 2005). This has resulted in increased competition between EMS agencies for EMT-P qualified applicants.

In an attempt to provide effective leadership for EMS, the National Highway Transportation Safety Administration (NHTSA) and the Health Resources & Services Administration Maternal & Child Health Bureau co-sponsored a project to produce a document that would outline the most important directions for future EMS development. The intent of this 1996 document, the EMS Agenda for the Future (the 1996 Agenda), was to serve as guidance for EMS providers, health care organizations and institutions, governmental agencies, and policy makers (National Highway Traffic Safety Administration, U.S. Department of Transportation [NHTSA], 1996). However, it is possible that the objectives established by this agenda and the subsequent NHTSA EMT-I and EMT-P national standard curriculum revisions have contributed to many of the problems many EMS agencies now face.

Paramedic education can be obtained through a number of sources. At a minimum, there are certificate programs that are taught by hospitals, private institutions, and EMS agencies, associate's degree programs at community colleges, and baccalaureate programs from four-year universities. In the 1996 Agenda, it is stated that program quality and improvement efforts can be achieved in all of these settings (NHTSA, 1996).

The 1996 Agenda encouraged the development of relationships between EMS education programs and institutions of higher education. It established as a clear objective that EMS education programs should seek to establish relationships with academic institutions (e.g., colleges, universities, academic medical centers). It asserts that these relationships should enhance the academic basis of EMS education and facilitate recognition of advanced level EMS education as an accomplishment worthy of academic credit (NHTSA, 1996). The document goes on to claim that academically-based EMS education facilitates further development of EMS as a professional discipline, increases the availability of educational opportunities that

acknowledge previous EMS educational/ academic achievements, provides more academic degree opportunities for EMS personnel, augments the management skills among EMS professionals, and protects the value of personal and societal resources invested in education. While the implication is that these things cannot be achieved by training outside academia (i.e. by the EMS organizations themselves), no evidence was provided to support this or any of the assertions.

In 1998, a new national standard curriculum for EMT-P was published by NHTSA, updating the previous curriculum that was published in 1985. There were a number of topics, mostly non-clinical, added to the curriculum, including paramedic wellness, therapeutic communication, and injury prevention. The curriculum attempts to stress the importance of a strong foundation for knowledge and the ability to critically think. Changes also included a requirement for competencies in English and math skills, and the addition of a specific list of anatomy & physiology objectives (NHTSA, 1998). While it is stated in the 1996 Agenda that quality can exist within private institution and fire department educational programs, the document also states that "Higher level EMS education programs are affiliated with academic institutions (NHTSA, 1996, p. 34). However, it offers no evidence as a basis for this statement.

The new national standard curriculum recommended 1066 course hours to accomplish the 1998 EMT-P curriculum, a significant increase from the 600 to 700 hours in the 1985 curriculum. To ease the burden of teaching increased educational requirements and program hours, many EMS agencies found that, at a minimum, a partnership with either a college or medical institution is required in order to provide instructional resources for students (Cason, 1999).

One possible result of this the migration of EMT-P educational programs toward the collegiate setting is that it may have actually create programs with less experienced instructors, as many of the most experienced EMS instructors lack the academic qualifications, bachelors or masters degrees, to become program managers for these collegiate programs, or did not want to give up their full-time, financially vested positions for an academic faculty position.

Another problem that the migration of EMT-P programs into colleges may be causing is that academic institutions have little incentive to offer streamlined programs. As the EMT-I curriculum is about 350 hours, it would be equivalent in hours to around 24 college credits (based on a 45 hour class being 3 credits). Most higher education institutions have no incentive to offer a program that lasts only 24 credits. In fact, they are motivated to extend program requirements to encompass a two-year or four-year degree. Even 1066-hour EMT-P programs that could equate to 40-60 college credits on their own merit, when taught in community colleges or universities, might then be coupled with other college course work to satisfy collegiate graduation requirements. Suddenly the added English and math competencies, and anatomy and physiology objectives in the 1998 EMT-P curriculum become a semester of English, a semester of math, a semester of biology, two semesters of anatomy and physiology, and any number of other institutional courses. While, in general, all education is good, this phenomenon ends up adding additional requirements beyond that defined by the 1998 EMT-P curriculum, and certainly serve to make the EMT-P education even longer and more difficult for potential students to complete.

While it would be an objective of employers to offer a streamlined and step-by-step approach to EMT-P education, such as one that might allow attainment of EMT-I as a step during the process, colleges have little incentive to provide a course of study that is only 24

credits in length. So, in some cases, neither the national curriculum nor academic institutions have facilitated getting EMT-Ps into the job market.

In 1999, NHTSA published a new curriculum for EMT-I. The curriculum is designed to teach a scope of practice that is a significant departure from the previously existing EMT-I curriculum. (NHTSA, 1999). The 1999 EMT-I curriculum defines a scope of practice that is much closer to the 1985 EMT-P scope of practice. Though there are significant differences in cognitive objectives, there are only a few 1985 EMT-P procedures that are not included in the new EMT-I scope of practice. These include, for example, nasotracheal intubation, qualitative ECG interpretation, rapid sequence intubation, cricothyroidotomy, and use of ventilators. However, despite a very similar scope of practice, the recommended course hours to accomplish the 1999 EMT-I curriculum is only 350 hours instead of the 600-700 hours for the 1985 EMT-P.

The broad scope of practice and the short recommended course hours have lead to significant curriculum variation between EMT-I programs. This is problematic. In order to effectively teach the 1999 EMT-I objectives, some EMT-I education programs have increased the number of their program hours. Also, states can choose to adopt only certain portions of the national EMT-I scope of practice. This has resulted in many different combinations of the NHTSA curriculum being used in EMT-I programs nationwide. Even within the same state mandated scope of practice, for example, in Maryland, the 2004 Montgomery County Department of Fire and Rescue EMT-I course was almost 600 hours (C. Smith, personal communication, September 28, 2004), the 2003 Carroll County Volunteer Fireman's Association EMT-I course was 475 hours (R. Stair, personal communication, August 24, 2004). HCDFRS is also initiating an EMT-I education program, and the course length is 575 hours. This illustrates

the significant variation between EMT-I educational programs, even among jurisdictions that geographically border each other.

The variation among EMT-I program curricula makes a bridge curriculum very difficult to design and implement. Bridge curricula could be used to take certified EMT-Is and teach them the objectives that are unique to the EMT-P curriculum, but not re-teach those that are common to both curricula. The 1996 Agenda states that it is a priority that "EMS educators must develop bridging and transitioning programs. These programs should offer mechanisms for EMS providers to enhance their credentials …" (NHTSA, 1996, p. 36). Despite setting this priority, the NHTSA curriculum changes have made this exceedingly difficult. Agencies wishing to develop an education program that transitions and EMT-I to an EMT-P simply do not have a consistent EMT-I starting point. This also makes it difficult for EMT-Is to move between jurisdictions or employers. To make matters worse, it is obvious that the curriculum writers were not making bridging programs a priority, as the 1999 EMT-I curriculum objectives were written with a completely different structure than in the 1998 EMT-P curriculum, making curriculum comparisons exceedingly difficult.

The broad scope of practice dictated by the 1999 EMT-I curriculum could also be contributing to the EMT-P workforce shortage, as many would-be EMT-Ps are becoming EMT-Is instead, as it is much easier to attain and far less costly.

This broad scope of practice has put further pressure on EMS agencies to abandon EMT-P as the standard of care. With EMT-P education now significantly more difficult to attain, out of necessity to maintain a workforce, the EMT-I has now become an alternative, or replacement, for the EMT-P in many EMS systems, instead of an actual intermediate level of education.

The resulting reduction in the standard of care is fairly predictable. An EMT-I is a provider with significantly less education practicing a skill set similar to that of an EMT-P. It is an easy fallacy to equate scope of practice with standard of care. The former is what one is allowed to do, while the latter is whether what is done is appropriate and whether it is done correctly (National Association of State Emergency Medical Service Directors, 2005).

It is ironic to consider that the EMT-P and EMT-I curriculum revisions and the 1996 Agenda, a document that is intended to lead initiatives to improve quality, may have actually helped contribute to the reduction in the standard of care provided "on the street" for many agencies across the nation.

There are several factors over which HCDFRS has limited control that likely influence the employment decisions of potential new employees. Howard County is in direct competition with several other agencies in the area that offer similar employment opportunities and are aggressively recruiting EMT-P licensed applicants. Applicants are free to choose from any of these agencies based on their preferred wages, benefits, work schedule, and other considerations. Timing is also a likely issue, as HCDFRS employees are hired in groups following a rigid six to nine month application process that includes written testing, physical testing, interviews, and psychological testing. Once hired, each newly hired trainee must participate in a training academy program lasting between 16 and 24 weeks. Thus, the starting employment date is as inflexible as the hiring process that HCDFRS uses. The employee can only start when HCDFRS is ready, not when they finish their EMT-P training and become ready to work. While the department can influence these issues, the hiring process is primarily conducted by the County's Office of Human Resources. Wages, benefits, and work schedule issues must be negotiated with the union that represents the uniformed career firefighters.

Within this environment of uncontrollable and partially controllable factors, there are factors influencing current FF/EMT-B employees and their decision to enroll in an EMT-P educational program over which HCDFRS has total control. It is these factors upon which the research questions of this paper concentrate.

These factors include the migration of local EMT-P education programs from being HCDFRS provided to being provided in the community college setting, the provision of incentives for employee participation in EMT-P educational programs, recognition of the unique needs of FF/EMT-P personnel as a subset of fire and rescue employees, and identifying and changing aspects of FF/EMT-P job duties that are perceived as negative by FF/EMT-Bs.

It is hoped that by identifying solutions to change controllable factors, that the number of EMT-P personnel can be increased. This will help HCDFRS to reach the long-term set in its *2004 Strategic Plan*, "to provide paramedic staffing, trained to the State of Maryland's highest level of clinical competency, for all suppression and transport units" (Howard County Department of Fire and Rescue Services, 2004).

The research of this problem is consistent with the United State Fire Administration operational objective "to respond appropriately in a timely manner to emerging issues," as the issue of an adequate EMT-P workforce is an emerging issue that will likely continue to be a challenge to which organizations will have to adapt in order to solve. It is consistent with the Executive Fire Officer Program and the Executive Development course missions as well, as the organizational response to this problem will require careful study and diligent leadership to effect the needed transformations.

The results that are provided by this research will help HCDFRS to appropriately respond to this problem, and implement proactive policies to prevent an erosion of the department's

capacity to effectively provide high quality fire, rescue, and EMS services. Resolution of the many problems that prevent an adequate EMT-P workforce will require changes in how employees are recruited, educated, and rewarded, the role that HCDFRS takes in employee education, and how the different roles of HCDFRS personnel are defined. These significant changes can only be accomplished through strong and effective leadership.

Literature Review

The literature review for this applied research project (ARP) centered on discovering any changeable factors that might be influencing the problem of a reduced EMT-P workforce, identifying what other agencies have done to successfully address problems of recruiting employees for training, and identifying what methods were undertaken to encourage them. In order to broaden the scope of the review beyond EMS and fire service agencies, issues of recruitment, retention, and employee satisfaction were also explored. Possible solutions were considered on the basis of their applicability to HCDFRS, their potential effectiveness, and the time that would be required to implement. Many of the methods discovered in the literature review were incorporated into a paramedic education survey (see Appendix A) that was used to research the first two research questions of the ARP.

In trying to discover causative factors for a seemingly reduced EMS workforce, researchers found that the Bureau of Labor Statistics Occupational Outlook Handbook predicts that employment of Emergency Medical Technicians (EMTs) and paramedics is expected to grow faster than average through the year 2012 ("*Occupational Outlook Handbook*," 2005). Also predicted to grow faster than average was employment in many related allied health care fields, including physical therapy, occupational therapy, respiratory therapy, radiology, diagnostic sonography, nuclear medicine, cardiovascular technology, and nursing. Physician

assistant employment is expected to grow much faster than average. Additionally, the Bureau of Labor, expects the earnings of EMTs and paramedics to be the least of these related occupations. Using their estimates, on average EMTs and paramedics can expect to make only 40 to 70 percent of the earnings of these other related occupations ("*Occupational Outlook Handbook*," 2005).

In May of 2004, in Washington, D.C., a meeting was organized by the American College of Emergency Physicians in order to prioritize issues that face the EMS community. Maintaining an effective EMS workforce was one of seven major issues identified, illustrating that it was a common theme among the participants of the meeting ("National EMS leaders," 2004).

At the 2004 EMS Today conference, the audience chose recruitment and retention as the number one issue ("EMS employers struggle," 2004). At this conference, it was also noted by the National Registry of EMTs that, in states where there is a full implementation of the EMT-I 1999 scope of practice and curriculum, fewer students appear to be testing for EMT-P. In Maryland, the number of paramedic candidates taking the NREMT exam dropped from 238 to 70 following their implementation of EMT-I with a broad scope of practice. American Ambulance Association President Jerry Overton sees much of the problem stemming from the new national paramedic curriculum and the increase in required hours making it more difficult for people to enter the profession ("EMS employers struggle," 2004). Mark King, West Virginia's EMS Director, also attributes the shortage to the more difficult and longer paramedic curriculum, and that other allied health jobs, such as nursing, have better salaries ("EMS employers struggle," 2004).

To address their increased recruiting challenges, Bear Valley Paramedics in Big Bear Lake, CA, have found recruitment success by focusing training on local citizens (Jarrard, 2003). They found that this group has been more likely to stay at Bear Valley Paramedics, despite some of the negative job aspects of low call volume and limited financial resources. The agency feels that it attracts employees that consider the non-monetary aspects of the service to be valuable, including that it is in a resort area of the mountains.

A December 2003 a meeting took place between six Florida EMS organizations in efforts to compile recommendations for creating more paramedics and/or attract paramedics to Florida. Among the recommended recruitment ideas with reported local success were to designate scholarship money for those wishing to advance their EMS careers and promote EMS shadowing opportunities for high school students. Other recommendations were common ideas such as career fairs, working closely with high school guidance counselors, and using multimedia recruitment tools. Matt Zavasky, EMS director for Volusia County, FL, suggested that they have had success with a strategy aimed at making the agency a place where people want to work. This strategy includes methods like paying employee tuition, recruiting outside of geographic boundaries, exploring non-traditional modes of study, appreciating the cost of replacing an employee, paying employees well, creating a good career ladder, networking with successful former paramedics for better recruiting, implementing a sign-on bonus, and bonuses for measured performance ("Consider these," 2004).

Catlette and Hadden (2000) suggest that the most successful organizations hire people with compatible style, values, and work preferences. They suggest that competency is really secondary to these characteristics. They also put forth that maintaining extremely high standards

is the best way to retain high performing employees. They feel that loosened work standards send a message to those employees that they are no longer part of an elite, winning team.

Abbasi (2000) asserts that employee motivation is key to business success. Policies that enhance employee skills, competencies, and intellectual growth give employees a reason to stay. Avoiding what he calls a "toxic workplace" is fundamentally important. Organizations should not ask their employees to choose between having a life and career, should treat their employees as people, and to view them as assets, not overhead. One way to get this message across is to invest in them and create a work environment that is coveted by employees.

Retention of employees is as important as recruitment, and it appears that many of the same things that attract employees to an organization will also serve to keep them there. Cole (2000) indicates that a survey on worker loyalty affirmed the theory that employees will give their all and stay at companies they find deserving. She puts forth that there is a hierarchy of employee needs that employers should ensure are met in order to keep a loyal workforce. In order, the needs are safety and security, compensation/benefits and rewards, affiliation, growth, and work/life harmony.

Terez (2000) highlights the 208 words that Mindspring has adopted as their company values. These values are conspicuous in their workplace, brochures, even in their recorded phone greetings. The values are commitments to customers, shareholders, and each other. They include things such as requiring complete honesty, recognizing the difference between a good mistake made with the best effort but with a bad result, and a bad mistake resulting from lack of effort, respecting the individual, and the recognition that work should be fun. He reports that their employees believe that the company's success can be attributed to their focus on those core beliefs.

John Swanson, a former Air Force officer who planned the recruitment of pilots, believes that despite efforts to retain employees, a certain amount of turnover is inevitable. Now working for Metropolitan EMS in Louisiana, he contends that the most import lesson to take from military recruiting is to anticipate and actively manage employee turnover. An essential component to this is to determine how many employees you must hire before they are actually needed ("Military lessons," 2004).

In July of 2002, Patricia Ware, chair of the EMT Department at Erie Community College in New York reported that their enrollment had dropped to 50 percent of normal. Their EMT-P program went from two semesters to three semesters following implementation of the 1998 EMT-P curriculum. This was similar to the increase in program length reported in Connecticut, where the implementation of the new curriculum changed their program length from 10 to 15 months They have also seen enrollment drop to the point of endangering some EMT-P education programs. Ms. Ware reported that in the area of Buffalo, NY, the commercial services were running very shorthanded, and as a result have altered their recruitment efforts to include providing relocation expenses, sign-on bonuses, free tuition, and childcare assistance ("Fewer paramedic students," 2002).

Several fire departments, including Buffalo, NY, Castle Rock, CO, and Prince William County, VA, also reported having problems hiring and retaining paramedics. The director-at-large of the International Association of Fire Chiefs (IAFC) EMS Section stated that board members frequently hear from members nationwide that face problems finding qualified paramedics to hire. The Chief Medical Officer for Castle Rock Fire Department reported that following implementation of the 1998 EMT-P curriculum, some EMT-P programs shrunk to half the normal size. One solution implemented by Prince William County was to hire EMT-P

applicants and allow them to staff ambulances until a recruit class was initiated ("Fewer paramedic students," 2002).

Metropolitan EMS, the public utility model that serves Little Rock, AR, began just hiring good candidates and paying them to attend a six week EMT-B program. They found that graduates from their own program required less orientation time once trained than EMT-Bs from other training programs. They then began an intensive six-month EMT-B to EMT-P program with the University of Arkansas. Employees are paid to attend, a full-time wage plus eight hours of overtime, each week. They charge the students six thousand dollars for the course, taken in payroll deductions their first year out of class. This is less than their EMT-P salary difference, so they are essentially working for an extra $1200 instead of $7200 their first year after EMT-P school. They report that not all students are successful due to the pace of the program ("Little Rock creates," 2004).

Orange County Fire Rescue in Florida created an in-house EMT-P program that beams live lectures to on-duty firefighters at their stations. It allows for interaction with instructors and other students in real time. They found that previous efforts to pay tuition for their employees to attend the local community college program were unsuccessful in attracting employees to enroll. They are training ten firefighters on each of their shifts. The program takes about a year to complete. Students watch two 30-60 minute lectures each day, and are assigned lab work and homework. Lectures are archived and available to be viewed from home. The whole system uses off the shelf technology products, but requires high-speed bandwidth to each fire station. Students are partnered with a paramedic preceptor during the class. Each day, one ambulance is taken out of service and the student and preceptor go to a hospital for clinicals. They report that student and preceptor selection is key to success ("Distance learning," 2004).

Putnum County EMS in Florida applied for and received state WorkSource grants for training paramedics. They had 10 of their forty-five paramedic positions unfilled in 2001. Now, they compensate EMT-Bs while attending an EMT-P program at a local technical institute. But, because of the grant, those students cannot be forced to stay in Putnum County (WorkSource funds," 2004).

Acadian Ambulance and Air Medical Services in Louisiana proliferated EMT-P training statewide by utilizing simultaneous satellite broadcasts to several different campuses. This allows them to have almost 400 students in their EMT-P program, co-sponsored with Louisiana's community college system. They have also begun an initiative to sponsor and facilitate EMS research. They aggressively recruit with TV and radio ads, banners at fire stations, even at high school sporting events ("Acadian's EMS academy," 2004).

Procedures

Research Methodology

The purpose of this descriptive research was to identify actions that could be taken to increase employee enrollment in EMT-P educational programs. One of the research questions addressed how other organizations successfully respond to similar problems, so a literature review was accomplished to compile possible actions that would be applicable for HCDFRS. In order to discover answers to the other research questions, a questionnaire was developed that would allow employees to identify encouraging and discouraging factors about EMT-P educational programs and the job duties of HCDFRS EMT-Ps. Also included were questions that would allow employees to rate their impression of the existing department sponsored EMT-P educational program.

Literature Review

The literature review for this ARP began at the National Emergency Training Center's Learning Resource Center (LRC), and included the use of numerous Internet accessible articles and pages as well as print articles.

In September of 2004, research began using the LRC Online Card Catalog. Researchers conducted searches for "paramedic + retention," "emergency medical services + retention," paramedic + training," and "emergency medical services + retention". Results were then evaluated for their applicability to the three research questions of this ARP.

In January of 2005, research continued using the LRC Online Card Catalog. Researchers conducted searches for "emergency medical services + personnel" and "emergency medical services + fire service". They also compiled lists of subject matter references for "EMS organizations," "Paramedics: 1992-2005," and "Emergency Medical Technicians: 1992-2005". The top 30 results for each subject matter were then evaluated for their applicability to the three research questions of this ARP.

During January, April, and May of 2005, research continued using various Internet sites. Http://www.google.com was utilized to search for "personnel management + public". This located the http://www.findarticles.com database of journal articles. Further searches within that database on "employee + turnover" and "workforce + retention" yielded numerous applicable articles.

Http://www.google.com was also utilized to search for "EMS management + staffing". This yielded links to the *EMS Insider* home page, http://www.jems.com/insider/, where a further search for "recruitment" yielded an article in the April 2004 edition. In reading that edition, it

was noted that the EMS management newsletter was presenting a recurring feature staffing solutions. This prompted a manual review of the last three years of the newsletter.

Http://www.google.com was again utilized to search for "paramedic + national + standard + curriculum + fire service." This located the article reviewed from *Fire Chief* magazine.

The Bureau of Labor website was located from http://www.google.com and searching on "bureau + of + labor".

Additional Research

Additional research was conducted in August of 2004, September of 2004, and April of 2005 in order to obtain information regarding EMT-I educational program curricula being used in the state of Maryland. This research consisted of personal communications with training staff from several EMS agencies that border Howard County, MD.

Questionnaire Feedback Instrument

The questionnaire utilized was a three-page document created in Microsoft Word (see Appendix A). It first requested some general information about the participant. It then presented three core areas for consideration. Each area related to a research question.

Area one asked participants to categorize themselves as to their interest in possibly enrolling in a paramedic program and being a paramedic in the future.

Area two asked for demographic information such as years of service, years until expected retirement, rank, and level of EMS certification.

Area three was intended to identify attributes of a paramedic education program that would be either encouraging or discouraging to those who were considering enrollment. It gave a list of 11 possible program attributes and asked participants to indicate to what extent they felt

each of the paramedic program attributes might encourage or discourage HCDFRS personnel that want to be paramedics when they are considering enrolling in a paramedic program.

Area four was intended to identify issues that effect paramedic employees that might encourage or discourage HCDFRS EMT-Bs from becoming EMT-Ps for the department. It gave a list of 18 issues that effect HCDFRS EMT-Ps and asked participants to what extent they felt each issue might encourage or discourage HCDFRS EMT-Bs from becoming EMT-Ps.

Area five was intended to determine existing impressions of the department sponsored Howard County Community College EMT-P associate's degree program. It gave a list of six statements and asked participants if they agreed with the statements or not.

The questionnaire was distributed on January 4, 2005, via the chain of command to the line supervisors. They were asked, using an official HCDFRS Special Order, to have all career, uniformed employees complete the form (see Appendix B). The questionnaire was also distributed by the HCDFRS intranet email system as a Portable Document Format file, in order to facilitate access to the form. There was a time limit set, but not enforced, in order to encourage a prompt reply. Questionnaires were forwarded via interoffice mail to the HCDFRS regulations officer. The last questionnaire was received February 4, 2005.

Sample

HCDFRS has 287 positions, but currently only 259 uniformed employees. Eighty are EMT-P licensed and 179 are not. All were included in the questionnaire target group.

Data Review

Completed feedback forms were separated into those that indicated the feedback was from a paramedic or a non-paramedic. This was done to simplify comparison between the two groups. Within those categories, they were placed in descending order based on years of service.

This was done to facilitate future evaluation regarding a possible trend based on years of service. The forms were then each given a unique number to facilitate tracking and allow for verification of the database should it become necessary. Each question was then assigned a unique number. Data from the questionnaire was compiled in a Microsoft Excel spreadsheet (see Appendix C). Data analysis was accomplished using the Excel simple mathematical functions, the "countif" function, the "average" function, and the chart wizard function. Responses were calculated into fractile totals and averages, for the paramedic and non-paramedic groups, and for total responses. Those values were placed in the chart wizard, and a bar graph was created for each group and question. The values and bar graphs were then copied into a Microsoft Word template for each figure.

Assumptions and Limitations

Questionnaire. Since completion of the questionnaire was requested using an official HCDFRS Special Order, some employees may have completed the questionnaire even though they would rather have not. No other pressure was put on employees, and the coversheet stated that employee answers were completely confidential and would never be held against them. It also stated that including their name was optional, which should have reassured anyone that employees who did not complete the questionnaire could not, and would not, be pursued. Efforts were made during the design of questionnaire elements to include only clear and unbiased statements. If participants required clarification, they were encouraged to call the researcher. No calls concerning clarification of the questionnaire statements were received. Free-style comments were allowed on the questionnaires, but these responses were not included as part of this research. It is possible that some participants may have tried to explain some of their scaled responses.

Questionnaire group. Some employees may have been on leave during the time frame that completion of the form was requested. Thirty-two forms were not returned. Since the group had the option of putting their name on their form, some chose not to do so. This makes determining the origin of the missing forms impossible to determine.

Statistical analysis. It was not documented who responded and who did not. Therefore, it cannot be determined if the opinions of one particular sub-group, e.g. females, have been under or over represented. Mathematical statistical significance was not determined for the results of this questionnaire.

Definition of Terms

Advanced Life Support (ALS): The level of emergency medical care provided by an EMT-I or EMT-P.

Basic Life Support (BLS): The level of emergency medical care provided by a First Responder or an EMT-B.

Bridge Curriculum: An educational curriculum designed to incorporate previous verifiable education into a larger curriculum, so that a participant does not have to repeat coursework that has already been completed.

Clinicals: A part of EMT-I and EMT-P training that involves applying knowledge and skills that were learned in the classroom to real patients in a supervised clinical setting, either in a hospital or on an ambulance.

Continuing Education: For EMT-Ps, 72 hours of continuing education, designed to both review and build on EMT-P educational objectives, is required every two years in order to maintain licensure.

Emergency Medical Services (EMS): Prehospital medical care provided by public safety or privately contracted agencies. Generally includes first response to an emergency scene and transport to a medical facility. Some agencies do only one or the other.

Emergency Medical Technician – Basic (EMT-B): A certification level for an EMS provider that allows for provision of Basic Life Support. Usually consists of 120-150 hours of education.

Emergency Medical Technician – Intermediate (EMT-I): A certification level for an EMS provider that allows for provision of limited Advanced Life Support. Specific limitations vary, and are usually dictated by state law. Although widely variable, it usually consists of 350-600 hours of education.

Emergency Medical Technician – Paramedic (EMT-P): A certification level for an EMS provider that allows for provision of Advanced Life Support. The 1985 curriculum called for 600-700 hours of education. Those trained under the 1998 curriculum receive 1000-1200 hours of education.

Full-Time Equivalent Position: A position that is equivalent to a 40 hour per week position, but is usually filled with several part-time employees.

Medical Duty Officer: One of nine officer positions, battalion chief, captain, or lieutenant, within HCDFRS that is responsible for quality of medical care issues, including emergency response and field supervision during critical incidents, field training, ALS administrative issues, and quality assurance review of incident reports.

National Standard Curriculum (NSC): Comprehensive objectives and declarative information established by the National Highway Transportation Safety Administration that defines the various recognized levels of EMS providers, EMT-B, EMT-I, and EMT-P.

Preceptor: A medical provider that has received specific training regarding directly supervising EMS students in a clinical health care setting as they learn to apply knowledge and skills obtained in the classroom.

Scope of Practice: What an EMS provider is allowed to do by law. Usually defined by state law.

Standard of Care: The medical standard of performance to which one is expected to perform. Usually established by the organization or agency.

Results

There were 221 (85%) paramedic education questionnaires were completed and returned, 73 from the EMT-P group (91%) and 148 from the non-EMT-P group (83%).

Data from the questionnaire addressed the first two research questions. Questionnaire numbers one through 11 addressed the second research question (see Appendix D1 through D11), numbers 12 through 29 the first research question (see Appendix D12 through A29), and numbers 30 through 35 addressed the second research question (see Appendix D30 through A35).

Research Question One

Questionnaire numbers 12 through 29 addressed the first research question, “What do HCDFRS Firefighter/EMT-Bs perceive as the negative (discouraging) and positive (encouraging) aspects being a HCDFRS Firefighter/EMT-Paramedic?”

Department personnel were asked to indicate to what extent each issue might encourage or discourage career personnel who are Firefighter/EMT-Basics from becoming Firefighter/Paramedics for HCDFRS. Respondents could choose from “very encouraging”

(assigned a score of 1), “encouraging” (assigned a score of 2), “neutral” (assigned a score of 3), “discouraging” (assigned a score of 4), and “very discouraging (assigned a score of 5).”

Question number 12 had a mean rating of 3.6 (see Appendix D12). FF/EMT-B employees responded that “the quantity of engine/suppression time for paramedics is less than for BLS providers” as being between discouraging and neutral. Forty-nine percent of FF/EMT-Ps felt this was a very discouraging issue, while 14 percent of FF/EMT-Bs felt the same way.

Question number 13 had a mean rating of 2.1 (see Appendix D13). FF/EMT-B employees responded that “paramedic personnel receive a pay differential for their increased responsibility, licensure, and educational requirements” as being generally encouraging, between encouraging and neutral.

Question number 14 had a mean rating of 2.4 (see Appendix D14). FF/EMT-B employees responded that the “amount of pay differential received by paramedics” was between encouraging and neutral.

Question number 15 had a mean rating of 2.4 (see Appendix D15). FF/EMT-B employees responded to “paramedic personnel have a dual role as firefighters” as being between encouraging and neutral.

Question number 16 had a mean rating of 2.4 (see Appendix D16). FF/EMT-B employees responded to “there are Medical Duty Officer (MDO) and certain officer positions reserved for paramedic personnel” as being between encouraging and neutral.

Question number 17 had a mean rating of 3.2 (see Appendix D17). FF/EMT-B employees responded to “there are additional staffing details required of paramedics” as being mostly neutral, between neutral and discouraging. Sixty-nine percent of FF/EMT-Ps felt this was a very discouraging issue, while 32 percent of FF/EMT-Bs felt the same way.

Question number 18 had a mean rating of 3.5 (see Appendix D18). FF/EMT-B employees responded to "some assignments, such as to tower companies, are unavailable for paramedics" as being between discouraging and neutral. Fifty-eight percent of FF/EMT-Ps felt this was a very discouraging issue, while 16 percent of FF/EMT-Bs felt the same way. Question number 19 had a mean rating of 2.3 (see Appendix D19). FF/EMT-B employees responded to "generally, department paramedics are highly competent" as being between encouraging and neutral.

Question number 20 had a mean rating of 1.9 (see Appendix D20). FF/EMT-B employees responded to "ALS equipment that the department utilizes is state of the art" as being generally encouraging, between encouraging and very encouraging.

Question number 21 had a mean rating of 2.0 (see Appendix D21). FF/EMT-B employees responded to "the level of care the department provides is the highest allowed by the state" as being encouraging.

Question number 22 had a mean rating of 2.5 (see Appendix D22). FF/EMT-B employees responded to "paramedic personnel have an increased level of responsibility" as being between encouraging and neutral.

Question number 23 had a mean rating of 2.5 (see Appendix D23). FF/EMT-B employees responded to "promotional opportunities are at least equivalent when compared to non-paramedic personnel" as being between encouraging and neutral.

Question number 24 had a mean rating of 3.0 (see Appendix D24). FF/EMT-B employees responded to "paramedic personnel are generally busier during their shift due to their additional EMS responsibilities" as being neutral. Thirty-two percent of FF/EMT-Ps felt this was a very discouraging issue, while 14 percent of FF/EMT-Bs felt the same way.

Question number 25 had a mean rating of 2.5 (see Appendix D25). FF/EMT-B employees responded to “required EMT-P continuing education training is interesting and serves to improve paramedic competency” as being between encouraging and neutral.

Question number 26 had a mean rating of 2.0 (see Appendix D26). FF/EMT-B employees responded to “required EMT-P continuing education classes are compensated” as being encouraging.

Question number 27 had a mean rating of 2.4 (see Appendix D27). FF/EMT-B employees responded to “required EMT-P continuing education classes are challenging, and contain material that is beyond the basics, and is enlightening” as being between encouraging and neutral.

Question number 28 had a mean rating of 2.4 (see Appendix D28). FF/EMT-B employees responded to “paramedic personnel have an opportunity to be involved in continuing education classes at the instructor level” as being between encouraging and neutral.

Question number 29 had a mean rating of 2.5 (see Appendix D29). FF/EMT-B employees responded to “paramedic personnel have an opportunity to be a field mentor/preceptor” as being between encouraging and neutral.

Research Question Two

The second research question was “What do FF/EMT-Bs perceive as negative (discouraging) and positive (encouraging) attributes of EMT-P education programs, including their impression of the current department sponsored program?” FF/EMT-B perceptions about positive and negative EMT-P program attributes were addressed by questions one through 11. Their impressions of the current department sponsored community college EMT-P program were addressed by questions 30 through 35.

In questions one through 12, HCDFRS personnel were asked to indicate to what extent they felt each of the paramedic educational program attributes might encourage or discourage HCDFRS personnel that want to be paramedics when they are considering enrolling in a paramedic program. Respondents could choose from "very encouraging" (assigned a score of 1), "encouraging" (assigned a score of 2), "neutral" (assigned a score of 3), "discouraging" (assigned a score of 4), and "very discouraging (assigned a score of 5)."

Question number 1 had a mean rating of 3.3 (see Appendix D1). FF/EMT-B employees responded to "coursework will require significant time and effort to complete" as being between neutral and discouraging.

Question number 2 had a mean rating of 2.3 (see Appendix D2). FF/EMT-B employees responded to "the quality of academic program is high" as being between encouraging and neutral.

Question number 3 had a mean rating of 2.8 (see Appendix D3). FF/EMT-B employees responded to "the program is academically fairly easy" as being mostly neutral, between neutral and encouraging.

Question number 4 had a mean rating of 2.3 (see Appendix D4). FF/EMT-B employees responded to "the program is academically challenging, but offers sincere opportunities to learn the material" as being mostly encouraging, between encouraging and neutral.

Question number 5 had a mean rating of 2.2 (see Appendix D5). FF/EMT-B employees responded to "the students in the course are exclusively DFRS personnel" as being mostly encouraging, between encouraging and neutral.

Question number 6 had a mean rating of 2.0 (see Appendix D6). FF/EMT-B employees responded to "the primary instructors for the program are DFRS instructors" as being encouraging.

Question number 7 had a mean rating of 2.0 (see Appendix D7). FF/EMT-B employees responded to "the class times are convenient for employees' work and personal schedules" as being encouraging.

Question number 8 had a mean rating of 3.1 (see Appendix D8). FF/EMT-B employees responded to "personnel are detailed to class when class hours fall during work hours, but attend on their own when classes occur on off duty days" as being generally neutral, between neutral and discouraging.

Question number 9 had a mean rating of 2.0 (see Appendix D9). FF/EMT-B employees responded to "personnel are put on a special schedule so that course hours are compensated and integrated into their DFRS work schedule" as being encouraging.

Question number 10 had a mean rating of 2.1 (see Appendix D10). FF/EMT-B employees responded to "the paramedic program allows students to become EMT-Intermediates at a midpoint" as being generally encouraging, between encouraging and neutral.

Question number 11 had a mean rating of 2.1 (see Appendix D11). FF/EMT-B employees responded to "the paramedic program allows time for students to practice at the EMT-Intermediate level prior to continuing to EMT-Paramedic" as being generally encouraging, between encouraging and neutral.

In questions 30 through 35, HCDFRS personnel were asked to indicate their impression of the Howard County Community College paramedic program. For each statement, respondents

could choose whether they “strongly agree” (assigned a score of 1), “agree” (assigned a score of 2), “disagree” (assigned a score of 3), or “strongly disagree” (assigned a score of 4).

Question number 30 had a mean rating of 2.3 (see Appendix D30). Most FF/EMT-B employees agreed with the statement “the program is of high academic quality.” Two thirds of respondents agreed or strongly agreed, and one third of respondents disagreed or strongly disagreed.

Question number 31 had a mean rating of 2.7 (see Appendix D31). Most FF/EMT-B employees disagreed with the statement to “the course schedule is convenient for me to attend when they occur during my off days.” Fifty-six percent of respondents disagreed or strongly disagreed, and 41 percent agreed or strongly agreed.

Question number 32 had a mean rating of 2.1 (see Appendix D32). Most FF/EMT-B employees agreed with the statement “the academic program is challenging.” Eighty-four percent of respondents agreed or strongly agreed, and 15 percent of respondents disagreed or strongly disagreed.

Question number 33 had a mean rating of 2.4 (see Appendix D33). Most FF/EMT-B employees agreed with the statement “the program would adequately prepare someone to be a paramedic.” Fifty-nine percent of respondents agreed or strongly agreed, and 33 percent disagreed or strongly disagreed.

Question number 34 had a mean rating of 2.3 (see Appendix D34). Most FF/EMT-B employees agreed with the statement “the instructors are qualified.” Seventy-one percent of respondents agreed or strongly agreed, and 27 percent disagreed or strongly disagreed.

Question number 35 had a mean rating of 2.2 (see Appendix D35). Most FF/EMT-B employees agreed with the statement “the prerequisite college courses keep personnel from

entering the program." Sixty-two percent of respondents agreed or strongly agreed, and 36 percent disagreed or strongly disagreed.

Research Question Three

The third research question, "What are other organizations doing to encourage EMT-Bs to become EMT-Ps that might apply to Howard County DFRS?" was addressed by review of literature.

The literature review found that numerous agencies have reported significant problems recruiting students for paramedic programs ("Fewer paramedic students," 2002) and for hiring EMT-Ps ("National EMS leaders," 2004; "EMS employers struggle," 2004; Jarrard, 2003; "Consider these," 2004; "Fewer paramedic students," 2002).

There were several factors identified as possibly contributing to the shortage of EMT-P students and graduates. The Bureau of Labor reports that demand in general for EMS workers will grow faster than average through the year 2012 (*Occupational Outlook Handbook*, 2005). This would indicate that demand, in general, has increased given a fixed applicant pool.

The increase in the required number of EMT-P training hours, which increased from 600 to 1066 as dictated by the 1998 NHTSA curriculum, was also cited as a possible reason that the applicant pool may be decreasing (EMS employers struggle," 2004; "Fewer paramedic students," 2002).

The introduction of a broad EMT-I curriculum may also be decreasing the applicant pool, as students once bound for EMT-P education decide to pursue the similar EMT-I training. This is particularly true in states that allow a significant scope of practice for their EMT-Intermediates, as they appear to have fewer EMT-P program graduates (EMS employers struggle," 2004).

Another possible factor may be that would-be paramedics are diverting from EMT-P education programs. They could be being lured by the more attractive salary potential that exists in other related allied health professions, such as nursing ("EMS employers struggle, 2004), as paramedic salaries are significantly lower than in similar allied health occupations with increasing demand ("*Occupational Outlook Handbook*," 2005).

The results of the literature review concerning successful strategies that are being employed by other organizations can be classified into categories: (a) recruiting efforts, (b) providing a good work environment, (c) anticipating and planning for turnover, and (d) increasing organizational involvement in EMT-P training.

Recruiting efforts.

1. Organizations have been successful by attempting to hire people with compatible organizational values (Cartlette and Hadden, 2000)

2. Organizations have been successful by utilizing TV and radio advertisements in their recruiting efforts. The advertisements were targeted to specific group profiles ("Acadian's EMS academy," 2004).

3. Organizations have been successful by recruiting at high school sporting events ("Acadian's EMS academy, 2004).

4. Organizations have been successful by using multimedia tools that appeal to target group ("Consider these," 2004).

5. Organizations have been successful by recruiting outside of geographic boundaries ("Consider these," 2004).

6. Organizations have been successful by offering applicants sign-on bonuses to initiate employment ("Consider these," 2004; "Fewer paramedic students," 2002).

7. Organizations have been successful by providing affiliation opportunities for local high school students (Jarrard, 2003; Consider these, 2004).

8. Organizations report success by working closely with high school guidance counselors ("Consider these," 2004).

9. Organizations have been successful by marketing their non-monetary benefits to prospective employees (Jarrard, 2003).

10. Organizations have been successful by providing relocation expenses for new employees ("Fewer paramedic students," 2002)

11. Organizations that are fire service based, that typically hires in groups for "recruit classes," have had success hiring EMT-P licensed providers and employed them until a recruit class was started ("Fewer paramedic students," 2002).

Providing a good work environment

1. Organizations have been successful by clearly and conspicuously communicating agency values to employees and customers (Terez, 2000).

2. Organizations have been successful by applying organizational values to employees as well as customers (Terez, 2000).

3. Organizations have been successful by accepting employee mistakes if their best effort was given (Terez, 2000).

4. Organizations have been successful by allow employees to realize some fun with their work (Terez, 2000).

5. Organizations have been successful by requiring and valuing complete honesty (Terez, 2000).

6. Organizations have been successful by satisfying the basic safety and security needs of employees above all else (Cole, 2000).

7. Organizations have been successful by providing good compensation, benefits, and rewards to their employees (Cole, 2000; “Consider these,” 2004).

8. Organizations have been successful by providing and facilitating affiliation opportunities for their employees, so that they feel as though they belong to something meaningful (Cole, 2000).

9. Organizations have been successful by providing opportunities for growth and development (Abbasi, 2000; Cole, 2000).

10. Organizations have been successful by allowing for harmony of work and home life (Abbasi, 2000; Cole, 2000).

11. Organizations have been successful by creating policies that are perceived by employees as a reason to stay with the organization (Abbasi, 2000).

12. Organizations have been successful by implementing policies where they sponsor and facilitate emergency medical research (”Acadian’s EMS academy, 2004).

13. Organizations have been successful by creating a good career ladder for their employees (“Consider these,” 2004).

14. Organizations have been successful by implementing increased pay for measured performance (“Consider these,” 2004).

15. Organizations have been successful by maintaining extremely high standards in order to retain high performing employees and increase the meaningfulness of their work (Cartlette and Hadden, 2000; Cole, 2000).

16. Organizations have been successful by providing assistance to employees with childcare (“Fewer paramedic students,” 2002).

Anticipating and planning for turnover.

1. Organizations have been successful by anticipating and planning for a specific amount of employee turnover (“Military lessons,” 2004)

2. Organizations have been successful by calculating and increasing their appreciation the cost of replacing an employee (“Consider these,” 2004).

Increasing organizational involvement in EMT-P Training

1. Organizations have been successful by pay tuition costs of EMT-B and EMT-P programs for employees (“Consider these,” 2004; “Fewer paramedic students,” 2002).

2. Organizations have been successful by hiring untrained applicants and training them first to EMT-B and then to EMT-P (Little Rock creates,” 2004)

3. Organizations have been successful by providing their own training EMT-P training programs (“Little Rock creates,” 2004).

4. Organizations have been successful by design and implementing their own accelerated EMT-P training programs (“Little Rock creates,” 2004).

5. Organizations have been successful by compensating employees to attend EMT-P training programs (“Distance learning,” 2004; “Little Rock creates,” 2004; ”WorkSource funds,” 2004).

6. Organizations have been successful by including OT as an incentive when paying employees to attend EMT-P training programs (“Little Rock creates,” 2004).

7. Organizations have been successful by recuperating some of the training costs from employees once their wage was increased following completion of the EMT-P program (“Little Rock creates,” 2004).

8. Organizations have been successful by using live video technology to reach more students at varied locations (”Acadian’s EMS academy, 2004; “Distance learning,” 2004).

9. Organizations have been successful by designing non-traditional modes of study, such as methods to train employees when they are on-duty at the station so they eliminate the need to pay additional employees to cover positions while students are in class (“Consider these,” 2004; “Distance learning,” 2004).

10. Organizations have been successful by designing methods of increasing access to program educational materials so that they can be accessed from the employees’ homes while off-duty (“Distance learning,” 2004).

11. Organizations have been successful by assigning students to a specific preceptor during their class and clinical to facilitate the educational process (“Distance learning,” 2004).

12. Organizations have been successful by using available grants to recuperate some of the EMT-P training costs (WorkSource funds,” 2004).

Discussion

Research Question One

Regarding the first research question, “What do HCDFRS Firefighter/EMT-Bs perceive as the negative (discouraging) and positive (encouraging) aspects being a HCDFRS Firefighter/EMT-Paramedic,” the questionnaire revealed the issues that FF/EMT-Bs felt strongest about.

The issue that they felt was most encouraging was that the "ALS equipment that the department utilizes is state-of-the-art" (see Appendix D20). Second most encouraging was that the "required EMT-P continuing education classes are compensated" (see Appendix D26). Third most encouraging was that "the level of care the department provides is the highest allowed by the state" (see Appendix D21). The most discouraging issues were felt to be "the quantity of engine/suppression time for paramedics is less than for BLS providers" (see Appendix D12) and "some assignments, such as tower companies, are unavailable for paramedics" (see Appendix D18). But they felt less strongly about the discouraging issues than they did about the encouraging issues, as indicated by their mean ratings.

These issues are consistent with some of the successful strategies that have been used by other agencies. Providing the highest level of care allowed by the state and using state-of-the-art equipment are both consistent with setting high standards (Cartlette and Hadden, 2000; Cole, 2000), and making the employees feel like both the mission of the department and it's employees is important (Cole, 2000; Terez, 2000). It is encouraging to note that, while both would be of importance in their decision to become a paramedic, two of the three issues that EMT-Bs felt strongest about were quality issues. Compensating employees for required continuing education training is also consistent with the results of the literature review regarding the practice of paying employees to attend required training ("Distance learning," 2004; "Little Rock creates," 2004; "WorkSource funds," 2004).

It is interesting to note that these results differ somewhat from the feelings of employees that are already EMT-Ps in HCDFRS. When responses from FF/EMT-P personnel are included in the analysis, it is evident that they felt much stronger about the same two discouraging issues, that "some assignments, such as tower companies, are unavailable for paramedics" (see

Appendix D18) and that “the quantity of engine/suppression time for paramedics is less than for BLS providers” (see Appendix D12). For the latter, 49 percent of FF/EMT-Ps felt this was very discouraging, while only 14 percent of FF/EMT-Bs felt the same way. Another issue with great disparity was “there are additional staffing details required of paramedics” (see Appendix D17). Sixty-nine percent of FF/EMT-Ps felt this was discouraging or very discouraging, while only 32 percent of FF/EMT-Bs felt the same. Similarly, 44 percent of FF/EMT-Ps felt the issue that “paramedic personnel are generally busier during their shift due to their additional EMS responsibilities” was discouraging or very discouraging (see Appendix D24), but only 14 percent of FF/EMT-Bs felt that to be the case.

These differences are important to note, as being able to anticipate the change in perspective when an employee becomes an EMT-P could be a valuable insight for HCDFRS managers. They could possibly be used as a prediction of how EMT-Bs that complete EMT-P training might feel in a few years. Also, these differences may provide a warning that implementing department-wide change dealing with these issues may be more difficult, as the two groups of employees view things quite differently. How resistance to change is related to this comparison of perspective is a fitting topic for further research.

Research Question Two

The questionnaire also revealed what FF/EMT-Bs felt strongest about for the second research question “What do FF/EMT-Bs perceive as negative (discouraging) and positive (encouraging) attributes of EMT-P education programs, including their impression of the current department sponsored program.”

FF/EMT-Bs felt strongest about the attributes “the primary instructors for the program are DFRS instructors” (see Appendix D6), that “personnel are put on a special schedule so that

course hours are compensated and integrated into their DFRS work schedule" (see Appendix D9), and that "the class times are convenient for employees' work and personal schedules" (see Appendix D7). They felt each was encouraging. About one-third of FF/EMT-B respondents felt that each of these attributes was very encouraging.

These feelings are fairly predictable, and are consistent with what other agencies around the country have also realized. Other agencies have successfully recruited students and employees by providing their own EMT-P education programs ("Little Rock creates," 2004), compensating employees to attend the training ("Consider these," 2004; "Distance learning," 2004; "Little Rock creates," 2004; "WorkSource funds," 2004), and integrating the training into an existing work schedule to maximize employee convenience ("Consider these," 2004; "Distance learning," 2004).

The strongest FF/EMT-B responses to their impressions of the Howard County Community College EMT-P program were to "the academic program is challenging" (see Appendix D32), "the prerequisite college courses keep personnel from entering the program" (see Appendix D35), and "the instructors are qualified" (see Appendix D34). They agreed with each of these statements.

Sixty-two percent of FF/EMT-Bs agreed or strongly agreed that "the prerequisite college courses keep personnel from entering the program" (see Appendix D35). This clearly identifies that this is a significant issue for HCDFRS.

Research Question Three

The literature review revealed numerous strategies that have been successful for other agencies. There are several that HCDFRS is already using, at least to some degree.

For recruiting, HCDFRS is providing affiliation opportunities for local high school students (Jarrard, 2003; Consider these, 2004), working closely with high school guidance counselors ("Consider these," 2004), and using multimedia tools that appeal to the target group ("Consider these," 2004). HCDFRS has a high school program, taught by HCDFRS instructors, designed to funnel local high school graduates into the local community college based EMT-P program, providing them with EMT-B training, firefighting training, and facilitating completion of some college prerequisites while they are still in high school. Additionally, in order to have the capacity to design multimedia recruitment and training devices, HCDFRS has a dedication position for audio-visual media, and has invested significantly in multimedia equipment.

For providing a good work environment, HCDFRS is accepting of employee mistakes if it is felt their best effort was given (Terez, 2000), providing a good career ladder for their employees ("Consider these," 2004), providing opportunities for employee growth (Abbasi, 2000; Cole, 2000), providing affiliation opportunities for their employees (Cole, 2000), and satisfying employees safety and security needs above all else (Cole, 2000). Due to the many missions given to the Department of Fire and Rescue Services by the County, there is a good career ladder in place that offers employees the opportunity to gain experience in EMS, firefighting, emergency management, public education, fire inspection, fire investigation, communications, information and technology, instruction, and a host of administrative assignments. Affiliation opportunities are plentiful in the fire house setting of the fire service, but the department also sponsors awards ceremonies, an annual fire department expo for the public, and an elaborate annual "bring your kids to work day." HCDFRS pays for annual physicals and stress tests, delivers wellness and vaccination programs to employees, and has a Health and Safety Officer that proactively addresses health and safety concerns.

For increasing organizational involvement in EMT-P training, HCDFRS offers limited tuition reimbursement as a standard employee benefit. HCDFRS also provides growth opportunities to EMT-Ps by facilitating their ability to be preceptors and instructors for continuing education classes (Abbasi, 2000; Cole, 2000), for which EMT-Ps are paid overtime to teach or attend ("Little Rock creates," 2004). Each of these issues was viewed as encouraging by FF/EMT-Bs on the questionnaires.

Several of the strategies revealed in the literature review, although successful, would require significant infrastructure changes for HCDFRS to employ. The technological ability to beam live lectures ("Acadian's EMS academy, 2004; "Distance learning," 2004), develop content and assure Internet access from home accounts ("Distance learning," 2004), and to teach firefighters electronically while in the station ("Consider these," 2004; "Distance learning," 2004) are all worthwhile goals. However, it would be difficult to put them in effect in the short-term. Instead, these strategies would need to be incorporated in a mid-range department plan.

One strategy that bears more investigation and research is the actual success, including the EMT-P graduation rate, of programs that hire untrained applicants, send them through EMT-B training, and them on to EMT-P training (Little Rock creates," 2004). This seems risky from the standpoint of investing significant time and resources in an applicant with no health care or emergency service background, one that has not had an opportunity to show any truly informed desire, aptitude, or capacity for the unique job characteristics of an EMT-P. This would most effectively be evaluated when a person performs as an EMT-B in the emergency setting.

Recommendations

There were several strategies that had both merit and could be applied by HCDFRS. Almost all were empirically worthwhile. The recommendations of this ARP are made in consideration of which ones would have the most impact in the shortest time frame for HCDFRS.

Recommendation One

In order to apply principles of ensuring employee growth, ensuring an adequate career ladder, and to remove identified discouraging issues, the department needs to make solving the problem of providing an adequate quantity of engine/suppression time for FF/EMT-P personnel, and removing limitations of their possible assignments both department-wide high priorities.

By not providing adequate suppression opportunities, HCDFRS is not providing a critical opportunity for FF/EMT-P employee growth, as the career ladder demands fire officer competency. This discourages potential new paramedics and provides existing paramedics a reason to give up their EMT-P license.

Recommendation Two

In order retain and encourage high performing employees, the department needs to apply the principle of clearly establishing and communicating that delivering an extremely high standard of BLS and ALS medical care is a core department value. This can be done by having a conspicuous and well-distributed plan that identifies EMS as a primary department mission, and moves to again achieve the ability and set as the standard true EMT-P level of care to all ALS patients. This should include the implementation of policies that assure that all uniformed personnel play an active role in the delivery of EMS, no matter what their medical certification or assignment. This would foster the team concept, needed to make it a truly department-wide

value, by providing a clear and meaningful objective to serve as common ground for all employees. It should be clear that this is in no way conflicts with investing in employees to facilitate them becoming EMT-Is, as this is a valuable step on the way to EMT-P.

Recommendation Three

In order to apply the principles of assuring high standards, facilitating employee growth in the field of medicine, and providing a good career ladder, the department needs to create a clinical specialist position within the department. That position's primary responsibilities would be to make inroads with clinical institutions, set goals and performance measures for EMS delivery, measure those goals and supply feedback to the providers, and to encourage and facilitate employee involvement in EMS research. This would provide valuable opportunities for employee growth in the field of medicine, assure personnel that high standards of medical care are a paramount department value, give more meaning to the medical aspects of their work, and would provide a concrete resource to set and achieve high standards for medical care provision.

Recommendation Four

In order to realize an EMT-P education program with identified encouraging attributes, the department needs to put in place an appealing EMT-P education program that allows an EMT-I to be achieved at a mid-point. The program should utilize HCDFRS personnel as primary instructors and keep the class primarily HCDFRS personnel. Prerequisite/co-requisite course material should be integrated into the program, contracting with college and academic institutions if needed. Students should be placed on a special schedule that conveniently integrates course hours with their work hours. Use this primary education program to provide further teaching and development opportunities to EMT-P providers.

Recommendation Five

In order to capitalize on the few EMT-P qualified applicants that do exist in the workforce, the department needs to develop a flexible hiring method for individual EMT-P licensed applicants, or students near completion of the EMT-P program, prior to the start of a recruit class. This would require altering the hiring process so it could be provided on an on-going basis or for small groups of EMT-P qualified individuals, and providing a position for these individuals until a recruit class could be started. Consider making a firefighter background as required experience in order to minimize the risk of academy failure.

Recommendation Six

In order to increase the options for different modes of study and enhance the educational experience of the EMT-P program, the department needs to begin development of methods so that enrolled students have access to course materials while on-duty in the station and off-duty at home. Use these technologies to integrate course instruction into venues outside the traditional classroom, possibly in the station while on-duty, in order to reduce traditional classroom instruction hours and program costs.

Recommendation Seven

In order to reduce the amount of time it would take for an employee to complete a community college based EMT-P program, to enhance the knowledge of paramedics that were trained under the 1985 NHTSA curriculum, and to encourage employees to pursue a college degree, the department need to assure access to and facilitate employee efforts to attend those college courses that are typically EMT-P prerequisite/co-requisites. These include English, biology, and anatomy and physiology. This would allow for employee growth, increase competency, and assist EMT-Bs meeting most college EMT-P program entry requirements,

which would essentially shorten their EMT-P program time. EMT-Bs that complete these prerequisites in a facilitated fashion would then not have them as a discouraging factor to prevent their enrollment in further EMT-P courses.

Recommendation Eight

In order to efficiently anticipate emerging needs for EMT-Ps, the department needs to establish a minimum target number of EMT-P licensed providers for each rank level, Firefighter, Heavy Vehicle Operator, Lieutenant, Captain, Battalion Chief, Deputy Chief, and Chief Deputy. This would facilitate the visualization of trends between rank, and aid in anticipating the need for EMT-P personnel, and thus help guide resource allocation.

Reference List

Abbasi, S. M. (2000, Fall). Turnover: The real bottom line [Electronic version]. *Public Personnel Management.* Retrieved May 11, 2005, from http://www.findarticles.com/p/articles/mi_qa3779/is_200010/ai_n8926885, from the www.findarticles.com database.

Acadian's EMS academy solves statewide EMT-P shortage. (2004, October). *EMS Insider*, 31(10), 7.

Bureau of Labor Statistics, U.S. Department of Labor. (n.d.). *Occupational Outlook Handbook, 2004-05 Edition.* Retrieved May 10, 2005, from http://www.bls.gov/oco/ocos101.htm

Cason, D. (1999, April 1). New curriculum will increase professionalism [Electronic version]. *Fire Chief.* Retrieved April 22, 2005 from http://firechief.com/mag/firefighting_new_curriculum_increase/

Catlette, B., & Hadden, R. (2000, July 28). Feature: prepare employees for their next job and they'll stick around. *Workforce Management*. Retrieved May 11, 2005, from http://www.workforce.com/archive/feature/22/24/42/224182.php

Cole, C. L. (2000, August). Building loyalty. *Workforce Management*, 79, 8. Retrieved May 11, 2005, from http://www.workforce.com/archive/article/22/11/02.php

Consider these recruitment & retention ideas. (2004, September). *EMS Insider*, 31(9), 8.

Distance learning brings EMT-P training to fire station. (2004, June). *EMS Insider*, 31(6), 8.

EMS employers struggle with paramedic shortages. (2004, April). *EMS Insider*, 31(4), 8.

Fewer paramedic students aggravates EMS staffing shortages. (2002, July). *EMS Insider*, 29(7),1-5.

Howard County Department of Fire and Rescue Services. (2004). *2004 strategic plan.* Columbia, MD.

Jerrard, J. (2003, May). Two very different EMS agencies share their recruitment challenges and solutions. *EMS Manager & Supervisor,* 5(5), p1-2.

Little Rock creates fast-track EMT/EMT-P programs. (2004, May). *EMS Insider*, 31(5), 8.

National EMS leaders choose top priorities. (2004, June). *EMS Insider*, 31(6), 1-4.

Military lessons on recruitment & retention. (2004, December). *EMS Insider*, 31(12), 8.

National Association of State Emergency Medical Service Directors. (2005). *The national EMS scope of practice model: freedom within limits (draft 2.0).* Falls Church, VA.

National Highway Traffic Safety Administration, U.S. Department of Transportation. (1996). *EMS agenda for the future*. R.etrieved January 3, 2005, from http://www.nhtsa.dot.gov/people/injury/ems/agenda/emsman.html

National Highway Traffic Safety Administration, U.S. Department of Transportation. (1998). *EMS education agenda for the future*. Retrieved January 3, from http://www.nhtsa.gov/people/injury/ems/FinalEducationAgenda.pdf

National Highway Traffic Safety Administration, U.S. Department of Transportation. (1999). *Emergency Medical Technician – Paramedic: national standard curriculum.* Retrieved January 3, 2005, from http://www.hultgren.org/library/curriculum/98_dot_p.pdf

National Highway Traffic Safety Administration, U.S. Department of Transportation. (1999). *Emergency Medical Technician – Intermediate: national standard curriculum. Re*trieved January 3, 2005, from http://www.nhtsa.dot.gov/people/injury/ems/EMT-I/index.html

Terez, T. (2000, July 28). Feature: happy employees often stem form clear values. *Workforce Management*. Retrieved May 11, 2005, from http://www.workforce.com/archive/feature/22/24/42/223559.php

WorkSource funds paramedic students. (2004, July). *EMS Insider*, 31(7), 8.