# Maryland
# EMS Work Force Report

# September 1, 2005

**Maryland Institute for Emergency Medical Services Systems**
**653 West Pratt Street**
**Baltimore, Maryland 21201**

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# Executive Summary

## Background and Purpose

The Emergency Medical Services (EMS) work force in Maryland is comprised of over 30,000 providers functioning in volunteer, career, and commercial EMS services. Adequate staffing levels are essential to ensure timely access and delivery of safe and quality emergency patient care. Despite continuous efforts, some EMS services indicate that they are not able to maintain adequate staffing levels. This problem is particularly acute at the Advanced Life Support levels. Many EMS services in Maryland have initiated recruitment and retention programs and salary incentives and are conducting educational programs to "fast-track" EMS provider training. Despite these efforts, many EMS services are struggling to fill existing vacancies. This problem is not isolated to Maryland. Similar trends have been reported in national EMS organizations and publications, newspapers, and other states' studies.

The Maryland work force study was initiated to identify issues and gather data to assist EMS leaders in developing strategies for the recruitment and retention of EMS providers. A Work Force Committee was assembled consisting of representatives from EMS and fire services (volunteer, career, and commercial), EMS educational programs, the Maryland State Firemen's Association, the Maryland Council of Academies and the Metro Fire Chief's Association. The primary goal of the Work Force Committee was to define and identify the extent of the recruitment and retention problem in Maryland. Data, information, and recommendations from the report should be used to assist the leadership of local, jurisdictional, and State EMS and fire services with the development and/or improvement of recruitment and retention programs.

## Existing System in Maryland

**Demographics:** As of August 2004, there were 18,128 certified or licensed providers (15,323 certified EMT-Bs, 361 licensed CRTs, 252 licensed CRT-Is and 2,192 licensed EMT-Ps) in Maryland. Since 1991, the total number of EMS professionals has fluctuated, from a low of 12,871 in 1991 to a high of 18,774 in 2002. Per capita, the number of providers has fluctuated since the 1990s ranging from 2.65 EMS providers (EMT-B, CRT, CRT-I, & EMT-P) per 1,000 people in FY1991 up to 3.65 EMS providers per 1,000 people in FY1995/FY1996. ALS providers (Cardiac Rescue Technicians and EMT-Paramedics) have increased from 1,813 providers in FY1991 to 2,805 providers in FY2004. Paramedics alone have increased over four hundred percent since FY1991. The number of paramedics per capita has also increased from 0.37 in FY1991 to 0.50 paramedics per 1,000 people statewide in FY2004.

**EMS Educational Programs:** While the demand for providers, particularly ALS, continues to grow, the total number of EMS providers graduating from Maryland educational programs has also grown. The 21 state-approved educational programs are capable of producing enough providers to meet the needs of the EMS system. Continuing education programs are available in a sufficient number throughout the State to ensure that providers have convenient access to meet their license/certification renewal requirements.

**Call Volume:** Maryland has seen a 10% increase in the number of EMS calls over the past four years while the number of priority 1 calls declined approximately 13% between CYs 1999 and 2003. No one jurisdiction has experienced a dramatic increase, although the Baltimore/Washington metropolitan area (Montgomery, Prince George's, Howard, and Frederick counties) has seen the largest growth in population.

## Maryland EMS Work Force Study Findings

In contrast to anecdotal reports and the experience offered by other states, the work of this task force did not reveal significant problems with recruitment and retention of providers at the Basic Life Support level. Over the past decade, the number of providers at these levels has increased proportionately to population and call volume. In contrast, a survey of jurisdictions revealed that there is an increasing demand for ALS providers. Data indicate that educational programs in Maryland are graduating sufficient providers at this level to maintain current levels of ALS providers on a statewide basis. However, there are indications that staffing patterns utilized by local jurisdictions and "over-triaging," i.e. sending ALS providers to calls more appropriate for BLS response, may be contributing to the demand for additional providers at the ALS level. These issues are discussed further within this summary and within the text of the report.

The survey and deliberations of the committee did reveal concerns consistently expressed by providers related to work conditions and other factors that impact providers' job satisfaction. These issues could ultimately lead to more pressing recruitment and retention problems at all levels in the coming years and should be addressed before these problems grow. The ratio of EMS providers to population has remained steady for the past decade. Maryland's population has increased approximately 11% and the number of EMS providers has increased 13%. The ratio of EMS providers to EMS calls has also remained steady with a 13% growth in EMS calls statewide since 1998. Despite the steady growth in population, steady increase in call volume, and the growing number of EMS providers, there is an ever-increasing demand for additional EMS personnel, especially at the ALS level. Volunteer services throughout the state have begun to hire full- and part-time EMS providers (predominately ALS) to ensure 24/7 coverage for their communities. Volunteer services appear to have the greatest difficulty maintaining coverage during the daytime hours when members of the community are not available because of work commitments.

Career services are adding additional ALS personnel to staff medic units with two ALS providers while also adding ALS personnel to first response vehicles such as fire and rescue apparatus. This action likely reflects an effort to improve response and quality of patient care by decreasing the time it takes to get ALS to the patient's side.

The number of commercial EMS services responsible for the majority of Maryland's interfacility transports has decreased over the past decade, as well as the number of units licensed by the MIEMSS State Office of Commercial Ambulance Licensing and Regulation.

EMS providers statewide were surveyed to determine their level of satisfaction with their service and the overall EMS system. Approximately 8,200 copies were distributed. An electronic reporting process was created and posted on the MIEMSS, MFRI, and MSFA websites where the EMS provider could log on and complete an electronic version of the survey. Paper copies were returned to MIEMSS, optically scanned, and the data reconciled with the data from the responses received electronically. A total of 2,952 responses were returned, 1,266 on paper and 1,686 electronically, the total responses representing 15% of the 19,551 licensed/certified EMT-Bs, CRTs, CRT-Is, and EMT-Ps in the State. The most significant findings follow:

**The top five factors (in rank order) EMS providers identified as "Important and Satisfied" are as follows:**

1. A feeling of helping people (tie for first)
1. Ensuring patient safety/well-being (tie for first)
2. A feeling of self-satisfaction
3. Ensuring personal safety/well-being
4. Acquiring skills and gaining knowledge
5. A service with a variety of work-related experiences

**The top five factors (in rank order) EMS providers identified as "Important and Dissatisfied" are as follows:**

1. Organizational management known for leadership/direction
2. Services are valued or recognized by organization
3. Pay associated with EMS
4. Benefits associated with EMS
5. A service known for group cohesion

All three service types (volunteer, career, and commercial) agreed that pay, benefits, and an organizational management known for leadership/direction were among the five influencing factors respondents believed were important, but with which they were the most dissatisfied.

Many career and volunteer service providers disagreed with the statement "Services are valued or recognized by organization," while both career and commercial providers responding to the survey did not believe that there are "Opportunities for advancement within my organization." Commercial EMS providers did not agree that there was potential for "Self growth within the EMS organization" while volunteer providers expressed a low level of satisfaction with the amount of "group cohesion" in their service.

**The most frequently mentioned reasons why EMS providers had thoughts of leaving EMS were:**

1. Work not valued/recognized by Public
2. Family demands
3. Career advancement
4. Retirement
5. Exposure to risks/threats
6. Personal conflict
7. Work not valued/recognized by Organization
8. Salary/benefits improvement
9. Scheduling
10. Work not valued/recognized by Family

Respondents functioning in career services selected "Work not valued/recognized by Public" as their number one reason for thinking of leaving EMS. Providers in volunteer and commercial also felt the public did not value or recognize their work, ranking this element third. Volunteer services cited "career advancement" as the number one reason they thought about leaving EMS. Career and commercial services ranked this element second on their list. Commercial services ranked "Retirement" (50.39%) as the number one reason they had thoughts of leaving EMS. Retirement also ranked third on the career services' list. Exposure to risk/threats was ranked fourth by both career and commercial services as a reason for leaving EMS while volunteer providers ranked "Work not valued/recognized by Organization" fourth. Career and volunteer services agreed that "Personnel conflict" was the fifth most frequently cited reason for leaving EMS, while for commercial services, "Work not valued/recognized by Family" was the fifth most frequently cited reason.

The final section of the EMS Work Force Survey was designed to allow the EMS provider to list any **specific barriers/obstacles to recruiting and retaining providers** in their service. The most frequently identified barriers/obstacles are summarized below. A more detailed analysis of each barrier/obstacle is included later in the report.

**Pay/Compensation**

Many comments regarding pay specifically cited that salaries for EMS providers were not competitive with other healthcare occupations. Many identified the competition between jurisdictions to offer a better salary as the primary reason for leaving their present service. Based on data gathered from the Longitudinal Emergency Medical Technician Attribute and Demographic Study (LEADS) hosted by the National Registry of Emergency Medical Technicians, however, the starting salaries of Maryland EMT-Bs and paramedics are in-line with national averages.

**Personal Safety/Well-Being**

Providers' comments to barriers/obstacles included the concern over longer shifts with higher call volumes. Many providers reported working multiple jobs, often swapping between day and night shifts. Providers reported that high call volumes on long shifts, mandatory overtime and a lack of scheduled time off were leading to increased stress levels and "burnout."

In 2002 a Fire Safety and Health Committee, composed of representatives of Fire Chiefs, the Maryland State Firemen's Association, the Maryland State and District of Columbia Professional Fire Fighters, and the Department of Labor, Licensing and Regulation developed a standard health and safety program for all emergency services providers. The standard included periodic medical evaluation of emergency responders, physical exams, immunizations, and a wellness/fitness program. The implementation of the existing statewide wellness program standard developed to promote and monitor the health and safety of emergency services providers is dependent upon a funding source.

**Education/Training**

Education/training was frequently listed as a barrier/obstacle identified by the EMS providers completing the survey. These responses were largely related to the amount of time it takes to complete initial training and the additional company or jurisdictional level requirements to get "cleared" to function. The educational requirements for EMS providers continue to increase as new technology and medications are introduced into the environment.

The "demands of cross training" (EMS and firefighter) were highlighted as a barrier for recruiting EMS providers. Likewise, EMS providers listed comments regarding the disproportionate workload (between fire and EMS personnel) and regarding difficulties transitioning to suppression once providers were assigned to an EMS unit.

Continuing Education requirements were frequently listed by providers at all levels, many of whom felt the number of hours should be reduced or the recertification cycle lengthened.

Other respondents offered that the Maryland Medical Protocols for EMS Providers were too restrictive. Lack of funding for the advancement of an EMS provider was also listed as a potential barrier/obstacle for recruitment.

**Organizational Issues**

The most frequent organizational issue cited by providers was the "lack of leadership and management skills within the organization." Organizational requirements mandating that EMS providers also become firefighters and that firefighters become EMS providers are a major source of contention for career services.

"The old does not welcome the new" and "nothing scares people off as well as not feeling wanted or appreciated" were listed with other comments implying that the organizational culture may drive away potential volunteers or employees.

The process to become affiliated in multiple jurisdictions was also listed frequently as a barrier to volunteer services when attempting to attract new members who work for career services outside the counties in which they reside.

**Workload**

Workload was cited frequently as a barrier/obstacle for recruiting new EMS providers. Providers reported that career and commercial EMS services with high call volumes have greater difficulty recruiting personnel if the providers know that they will be running continuously throughout their shift. Being routinely held over, mandatory overtime, and not being allowed scheduled time off were listed frequently as obstacles by career EMS services. The actual work hours emerged as a concern from volunteer providers required to "pull-duty" a certain amount of time per month.

Providers expressed frustration with the number of unnecessary calls and calls for ALS providers that should be handled by BLS providers. It appears from the written comments that not all priority dispatch protocols are being followed. ALS providers stated that routinely responding to calls that could be handled by BLS was a serious source of frustration. One volunteer provider stated that "number of calls that wastes the time of a provider because they can be handled/triaged better prior to dispatching the ambo" was a problem. "Being just a taxi service because the patient does not have a car or way to get to the family doctor" was cited by a provider as a routine problem. A career provider from one of the largest public services in Maryland stated, "Too many BS calls, need a better screening system to provide 'emergency service,' not an 'I stubbed my toe call.'" The end result is a service that burns out its human resources on calls that do not require an advanced level of care.

**Time**

Time was the number one barrier/obstacle cited by all levels of providers in the volunteer services. The growing number of dual-worker families and single-parent families have limited the time for volunteerism. Many Americans are working longer hours, multiple jobs, and have less flexibility in their schedules. As the pool of individuals who have the time to volunteer decreases, it will become far more difficult to get volunteers who will commit to hundreds of hours of training, 24/7 availability, and additional in-station service time.

**Retirement/Benefits**

Prospective employees of career and commercial services are looking more closely at benefit packages, including health and retirement plans, as part of their decisions for employment.

Volunteer service providers also listed benefits such as tax incentives and Length of Service Awards Program (LOSAP) as considerations for remaining active in their service. Several counties in the State have used LOSAP as a tool to attract and retain volunteers to EMS services.

**Scheduling**

While scheduling patterns are often discussed in EMS services, the comments regarding scheduling as a barrier/obstacle were directly related to time and availability for volunteer providers' service. Within the career and commercial EMS services, respondents stated that long shifts (greater than 12 hours) in EMS services with high volumes were indeed barriers to recruiting and retaining providers at all levels.

## Recruitment of Women and Minorities

Women may be directed away from EMS as a career choice given the predominately male work force and the perceived physical requirements necessary to function in the prehospital setting. Percentages of women, African Americans, Asian/Pacific Islanders, and other minorities in Maryland involved in EMS training and in the provider work force were much smaller than their percentages in the state's population. A subcommittee process ultimately led to the identification of five opportunities for improvement in the recruitment and retention of women and minorities in EMS.

The participants in the nominal group process identified that career and commercial EMS services often recruit providers from the local volunteer EMS companies. Therefore, increased recruitment of minorities will benefit both volunteer services and career services. For recruitment and retention efforts geared toward minorities and women to be successful, experienced female and minority providers need to step forward as role models/mentors. The development of community specific programs, especially those based on injury prevention, should be used as a venue for volunteer and career emergency services to promote careers within the service. Finally, the subcommittee agreed the success of minority and women recruitment and retention programs will depend heavily on the organizations' commitment to diversification.

## Conclusions

In Maryland and throughout the nation, EMS services struggle with meeting the demand for EMS providers. While many EMS services in Maryland have initiated recruitment and retention programs and salary incentive programs and educational programs to "fast-track" EMS provider training, efforts at the ALS level appear to be falling short of goals.

Currently in Maryland, there are an insufficient number of licensed/certified personnel, especially at the ALS level, to staff all of the volunteer services and fill the vacant positions within career and commercial services. Maryland's thirty-nine approved EMS educational programs would appear to have the capacity to provide a sufficient number of EMS providers at all levels to meet the current and future demands.

Minority and female involvement in EMS is far less than their numbers in the general population would project. Efforts are needed to attract minorities and women to emergency medical services.

Maryland's EMS providers (volunteer, career, and commercial) believe the services they provide are not valued by the organization and/or public they serve. EMS providers attribute a portion of the State's call volume to misuse of the system, a problem they believe stems from a public's poor understanding of providers' role in the health care delivery system.

Volunteer services are continuously faced with obstacles such as time constraints and societal issues that include multiple jobs, family commitments, and the exposure to risk, threat, and possible injury. The application process, amount of training needed to function, and the additional jurisdictional and individual company requirements are all considered barriers to the recruitment of new members.

In career services, pay, benefits, schedules, organizational issues, workloads, and educational requirements are most often cited as barriers to recruitment and retention.

A significant factor increasing the demand for EMS providers, particularly at the ALS level, appears to be recent changes in staffing levels by some of Maryland's largest jurisdictions. The staffing configuration recently adopted by several jurisdictions which utilizes two ALS providers on each unit doubles the number of personnel required to provide ALS coverage in those service areas. Another factor impacting demand for ALS providers is jurisdictional policies that dispatch ALS units to all calls or that require ALS providers to do all transports. While these efforts to improve the access of citizens to ALS care are commendable, recent evidence suggests that cities in the United States with the best outcomes from cardiac arrest in fact have a lower ratio of ALS providers to population. In these cities, a relatively smaller number of well-trained and supervised EMS providers are selectively sent by emergency medical dispatchers to patients with indications for ALS level care. In such systems, ALS providers are more experienced in the care of critical patients and better able to maintain their skills. Another best practice identified is the use of a larger cadre of well-trained basic EMS providers equipped with automated external defibrillators (AEDs) who are able to respond quickly.

## Recommendations

Based on the findings in this report, the number of current vacancies, EMS provider satisfaction levels, and projected staffing requirements, MIEMSS, in partnership with the Maryland State Firemen's Association, Metro Fire Chiefs Local and the jurisdictional EMS programs, offers the following recommendations:

1. EMS operational programs should evaluate current delivery models in an effort to develop new approaches for more efficient and effective use of ALS providers that maximize outcomes from critical illness and injury.
2. EMS jurisdictions should utilize trained emergency medical dispatchers and protocols to selectively dispatch ALS providers to patients likely in need of ALS level care and should continuously evaluate compliance with protocols.
3. EMS operational programs should utilize more BLS personnel with AEDs to rapidly respond to incidents and transport patients who do not require ALS level care.
4. Public service messages should be created and distributed that effectively describe the EMS system in Maryland and the relationships between hospitals, trauma and specialty centers, local EMS jurisdictions, and providers.
5. The EMS system should take advantage of opportunities to educate the public about the role and benefits of EMS.
6. MIEMSS Public Information and Media Department should work with EMS operational programs to develop and disseminate a program that can be used to promote careers and volunteerism in EMS.
7. MIEMSS Public Information and Media Department should disseminate success stories regarding local EMS services and the statewide EMS system.
8. "Race" and "Gender" should be added to all initial and recertification applications. This data element should be tracked in the Maryland Prehospital Provider Registry.
9. Efforts to recruit and retain women and minorities in EMS should be enhanced.
10. Additional funding should be secured for EMS primary and continuing education. The additional funding should target areas of the state where ongoing educational programs may not exist.
11. MIEMSS should work cooperatively with the educational programs and hospital administrations to ensure appropriate access to clinical opportunities or, where appropriate, alternatives to clinical experiences without compromising the quality of the educational experience.
12. Funding should be provided for a statewide wellness program that promotes and monitors the health and safety of EMS (volunteer, career, and commercial) providers.
13. MIEMSS should study and make recommendations to reduce recruitment barriers related to the initial training and orientation of EMS providers.
14. MFRI and the University of Maryland Baltimore County Department of Emergency Health Services, in coordination with MIEMSS, should develop and implement a plan to provide leadership and organizational management training for personnel at the EMS supervisory level and above.
15. A program should be developed to encourage school systems (public and private) to implement EMS cadet programs for high school students.

# EMS Work Force Report

## Purpose of the Study

The work force study was initiated to assist Maryland EMS leaders in developing strategies for the recruitment and retention of EMS providers. The primary goal of the Work Force Committee's report is to provide the leadership of local, jurisdictional, and State EMS and fire services with the data and recommendations to improve recruitment and retention of EMS providers in the State of Maryland.

In Maryland, EMS and fire services (volunteer, public, and commercial) are struggling to maintain an adequate number of EMS providers, particularly those licensed/certified at the Advanced Life Support (ALS) level. In recent years, EMS representatives attending MIEMSS-sponsored committee meetings have been reporting that, despite continuous training efforts, services are not capable of maintaining adequate staffing. While the problem of insuring adequate human resources is not new to EMS, the services are facing different challenges to the old problems of recruitment and retention.

## National Trends and Surveys

Similar trends in recruitment and retention seen in Maryland have been reported by national EMS/Fire publications and newspapers nationwide. In a Washington Post newspaper article dated May 6, 2005, "Paramedic Shortage Reaches Dangerous Proportions; One Third of Paramedic Positions Unfilled," author Michael Lutzky reported that in the week prior to the article being published, five District of Columbia paramedics resigned to take jobs at other area EMS agencies offering better pay and benefits. Current salaries for Washington, D.C. paramedics reportedly range from $40,000 to $54,000. The departure of those five paramedics increased the number of vacancies to 57, representing 34% of the organizations 166 budgeted FTEs. A report drafted by the D.C. Council's Judiciary Committee estimated that if the current trend were to continue, as many as 30 additional EMS providers would leave by July 2005.

In 2004, the Colorado Department of Public Health and Environment conducted an evaluation of the status of the EMT-Paramedic work force. As part of the study, a survey was conducted to determine employer demographics and solicit opinions of employers as to what factors might impact the availability of qualified candidates. This study concluded that vacancy rates were not consistent among the state's three regions. The two factors most frequently cited by respondents as having high impact on the EMT-Paramedic work force were the cost of initial education and the difficult access to Colorado's eight EMT-Paramedic training centers (all of the centers were located in one specific region of the state).

In an address to the Institute of Medicine (IOM) in September 2004 entitled "EMS Work Force Issues 2004," John Becknell identified the following leading work force issues: recruitment, education and training, salary and benefits, retention, turnover, work force diversity, career paths, professional development, health and safety, and reciprocity. Key findings and conclusions offered in his presentation included:

- Employment in EMS is projected to grow at greater rates, as paid emergency medical technician positions replace unpaid volunteers.
- The 24/7 work environment leaves providers working long shifts in all climates in systems with increasing call volumes.
- EMS providers occupy one of the 10 most underpaid job classifications in the United States, according to CBS Market Watch.
- 92% of paramedics are assaulted sometime during their career.
- 55% of rural EMS volunteers quit because of training requirements.
- The most frequent factors cited by EMTs and paramedics for leaving service were: better pay/benefits, desire to further education, and dissatisfaction with the organization's management.

The Pennsylvania State Office of Emergency Medical Services also conducted a statewide survey of EMT-Paramedics to determine their level of job satisfaction. Respondents listed "pay benefits" as the number one source of dissatisfaction followed by "work not valued or recognized," "career advancement," and "organizational management." Overall, 83% of EMT-Paramedics responding were either "satisfied" or "somewhat satisfied" with their employment. EMT-Paramedics were also asked the number of years they expect to remain in EMS. Of those who indicated they were leaving within the next five years, the two primary reasons cited for leaving EMS were "Salary/Benefit Improvement" and "Career Advancement."

The Longitudinal Emergency Medical Technician Attribute and Demographic Study (LEADS) hosted by the National Registry of Emergency Medical Technicians was designed to describe the attributes and demographics of the individuals providing emergency medical services throughout the United States. The 10-year longitudinal study began in 1998, with a focus on identifying factors that influence the careers of EMT-Basics and paramedics. Data from the interim report indicate that EMT-Basics responding to the LEADS survey were least satisfied with the amount of pay and benefits received, followed by opportunities for advancement at their job, work schedules, and having a job that is challenging. The responding paramedics reported they were least satisfied with opportunities for advancement, followed by the amount of pay and benefits, work schedule, and the technical challenges provided by the job.

## Maryland Study Methodology

MIEMSS, with input and support of numerous EMS agency and organizational representatives, reviewed local, state, and national data to identify solutions to the perceived shortage of EMS providers. A Work Force Committee was assembled consisting of representatives from EMS and fire services (volunteer, public, and commercial), EMS educational programs, the Maryland State Firemen's Association, the Maryland Council of Academies, and the Metro Fire Chief's Association. The committee was challenged with identifying trends in EMS personnel management and barriers and obstacles to recruitment and retention, in particular those related to minorities and women.

The committee met six times. A summary of each of the meetings is included in **Appendix A**. Presentations were offered by guest speakers with expertise in particular areas of interest to the committee. At each meeting the committee was provided with updates on the various components included in this report. Throughout the process, members were encouraged to provide examples of their own experiences with specific recruitment and retention projects as well as any barriers or obstacles they believed were hindering efforts at personnel recruitment and retention.

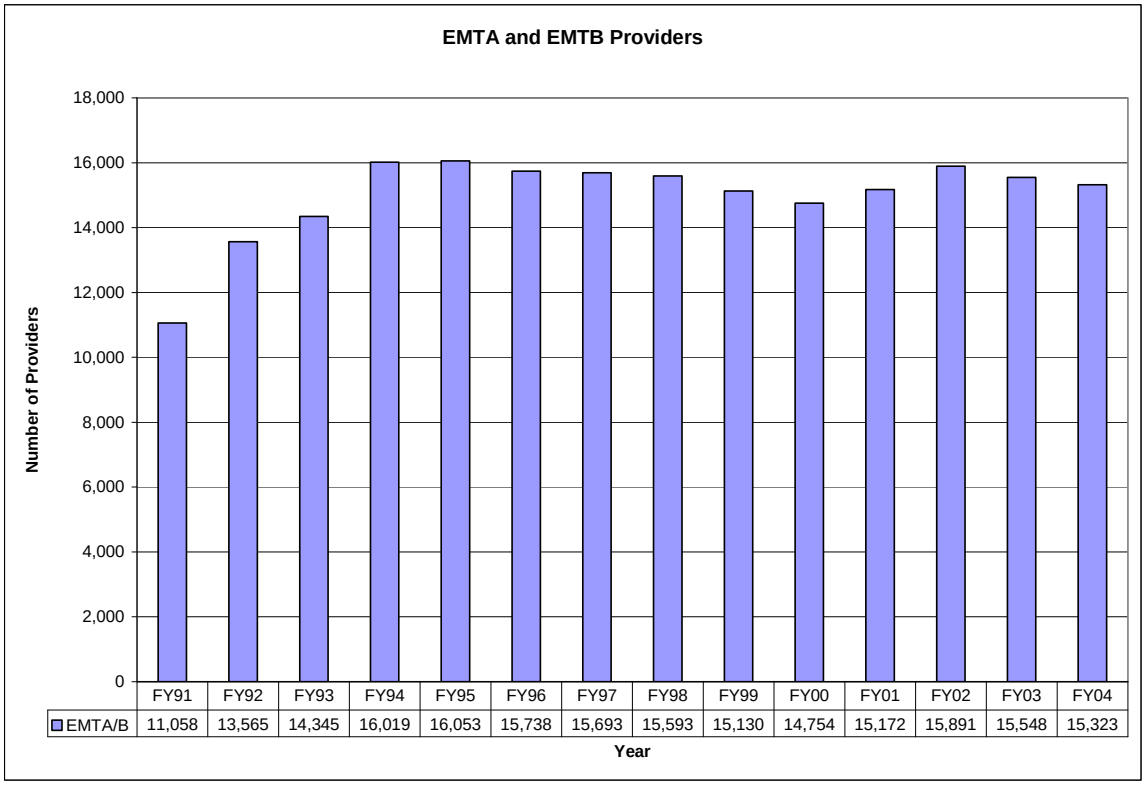
In order to obtain a better understanding of the current work force challenges in Maryland, a survey was developed by the committee and distributed throughout the state to EMS personnel certified at the Emergency Medical Technician–Basic level or higher. The survey development process was extensive and focused on three specific areas: demographics of the EMS work force; factors influencing satisfaction of the providers with EMS service/systems; and specific barriers and obstacles to recruitment and retention. The results of this survey are distributed throughout this report.

It became clear early in the survey process that the participation of women and minorities in the EMS and fire services was not proportional to their numbers in the employment of EMS. A Subcommittee of the Work Force Group chaired by Deputy Chief Kevin Simmons of the Howard County Department of Fire and Rescue Services was formed to further investigate this issue. The group completed a well-attended Nominal Group exercise that identified issues they believed served as barriers and obstacles to women and minorities entering EMS and fire services. A copy of the Subcommittee's findings and recommendations can be found in **Appendix B**.

**Appendix C** provides the membership of the Work Force Committee.

## EMS Provider Demographics

As of August, 2004, there were 18,128 certified or licensed providers (15,323 certified EMT-Bs, 361 licensed CRTs, 252 licensed CRT-Is, and 2,192 licensed EMT-Ps) in Maryland. Since 1991, the total number of EMS professionals has fluctuated, from a low of 12,871 in 1991 to a high of 18,774 in 2002.




Per capita, the number of providers has also fluctuated since the 1990s, ranging from 5.0 EMS providers per 1,000 citizens in FY1991 up to a high of 7.0 EMS providers per 1,000 in 1995 and then back down to 5.53 EMS providers per 1,000 population in FY2004 (see *Total Providers per 1000 People* chart). ALS providers (Cardiac Rescue Technicians and EMT-Paramedics) have increased from 1,813 providers in FY1991 to 2,865 providers in FY2004. Paramedics alone have increased over four hundred percent since FY1991 (see *ALS Providers* chart). The number of paramedics per capita has also increased, from 0.37 to 0.54 paramedics per 1,000 citizens statewide from FY1991 to FY2004 respectively.

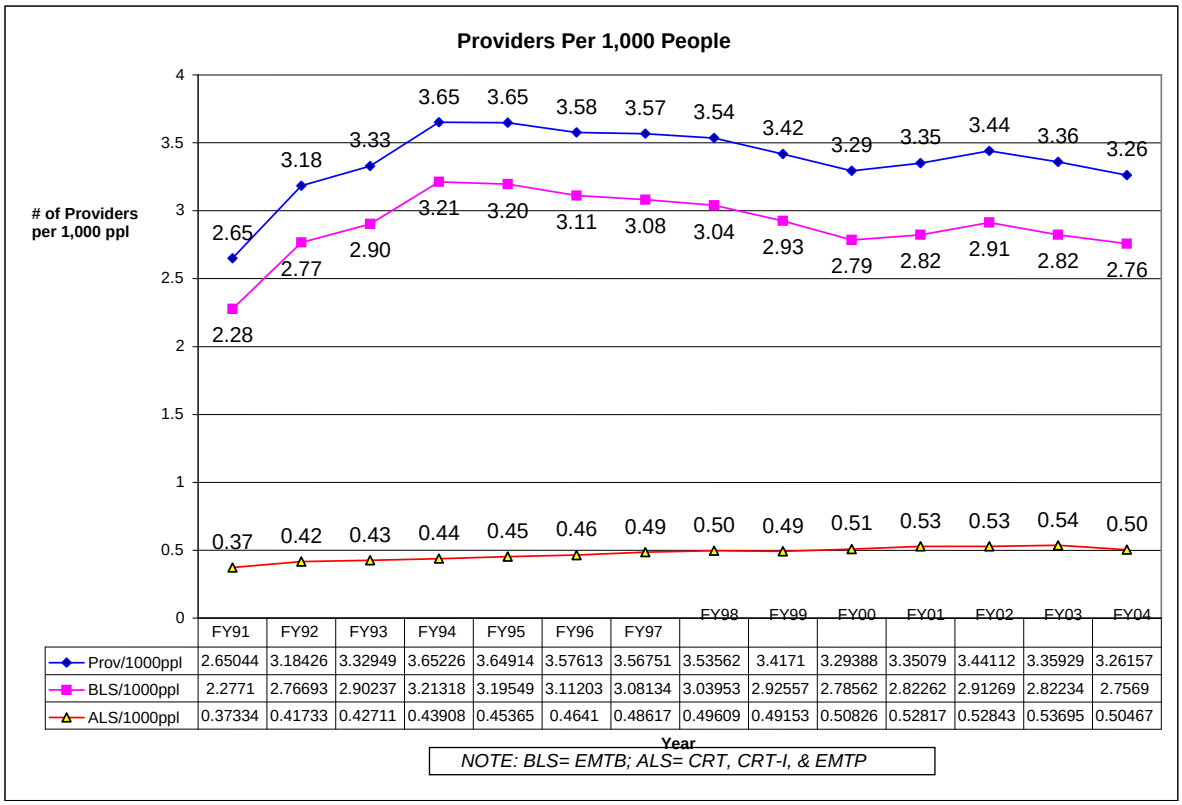
Maryland's intermediate-level provider, Cardiac Rescue Technician-Intermediate (CRT-I), has allowed for widespread advanced life support (ALS) coverage and service to communities throughout the State, especially in rural and largely volunteer settings. In 2001, the CRT program went through a curriculum revision. The EMS Board adopted the US DOT EMT-I99 curriculum as the basis for training all new CRTs, as well as the basis for updating existing CRTs to the new curriculum. The update process was designed to provide CRTs with new content not covered in their original CRT courses. The update course involves classroom and clinical time and requires successful completion of written and practical exams at course completion. Through EMS jurisdictions or educational programs, existing CRTs may acquire the update

course content to become CRT-Is. The elimination of such an intermediate-level provider would create a void between the EMT-Basic and Paramedic and thus cause many communities to be understaffed by ALS providers.

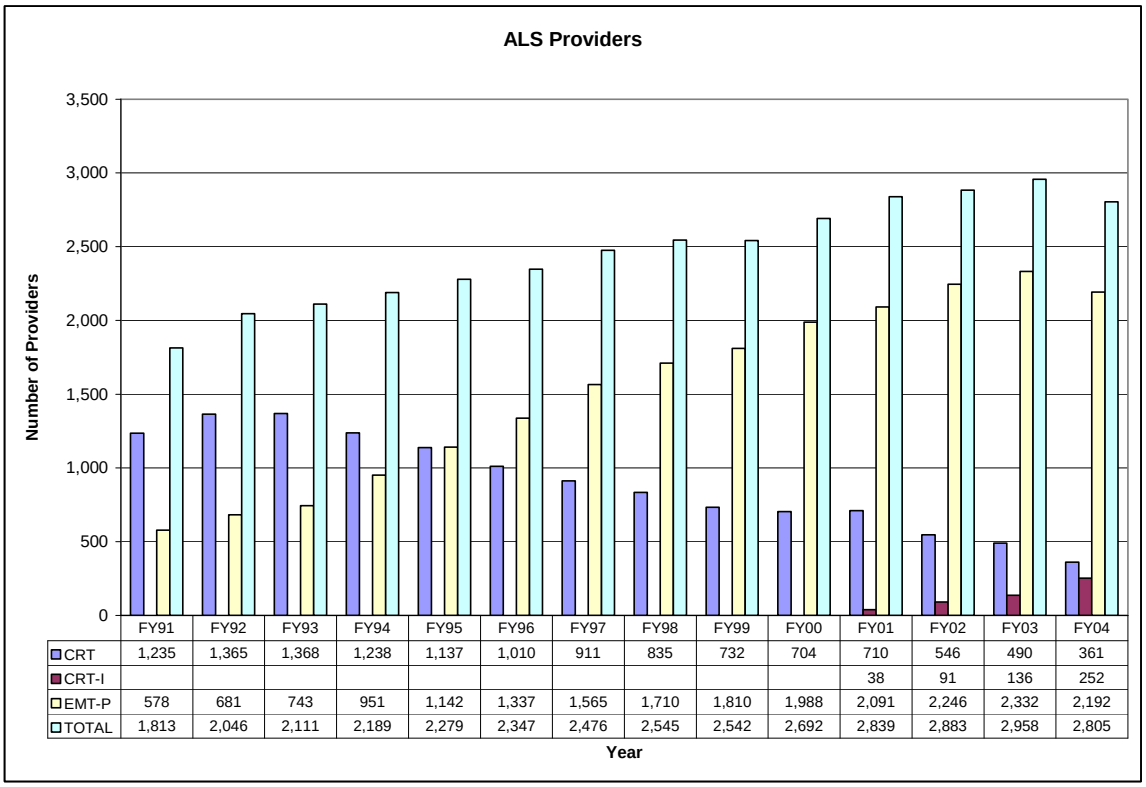
Existing CRTs licensed before June 30, 2001 have until March 31, 2008 to update to the new EMT-Intermediate curriculum via an update course. As originally planned, the course may be offered by the EMS jurisdiction/educational program through:

- a one-time 80-hour update ***or***
- two CRT continuing education licensure cycles (4 years) ***or***
- by participating in portions of a full CRT-I course to acquire the "update" information. This does NOT require the update candidate to participate in the entire EMT-I course, only the lessons necessary to achieve the 80-hour update course content.

CRTs who elect not to update to the CRT-I level have the option of maintaining their CRT status until March 31, 2008 or surrender their license to an EMT-Basic level and continue providing valuable assistance to the communities they serve.




| | FY91 | FY92 | FY93 | FY94 | FY95 | FY96 | FY97 | FY98 | FY99 | FY00 | FY01 | FY02 | FY03 | FY04 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Prov/1000ppl | 2.65044 | 3.18426 | 3.32949 | 3.65226 | 3.64914 | 3.57613 | 3.56751 | 3.53562 | 3.4171 | 3.29388 | 3.35079 | 3.44112 | 3.35929 | 3.26157 |
| BLS/1000ppl | 2.2771 | 2.76693 | 2.90237 | 3.21318 | 3.19549 | 3.11203 | 3.08134 | 3.03953 | 2.92557 | 2.78562 | 2.82262 | 2.91269 | 2.82234 | 2.7569 |
| ALS/1000ppl | 0.37334 | 0.41733 | 0.42711 | 0.43908 | 0.45365 | 0.4641 | 0.48617 | 0.49609 | 0.49153 | 0.50826 | 0.52817 | 0.52843 | 0.53695 | 0.50467 |




| | FY91 | FY92 | FY93 | FY94 | FY95 | FY96 | FY97 | FY98 | FY99 | FY00 | FY01 | FY02 | FY03 | FY04 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CRT | 1,235 | 1,365 | 1,368 | 1,238 | 1,137 | 1,010 | 911 | 835 | 732 | 704 | 710 | 546 | 490 | 361 |
| CRT-I | | | | | | | | | | | 38 | 91 | 136 | 252 |
| EMT-P | 578 | 681 | 743 | 951 | 1,142 | 1,337 | 1,565 | 1,710 | 1,810 | 1,988 | 2,091 | 2,246 | 2,332 | 2,192 |
| TOTAL | 1,813 | 2,046 | 2,111 | 2,189 | 2,279 | 2,347 | 2,476 | 2,545 | 2,542 | 2,692 | 2,839 | 2,883 | 2,958 | 2,805 |

## Supply and Demand Projections

The membership of MIEMSS' Jurisdictional Advisory Council (JAC) was surveyed and asked, "If provided with an unlimited supply of quality providers at the following levels, how many would you hire today?" The following chart provides a breakdown of responses for each jurisdiction (county), commercial ambulance services, plus Ocean City and the cities of Baltimore and Annapolis by provider level. A "V" indicates the county is all volunteer and has no paid personnel.

| | EMT-B | CRT | CRT-I | EMT-P |
|---|---|---|---|---|
| **Garrett** | V | V | V | V |
| **Allegany** | 0 | 0 | 0 | 0 |
| **Washington** | 26 | 0 | 0 | 46 |
| **Frederick** | 17 | 0 | 0 | 8 |
| **Annapolis** | 0 | 0 | 0 | 6 |
| **Anne Arundel** | 0 | 0 | 0 | 160 |
| **Baltimore City** | 0 | 0 | 0 | 70 |
| **Baltimore** | 0 | 0 | 0 | 0 |
| **BWI Airport** | 0 | 0 | 0 | 4 |
| **Carroll** | V | V | V | V |
| **Harford** | V | V | V | V |
| **Howard** | 0 | 0 | 0 | 50 |

| | EMT-B | CRT | CRT-I | EMT-P |
|---|---|---|---|---|
| **Caroline** | 0 | 0 | 0 | 0 |
| **Cecil** | 0 | 0 | 0 | 0 |
| **Dorchester** | 0 | 0 | 0 | 0 |
| **Kent** | 0 | 0 | 0 | 1 |
| **Queen Anne's** | 0 | 0 | 0 | 1 |
| **Somerset** | 0 | 0 | 0 | 0 |
| **Talbot** | 0 | 0 | 0 | 0 |
| **Wicomico** | 2 | 0 | 0 | 5 |
| **Worcester** | 0 | 0 | 0 | 0 |
| **Ocean City** | 0 | 0 | 0 | 0 |
| **Prince George's** | 80 | 0 | 0 | 12 |
| **Montgomery** | 0 | 0 | 0 | 80 |
| **St. Mary's** | V | V | V | V |
| **Calvert** | V | V | V | V |
| **Charles** | 0 | 0 | 0 | 0 |
| **Commercial Services** | 40 | 0 | 0 | 45 |

Representatives responded that as of March 1, 2005, they would hire 488 Emergency Medical Technician–Paramedics and 165 Emergency Medical Technician–Basics if they were available. None of the jurisdictions in Maryland indicated they would hire Cardiac Rescue Technicians or Cardiac Rescue Technician–Intermediates if Paramedics were available.

While the chart provides an overview of the vacancies in the paid public and commercial services within the Maryland EMS system, it does not reflect the staffing needs of the volunteer EMS services. The volunteer EMS companies in Maryland maintain a variety of staffing patterns ranging from structured “on-call” schedules to a response-based schedule dependent on who shows up when the alarm sounds. While the specific number of vacancies required to ensure a 24/7 ALS response on every call is unknown, it could be assumed that if paid services are having difficulty attracting providers (especially ALS), the volunteer services must be facing the same or greater challenges. Therefore, when projecting the number of vacancies in the Maryland EMS system based on the above chart, the reader should view this as the “best case scenario” for the system.

## EMS Educational Programs

While the number of vacancies for EMS providers, particularly in ALS, continues to grow, the total number of EMS providers in Maryland has also grown over the last 10 years. Maryland’s EMS system has thirty-three educational programs approved to offer EMS courses leading to licensure/certification and/or relicensure/recertification for EMS providers. Since 2001, Maryland EMS educational programs have graduated 6,403 EMT-Bs, 328 CRT-Is, and 628 EMT-Ps from its 21 approved ALS and BLS educational programs.

Advanced Life Support (ALS) educational programs offer advanced courses, including courses leading to licensure as a Cardiac Rescue Technician–Intermediate (CRT-I) and EMT-Paramedic. The CRT curriculum averages about 400 hours to complete, while the paramedic curriculum averages about 1,100 hours in length. Both courses include didactic, lab, clinical, and field experiences. Basic Life Support (BLS) educational programs offer courses leading to certification as a First Responder and/or EMT-Basic. The EMT-Basic curriculum is 131 hours in length, while the First Responder is 40 hours. A majority of First Responder courses and programs are offered by and for law enforcement, while the bulk of EMT-B courses are offered for EMS, fire, and rescue services.

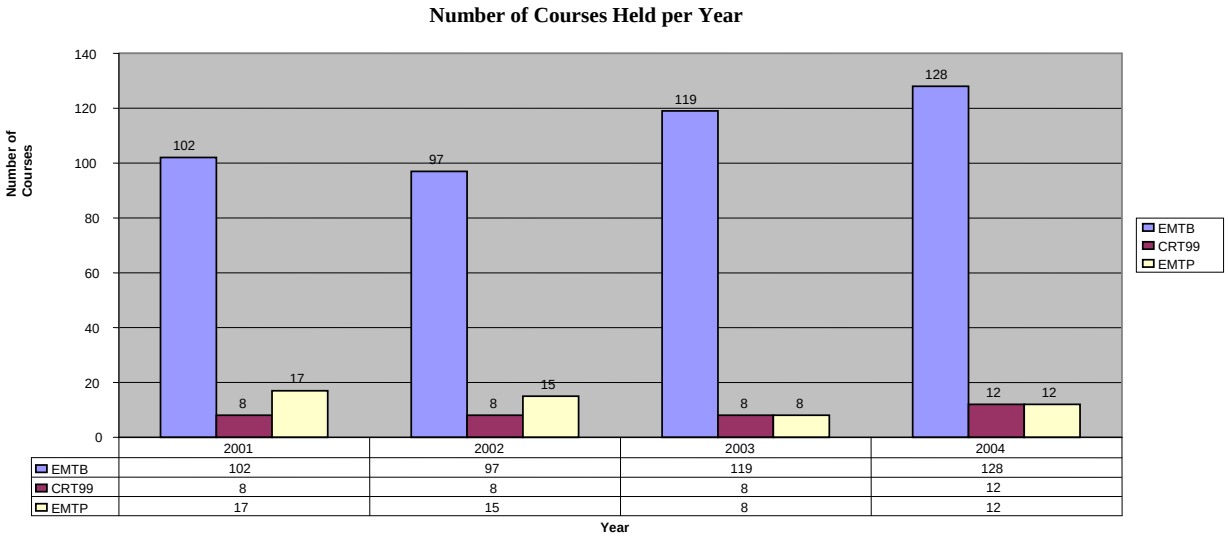
Presently, there are 39 approved EMS educational programs in the State. The approved programs are broken down as follows:

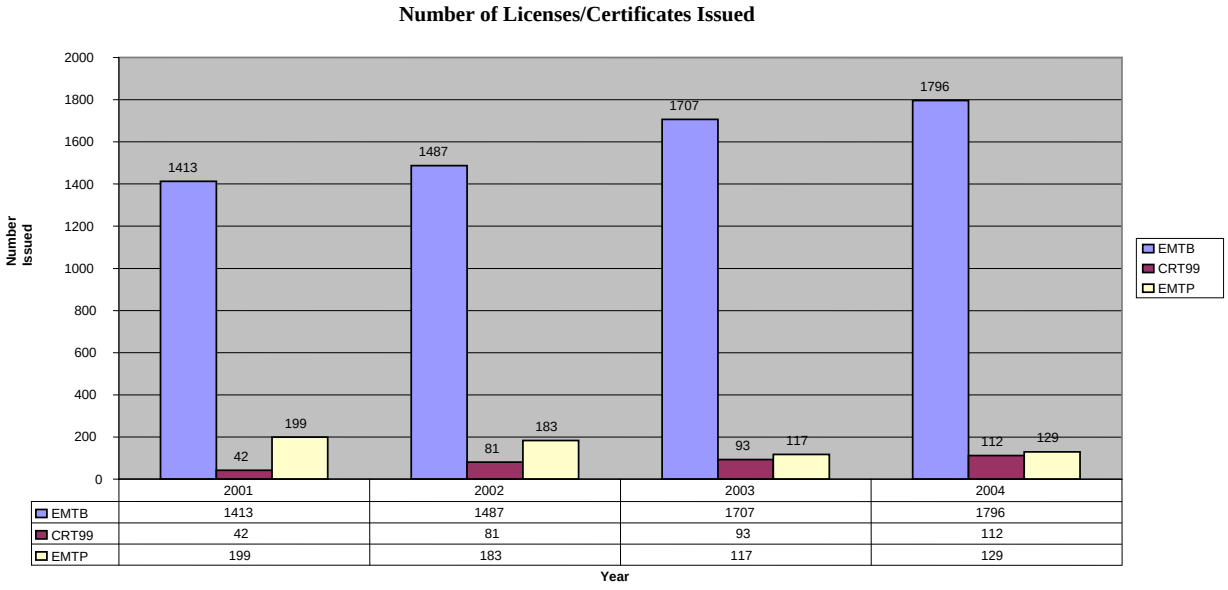
- 21 ALS educational programs (also able to offer BLS & refresher courses);
- 3 BLS educational programs (also able to offer refresher courses); and
- 15 EMS refresher educational programs.

The currently approved programs are divided into program type as follows:

- 11 academy programs;
- 16 college programs (1 university; 15 community college);
- 11 commercial ambulance programs; and
- 1 hospital/community college program.

Over the last few years, the net number of students trained and ultimately certified or licensed has increased as illustrated below.






As seen in the graphs, the number of certificates and licenses issued has increased proportionately to the number of courses held. The new ALS curricula caused a temporary decrease in the number of paramedic licenses issued, but that trend started to reverse in 2004 and is projected to continue increasing over the next few years. Given that there are twenty-one approved ALS education programs, the number of paramedics licensed every year could exceed 300, taking into consideration clinical access issues, described later, and normal attrition rates of ALS classes. Additionally, the number of CRT-Is trained could also exceed 300 if the volume of students reaches its maximum potential.

As the EMS profession continues to evolve and become increasingly sophisticated, high quality educational programs must also evolve to meet the needs of its consumers. The evolution of EMS education as outlined in the *EMS Agenda for the Future*, as well as the advent of the new EMS curricula of the 1990s have pushed educational programs to adjust significantly in some instances. The number of hours and resources for ALS curricula has expanded requiring educational programs to adjust to meet the curricula changes. These changes, compounded with the immediate need for additional EMS professionals, have resulted in the creation of unique and non-traditional methods to educate providers.

Some approved programs are using satellite programs for specific EMS jurisdictions so high volumes of ALS providers can be trained. One of these satellite programs expects to educate and license nearly 100 CRTs in one year. Given that 112 CRTs were licensed statewide in all of 2004, this goal, when achieved, will nearly double the number of newly licensed CRTs on an annual basis. The high volume of students participating in ALS courses has compounded another problem associated with the ALS education programs: clinical access. Students in these programs require access to clinical sites and are in competition with other EMS classes, as well as nursing, respiratory therapist, physician assistant, and other allied health occupations. The increased demand for a limited number of clinical sites may become a limiting factor in the volume and speed at which EMS providers can be educated.

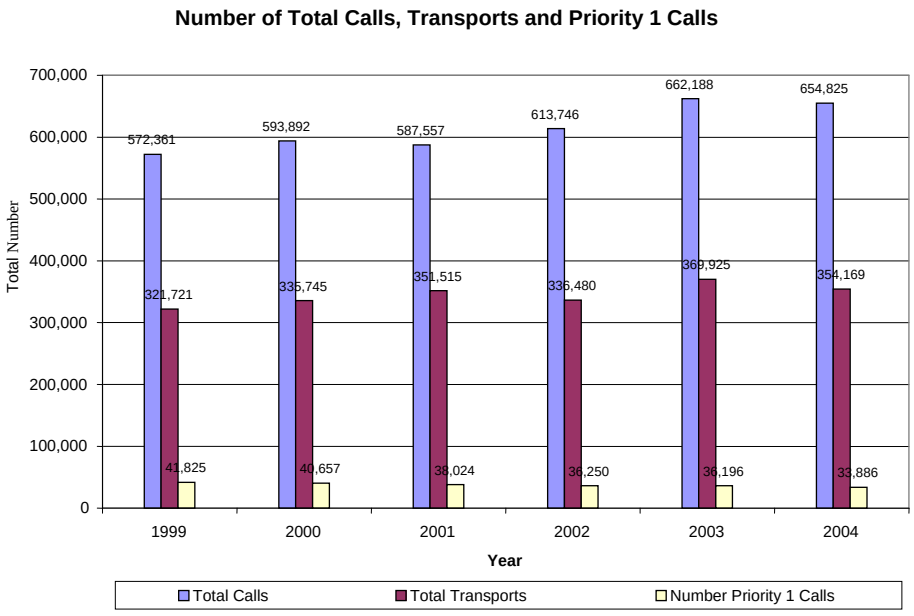
Over the last two years the statewide average of EMS providers' first-time pass rates on National Registry EMT-Intermediate and EMT-Paramedic written and practical exams have remained below the national average. A group of educators working as a subcommittee to the ALS Committee will seek to identify the causes and suggest solutions for improvement. Initial findings relate a lower success rate with faster-paced courses and with courses where minimal clinical and field experiences are offered to students. In light of the perceived shortage of ALS providers, the need to fill vacancies or soon-to-be vacancies pressures educational programs into quick turnaround times and increased volumes of students being educated.

The new curricula, especially the paramedic curriculum, emphasizes significantly more pathophysiology to equip the provider with more "depth and breadth" of knowledge and ability to think critically. The increased knowledge-level and scope of practice expansion, in addition to the high output demands placed on educational programs, has pushed them to clearly define a balance between quality and quantity. Findings from the subcommittee are scheduled to be reported to the ALS Committee in the fall of 2005. It is anticipated that the technological advances and the evolution of the health care system will continue to increase the education requirements of the EMS provider.

## EMS Call Volume

The actual demand for EMS providers is based on the call volume of a given EMS operational program. The chart in **Appendix D** (obtained from the Maryland Department of Planning) provides the population for each of the counties in Maryland and Baltimore City for calendar years 2000 through 2003. A distribution of "calls" for each jurisdiction for the same time period was added and the number of EMS "calls" per 1,000 populations was calculated. While the total number of EMS calls in Maryland has grown approximately 10% since 2000 no one jurisdiction has experienced a dramatic increase. The largest increases occurred in Baltimore/Washington metropolitan areas of the state that have experienced a dramatic growth in population for that time period.

The following chart provides a comparison of the total number of EMS calls, transports, and priority 1 patients. While Maryland's call volume and number of EMS transports increased approximately 10% the number of priority 1 calls has declined approximately 13% from a high of 41,825 in CY1999 to 36,196 in CY2003 (CY2004 data is incomplete as of this date).




## Maryland EMS Work Force Survey

To gain a better understanding of the challenges specific to Maryland, the Work Force Committee developed a survey to gather data on Maryland EMS work force trends. The survey was made available in two formats, paper and electronic, with the target group of all Maryland-certified EMT-Bs, CRTs, CRT-Is, and Paramedics.

Paper copies of the survey were distributed through various methods, including local, jurisdictional, and regional meetings, primary and continuing education programs, the MIEMSS and MFRI state and local offices, and the MSFA committee meetings. Approximately 8,200 copies were distributed. An electronic reporting process was created and posted on the MIEMSS, MFRI, and MSFA websites where the EMS provider could log on and complete an electronic version of the survey.

Paper copies were returned to MIEMSS, optically scanned, and the data reconciled with the data from the responses received electronically. A total of 2,952 responses were returned—1,266 on paper and 1,686 electronically—with the total responses representing 15% of the 19,551 licensed/certified EMT-Bs, CRTs, CRT-Is, and EMT-Ps in the State.

## Work Force Survey Results

| | Certificate/licensure status of responders in the state | % | Certification/licensure status of survey respondents | % | P-value |
|---|---|---|---|---|---|
| EMT-B | 15,323 | 84.5% | 1,757 | 63.0% | <0.0001 |
| CRT | 361 | 1.9% | 81 | 2.9% | 0.002 |
| CRT-I | 252 | 1.4% | 53 | 1.9% | 0.04 |
| Paramedic | 2,192 | 12.1% | 894 | 32.1% | <0.0001 |
| | | | | | |
| Total | 18,218 | 100% | 2,785 | 15.28% | |

Note: 167 survey responders did not complete present certification/licensure item.

The proportion of EMS personnel who responded to the survey was compared to state-wide proportion of EMS personnel based on their certificate or licensure status. All of the proportions were significantly different (p-value <0.05) for each category of certificate and licensure. A significantly smaller proportion of EMT-Bs and significantly larger proportion of paramedics responded to the survey. The response rate from both the CRT and CRT-Is was slightly higher.

**The 2,952 survey respondents are composed of 1,757 EMT-Bs (60%), 81 CRTS (2%), 53 CRT-Is (2%), 894 Paramedics (30%), and 167 not identifying their level (6%).**

| Respondent Present Certification | American Indian/ Nat Alask | Black/ African American | Asian | White/ Caucasian | Hispanic | Native Hawaiian/ Pacific Islander | Unknown | Total |
|---|---|---|---|---|---|---|---|---|
| EMT-B | 26 | 31 | 3 | 1463 | 43 | 4 | 187 | 1757 |
| CRT | 2 | 6 | 0 | 69 | 1 | 0 | 3 | 81 |
| CRT-I | 0 | 1 | 1 | 47 | 1 | 0 | 3 | 53 |
| Paramedic | 10 | 23 | 9 | 802 | 16 | 3 | 31 | 894 |
| Unknown | 0 | 1 | 0 | 51 | 3 | 1 | 111 | 167 |
| **Total** | **38** | **62** | **13** | **2432** | **64** | **8** | **335** | **2952** |

The **racial composition** of the respondents was 83% white/Caucasian, 2% black/African American, 2% Hispanic, 1% American Indian/Native Alaskan, less than 1% combined Asian and Native Hawaiian/Pacific Islander and 11% not identified by the respondents. At each level, white/Caucasians represented the largest numbers of EMS providers responding to this survey.

As with the gender distribution, there is a significant disparity between the State census estimates and the provider distribution. The racial distribution of EMT-B providers certified in the years 2002 through 2004 is provided in the following table.

**Racial Distribution of EMT-Basic Course Participants**

| EMT-Basic Course (131 hours) Enrollees | 2002 EMTB Enrollees | 2002 Maryland State Population Estimates by Percentage (N= 5,450,525) | 2003 EMTB Enrollees | 2003 Maryland State Population Estimates by Percentage (N= 5,508,909) | 2004 EMTB Enrollees | 2004 Maryland State Population Estimates by Percentage (N= 5,558,058) |
|---|---|---|---|---|---|---|
| African American, not of Hispanic Origin | 14.73% | 27.72% | 15.54% | 27.66% | 15.18% | 28.61% |
| American Indian/Alaskan Native | 0.68% | 0.26% | 0.75% | 0.26% | 0.94% | 0.29% |
| Asian/Pacific Islander | 1.63% | 4.38% | 1.95% | 4.49% | 1.71% | 4.59% |
| Hispanic | 2.40% | 4.62% | 1.58% | 4.76% | 2.87% | 5.36% |
| White | 73.76% | 61.78% | 74.49% | 61.54% | 71.31% | 59.82% |
| Unknown Race | 5.09% | 0.00% | 3.82% | 0.00% | 5.66% | 0.00% |
| Other | 1.71% | 1.25% | 1.87% | 1.29% | 2.33% | 1.33% |
| TOTAL (N) | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% |

**Racial Distribution of EMT-Basic Refresher Course Participants**

| EMT-Refresher Course (24 hours) Enrollees | 2002 EMTR Enrollees | 2002 Maryland State Population Estimates by Percentage (N= 5,450,525) | 2003 EMTR Enrollees | 2003 Maryland State Population Estimates by Percentage (N= 5,508,909) | 2004 EMTR Enrollees | 2004 Maryland State Population Estimates by Percentage (N= 5,558,058) |
|---|---|---|---|---|---|---|
| African American, not of Hispanic Origin | 9.13% | 27.72% | 10.77% | 27.66% | 11.69% | 28.61% |
| American Indian/Alaska Native | 0.43% | 0.26% | 0.52% | 0.26% | 0.62% | 0.29% |
| Asian/Pacific Islander | 0.50% | 4.38% | 0.71% | 4.49% | 0.62% | 4.59% |
| Hispanic | 1.13% | 4.62% | 1.27% | 4.76% | 1.20% | 5.36% |
| White | 84.84% | 61.78% | 81.52% | 61.54% | 79.14% | 59.82% |
| Unknown Race | 3.26% | 0.00% | 3.72% | 0.00% | 5.34% | 0.00% |
| Other | 0.70% | 1.25% | 1.50% | 1.29% | 1.40% | 1.33% |
| TOTAL (N) | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% |

Most notably, 12.54% of EMT-B certifications issued in 2002 were to African Americans, disproportionate to the 2002 State census of 27.72% of Maryland residents being African American. Also, the Hispanic population, which consists of 4.62% of the State census, only constituted 2.09% of the total EMT-B certifications issued. In EMT-B refresher courses for 2002, 9.13% of the EMT-B students were African American compared to 27.72% of the population being African American. Asians constituted 0.50% of the enrollees in EMT-B refresher courses versus 4.38% of the population. Last, Hispanics enrolled in EMT-B refresher courses totaled 1.13% of enrollees, compared to 4.62% of the estimated State population for 2002.

The mean age of all respondents was 37.15 years-of-age. The largest group of respondents was in the 31- to 40-year-old **age range**. The 31 to 35 and 36- to 40-year-old age groups were second in size and considered together given the categories varied by only 2 respondents. The third largest category of respondents was those in the 26 to 30 and 41- to 45-year-old ranges followed by the 46 to 50 and the 21- to 25-year-old ranges.

| Respondent Age Groups (Years) | American Indian/ Nat Alask | Black/ African American | Asian | White/ Caucasian | Hispanic | Native Hawaiian/ Pacific Islander | Unknown | Total |
|---|---|---|---|---|---|---|---|---|
| 16 to 20 | 1 | 1 | 1 | 85 | 10 | 1 | 30 | 129 |
| 21 to 25 | 2 | 6 | 3 | 273 | 8 | 0 | 31 | 323 |
| 26 to 30 | 7 | 9 | 3 | 325 | 9 | 1 | 36 | 390 |
| 31 to 35 | 7 | 8 | 2 | 423 | 8 | 1 | 50 | 499 |
| 36 to 40 | 6 | 20 | 2 | 411 | 8 | 1 | 53 | 501 |
| 41 to 45 | 4 | 10 | 1 | 321 | 8 | 2 | 54 | 400 |
| 46 to 50 | 5 | 8 | 0 | 281 | 6 | 1 | 31 | 332 |
| 51 to 55 | 5 | 0 | 1 | 155 | 5 | 1 | 13 | 180 |
| 56 to 60 | 1 | 0 | 0 | 77 | 1 | 0 | 4 | 83 |
| 61 to 65 | 0 | 0 | 0 | 42 | 0 | 0 | 5 | 47 |
| 66 to 70 | 0 | 0 | 0 | 10 | 0 | 0 | 2 | 12 |
| 71 or older | 0 | 0 | 0 | 6 | 0 | 0 | 2 | 8 |
| Unknown | 0 | 0 | 0 | 23 | 1 | 0 | 24 | 48 |
| **Total** | **38** | **62** | **13** | **2432** | **64** | **8** | **335** | **2952** |

| Certification | N | Mean Age |
|---|---|---|
| **EMT-B** | 1757 | 37.1 |
| **CRT** | 81 | 41.7 |
| **CRT-I** | 53 | 32.3 |
| **Paramedic** | 894 | 37.5 |

The number of responders by **gender and race** supports the belief that EMS is a white/Caucasian male-dominated occupation. Of the 2,952 respondents, 58% were white/Caucasian males and 21% were white/Caucasian females.

| Respondent Gender | American Indian/ Nat Alask | Black/ African American | Asian | White/ Caucasian | Hispanic | Native Hawaiian/ Pacific Islander | Unknown | Total |
|---|---|---|---|---|---|---|---|---|
| Female | 7 | 13 | 4 | 610 | 20 | 1 | 68 | 723 |
| Male | 31 | 48 | 9 | 1696 | 43 | 7 | 172 | 2006 |
| Unknown | 0 | 1 | 0 | 126 | 1 | 0 | 95 | 223 |
| **Total** | **38** | **62** | **13** | **2432** | **64** | **8** | **335** | **2952** |

Data were collected for students enrolled in EMT-Basic classes for both initial certification and renewal courses. In 2002, EMT-Basic students who gained EMS certification were divided by gender as follows: 56.98% of enrollees were male; 40.03% were female; and 3.0% did not identify gender. Those trends continued with the 2003 EMT-B student enrollees with 57.75% male, 40.38% female, and 1.87% "unknown." These trends are in contrast to the State's 2004 population estimate which is divided approximately 48% male and 52% female.

| EMTB Initial Course Enrollees | 2002 | 2003 | 2004 | 2004 State Census Estimate |
|---|---|---|---|---|
| Male | 56.98% | 57.75% | 58.15% | 48.41% |
| Female | 40.03% | 40.38% | 37.76% | 51.59% |
| Unknown Gender | 3.00% | 18.70% | 4.09% | |

Once certified, EMT-Basic providers must complete an EMT-Basic refresher course once every three years to maintain their certification. In 2002, 71.89% of students enrolled in EMT refresher courses were male, 26.78% were female, and 1.33% were not identified. In 2003, the number of males enrolled increased to 75.03% compared to 24.15% females. In 2004, the percentage of male enrollees in EMT refresher courses was 79% compared to 19.37% of the enrollees being female and 1.63% of unknown gender. This gender breakdown is disproportionate to the 2004 State Census estimates of 48.41% male and 51.59% female.

| EMTB Refresher Course Enrollees | 2002 | 2003 | 2004 | 2004 State Census Estimate |
|---|---|---|---|---|
| Male | 71.89% | 75.03% | 79.00% | 48.41% |
| Female | 26.78% | 24.15% | 19.37% | 51.59% |
| Unknown Gender | 1.33% | 0.82% | 1.63% | |

Respondents were also asked to report their **highest education level reached**. Of the 2,952 total respondents, 49 (2%) reported they did not complete high school and 414 (16%) reported high school as their highest education attained. Forty percent of the respondents stated they had completed some college coursework, with 11% having attained an Associates Degree. A total of 135 (5%) respondents reported they had attained a college certificate, with an additional 348 (11%) reporting their completion of an undergraduate degree. Respondents also reported completing post-graduate work, with 240 (8%) having attained a graduate degree. Fifty-eight (3%) of the surveys were left blank and are listed as "unknown." Overall, 82% of the respondents had completed some college coursework, 918 (31%) of whom had earned a degree.

| Respondent Education | American Indian/ Nat Alask | Black/ African American | Asian | White/ Caucasian | Hispanic | Native Hawaiian/ Pacific Islander | Unknown | Total |
|---|---|---|---|---|---|---|---|---|
| Grades 7 to 9 | 0 | 0 | 0 | 4 | 1 | 0 | 2 | 7 |
| Grades 10 to 11 | 0 | 1 | 0 | 25 | 3 | 0 | 13 | 42 |
| Grade 12 or GED | 6 | 2 | 0 | 386 | 4 | 2 | 74 | 474 |
| Some College | 12 | 30 | 5 | 994 | 31 | 2 | 109 | 1183 |
| College AA | 8 | 9 | 1 | 288 | 4 | 0 | 20 | 330 |
| College Certificate | 2 | 7 | 0 | 110 | 3 | 2 | 11 | 135 |
| College UG | 3 | 5 | 3 | 301 | 10 | 2 | 24 | 348 |
| Some College PG | 3 | 4 | 2 | 100 | 5 | 0 | 9 | 123 |
| College PG | 3 | 4 | 2 | 214 | 3 | 0 | 14 | 240 |
| Unknown | 1 | 0 | 0 | 11 | 0 | 0 | 58 | 70 |
| **Total** | **38** | **62** | **13** | **2432** | **64** | **8** | **334** | **2952** |

EMS providers may function in one or more of the three distinct organizational types of services that comprise Maryland's EMS system:

- Volunteer services—the provider receives no compensation for his/her time or activities.
- Career services—a 911 service in which the provider is paid an hourly salary, generally a local, government-run service responsible for a city or county.
- Commercial services—a service in which the provider is paid an hourly salary and conducts interfacility transports.

While some EMS providers in Maryland function in one of these three roles, many function in several. For example a provider may work for a career service in one jurisdiction while volunteering in his/her hometown. Some providers work for career and commercial services and also volunteer with a local ambulance service.

Respondents to the Work Force Survey were asked **"Your Present Service Type"** and allowed to mark all that applied. Of the 2,952 respondents, 452 (15%) reported they were employed exclusively by a career service and 48 (2%) reported they worked for a commercial ambulance only. Eight hundred and thirty (28%) of the survey respondents reported they were strictly volunteer. Of the 1,802 respondents, 448 (25%) reported they functioned as a paid (career, commercial, or both) provider and also volunteered within the Maryland EMS system. Twenty-four (1%) reported they were paid provider for both a career and a commercial company and did not volunteer elsewhere. It is unclear why 1,150 (39%) of the respondents did not mark a service types on the survey.

| Respondent Service History | American Indian/ Nat Alask | Black/ African American | Asian | White/ Caucasian | Hispanic | Native Hawaiian/ Pacific Islander | Unknown | Total |
|---|---|---|---|---|---|---|---|---|
| Career Only | 11 | 29 | 5 | 389 | 9 | 1 | 8 | 452 |
| Volunteer Only | 12 | 19 | 4 | 763 | 21 | 0 | 11 | 830 |
| Commercial Only | 2 | 1 | 1 | 41 | 2 | 0 | 1 | 48 |
| Car/Vol | 4 | 5 | 1 | 254 | 4 | 1 | 1 | 270 |
| Car/Com | 1 | 4 | 1 | 18 | 0 | 0 | 0 | 24 |
| Vol/Com | 6 | 3 | 1 | 128 | 4 | 1 | 1 | 144 |
| Car/Vol/Com | 1 | 0 | 0 | 31 | 2 | 0 | 0 | 34 |
| Unknown | 1 | 1 | 0 | 808 | 22 | 5 | 313 | 1150 |
| **Total** | **38** | **62** | **13** | **2432** | **64** | **8** | **335** | **2952** |

Within a volunteer, career, or commercial ambulance service, providers may also have unique roles that impact how they function and the amount of time they spend within that service. For the purposes of this survey, respondents were asked whether they functioned exclusively as a provider or maintained additional roles such as an EMS supervisor, administrator, or educator. In addition to functioning as a provider, 209 (7%) of the respondents also served as supervisors, 63 (2%) served as educators, 258 (9%) served as educators, and 182 (6%) reported they served in multiple roles. Two thousand two hundred and forty (75%) of the respondents indicated that within their EMS service they did not perform the role of supervisor, administrator, or educator.

| Respondent Gender | American Indian/ Nat Alask | Black/ African American | Asian | White/ Caucasian | Hispanic | Native Hawaiian/ Pacific Islander | Unknown | Total |
|---|---|---|---|---|---|---|---|---|
| Female | 7 | 13 | 4 | 610 | 20 | 1 | 68 | 723 |
| Male | 31 | 48 | 9 | 1696 | 43 | 7 | 172 | 2006 |
| Unknown | 0 | 1 | 0 | 126 | 1 | 0 | 95 | 223 |
| **Total** | **38** | **62** | **13** | **2432** | **64** | **8** | **335** | **2952** |

To gain a better understanding of the EMS provider's **time commitment**, respondents to the survey were asked to provide the average number of calls responded to weekly and the number of hours spent performing particular aspects of EMS within their service. To insure that providers who function in dual roles (paid provider and volunteer with other services) did not report a combination of hours, the respondent was first asked "I am completing this survey as a_____," with options of identifying him or her self as a volunteer, career, or commercial EMS provider. Providers were also given instructions to "…mark the provider category that best describes you. If you function in more than one role (e.g. Commercial EMS and Volunteer EMS), select the category in which you spend the most time." The responses were then analyzed based on the role identified and their reported provider level.

A statewide average was calculated across all service types and provider levels. The average number of calls received weekly was 12.45. The weekly average number of hours spent performing in-station activities, EMS administration activities, and standing-by (both in the station and away from the station) is reported in the table below.

| Response Category | Total Respondents | Weekly Average In-Station Service Hrs. | Weekly Average Administrative Service Hrs. | Weekly Average Stand-By In-Station Hrs. | Weekly Average Stand-By Out Station Hrs. | Weekly Average Calls |
|---|---|---|---|---|---|---|
| **Statewide** | 2952 | 9.04 | 4.89 | 20.04 | 8.20 | 12.45 |

Given the differences of the three service types (volunteer, career, and commercial), a separate analysis of each service was completed. Career services reported the highest call volume where a provider would respond to an average of 18.89 calls per week, followed by commercial services at 15.56 calls per week and volunteer services reporting an average of 6.86 responses per week. In both the career and volunteer EMS settings, the CRT-I reported responding to the most calls. In the commercial ambulance services, the CRT reported the greatest number of responses per week (40) although there were a very small number of respondents (2). A review of the remaining three provider levels within commercial services indicates an average of 15 responses per week within a range of one percent. It is not clear why the two reporting CRTs had such a high response rate.

The number of hours spent performing other duties with EMS has also been broken down by service type. Within the career EMS services, respondents spent the most time standing-by in-station awaiting a call or on an actual call (29.07 hours), followed by performing in-station activities (10.82 hours). In addition to experiencing the highest volume, career services providers also reported the most in-station service hours and stand-by in-station and call hours of the three service types.

| Response Category | Total Respondents | Weekly Average In-Station Service Hrs. | Weekly Average Administrative Service Hrs. | Weekly Average Stand-By In-Station Hrs. | Weekly Average Stand-By Out Station Hrs. | Weekly Average Calls |
|---|---|---|---|---|---|---|
| **Career** | | | | | | |
| EMT-B | 552 | 11.51 | 3.71 | 23.90 | 3.06 | 15.56 |
| CRT | 45 | 11.97 | 4.36 | 27.24 | 8.50 | 31.95 |
| CRT-I | 19 | 16.61 | 2.88 | 39.06 | 5.67 | 28.38 |
| Paramedic | 596 | 10.05 | 7.68 | 33.37 | 4.43 | 20.75 |
| Unknown | 15 | 5.25 | 5.69 | 27.85 | 16.75 | 16.87 |
| **Total** | 1227 | 10.82 | 5.76 | 29.07 | 4.08 | 18.89 |

In the volunteer services, EMS providers reported spending 12.57 hours standing-by at the station or on EMS calls, followed by 11.16 hours standing-by outside the station. Volunteer respondents reported they spend approximately 11 hours a week performing in-station activities and approximately 4 hours per week on administrative activities.

| Response Category | Total Respondents | Weekly Average In-Station Service Hrs. | Weekly Average Administrative Service Hrs. | Weekly Average Stand-By In-Station Hrs. | Weekly Average Stand-By Out Station Hrs. | Weekly Average Calls |
|---|---|---|---|---|---|---|
| **Volunteer** | | | | | | |
| EMT-B | 1121 | 7.85 | 3.67 | 12.57 | 10.97 | 7.11 |
| CRT | 34 | 6.30 | 6.28 | 8.84 | 16.41 | 4.97 |
| CRT-I | 33 | 11.06 | 7.23 | 21.87 | 19.68 | 10.52 |
| Paramedic | 232 | 5.55 | 4.47 | 12.11 | 10.79 | 5.78 |
| Unknown | 87 | 12.29 | 4.03 | 11.67 | 8.94 | 5.73 |
| **Total** | 1507 | 7.79 | 3.97 | 12.57 | 11.16 | 6.86 |

EMS providers functioning in commercial services spent an average of 24.5 hours per week standing-by in the station or on EMS calls and 11.97 hours per week (highest of the service types) standing by at locations outside the station. Commercial ambulance providers spent the least number of hours weekly performing in-station activities (7.10 hours) and the greatest number of hours (7.44) conducting administrative activities.

| Commercial | Total Respondents | Weekly Average In-Station Service Hrs | Weekly Average Administrative Service Hrs. | Weekly Average Stand-By In-Station Hrs. | Weekly Average Stand-By Out Station Hrs. | Weekly Average Calls |
|---|---|---|---|---|---|---|
| EMT-B | 63 | 7.86 | 6.40 | 22.52 | 16.33 | 15.79 |
| CRT | 2 | 4.00 | 0.00 | 4.00 | 40.00 | 40.00 |
| CRT-I | 1 | 20.00 | 0.00 | 40.00 | 0.00 | 15.00 |
| Paramedic | 58 | 6.24 | 8.70 | 27.00 | 7.16 | 15.09 |
| Unknown | 1 | 2.00 | 0.00 | 5.00 | 0.00 | 5.00 |
| **Total** | 125 | 7.10 | 7.44 | 24.57 | 11.97 | 15.56 |

A breakdown of the 63 (2% of total responses) "unknown" responses can be viewed in the table below. There are no particular patterns that are obvious.

| Response Category | Total Respondents | Weekly Average In-Station Service Hrs. | Weekly Average Administrative Service Hrs. | Weekly Average Stand-By In-Station Hrs. | Weekly Average Stand-By Out Station Hrs. | Weekly Average Calls |
|---|---|---|---|---|---|---|
| **Unknown** | | | | | | |
| EMT-B | 21 | 7.14 | 3.85 | 13.39 | 5.00 | 10.80 |
| CRT | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| CRT-I | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Paramedic | 8 | 3.62 | 2.72 | 18.13 | 6.88 | 11.13 |
| Unknown | 64 | 6.00 | 0.00 | 7.33 | 6.00 | 1.33 |
| **Total** | 93 | 5.88 | 3.00 | 14.21 | 5.78 | 9.81 |

One of the primary goals of the Work Force Survey was to determine the EMS provider's **level of satisfaction** with EMS in general, with their individual service, and with specific key elements identified by the Work Force Committee. Initially the EMS providers responding to the survey were asked: "Overall, how satisfied are you with serving within the Maryland EMS community?" The responses were categorized by jurisdiction and the total number of responses listed. Providers were given the option that they were "Very Satisfied," "Somewhat Satisfied," "Somewhat Dissatisfied," or "Very Dissatisfied" with the Maryland EMS community. A "No Response" category was added. The results for each jurisdiction, including a statewide aggregate, are listed in the table below.

| **Statewide** (n=2,952) **Overall Satisfaction Servicing In Maryland EMS** | **Number of Response** | **No Response** | **Very Satisfied** | **Somewhat Satisfied** | **Somewhat Dissatisfied** | **Very Dissatisfied** |
|---|---|---|---|---|---|---|
| Commercial EMS Services | 125 | 0.08 | 32.80 | 39.20 | 24.80 | 2.40 |
| Allegany | 72 | 1.39 | 33.33 | 52.78 | 9.72 | 2.78 |
| Annapolis City | 43 | 2.33 | 16.28 | 46.52 | 20.93 | 13.96 |
| Anne Arundel | 537 | 2.42 | 32.77 | 51.96 | 10.61 | 2.23 |
| BWI | 1 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 |
| Baltimore City | 84 | 0.00 | 21.43 | 47.62 | 17.86 | 13.10 |
| Baltimore Co. | 175 | 0.00 | 32.00 | 53.71 | 22.57 | 1.71 |
| Calvert | 89 | 2.25 | 51.69 | 40.45 | 3.73 | 2.25 |
| Caroline | 32 | 3.13 | 43.75 | 37.50 | 12.50 | 3.13 |
| Carroll | 66 | 1.52 | 42.42 | 48.48 | 7.58 | 0.00 |
| Cecil | 48 | 2.08 | 52.08 | 41.67 | 4.17 | 0.00 |
| Charles | 135 | 3.70 | 60.00 | 33.33 | 2.22 | 0.74 |
| Dorchester | 26 | 0.00 | 38.46 | 46.15 | 11.54 | 3.85 |
| Frederick | 96 | 3.13 | 47.92 | 39.58 | 9.38 | 0.00 |
| Garrett | 36 | 2.78 | 38.89 | 47.22 | 11.11 | 0.00 |
| Harford | 134 | 0.75 | 40.30 | 49.25 | 8.21 | 1.49 |
| Howard | 153 | 1.96 | 35.95 | 41.63 | 8.50 | 1.96 |
| Kent | 13 | 0.00 | 53.85 | 38.46 | 7.69 | 0.00 |
| Montgomery | 155 | 0.65 | 38.71 | 49.03 | 9.03 | 2.58 |
| Prince George's | 204 | 2.45 | 34.32 | 45.10 | 13.73 | 4.42 |
| Queen Anne's | 43 | 0.00 | 53.49 | 44.19 | 4.49 | 0.00 |
| Somerset | 10 | 0.00 | 50.00 | 40.00 | 0.00 | 10.00 |
| St. Mary's | 144 | 13.90 | 61.12 | 35.42 | 13.90 | 7.00 |
| Talbot | 21 | 0.00 | 57.14 | 38.10 | 4.76 | 0.00 |
| Washington | 82 | 1.22 | 35.37 | 54.88 | 8.45 | 0.00 |
| Wicomico | 39 | 0.00 | 46.15 | 43.59 | 7.69 | 2.56 |
| Worcester | 44 | 0.00 | 34.09 | 47.73 | 15.91 | 2.27 |
| **State Total** | **2952** | **3.73** | **38.72** | **45.56** | **9.65** | **2.34** |

To gain a better understanding of providers' satisfaction, respondents were asked to "…indicate from your perspective the importance/satisfaction associated with the following factors relating to the delivery of Maryland EMS services." Once again to insure that providers functioning in multiple service types did not combine perspectives, the respondent was asked to identify their perspective by completing, "I'm completing this section as a volunteer, career, or commercial EMS provider." A list of **influencing factors** was provided and respondents were asked to select one of three influencing factors: "Not Important"; "Important and Satisfied"; or "Important but Dissatisfied". The following table provides a summary of the 2,952 respondents.

| **Statewide** (n=2,952) **Influencing Factors from your EMS Perspective** | **No Response** | **Not Important** | **Important and Satisfied** | **Important but Dissatisfied** |
|---|---|---|---|---|
| A feeling of helping people | 115 (3.9%) | 58 (2.0%) | 2563 (90.4%) | 216 (7.6%) |
| A feeling of self-satisfaction | 130 (4.4%) | 190 (6.7%) | 2387 (84.6%) | 246 (8.7%) |
| A service that is challenging | 133 (4.5%) | 191 (6.8% | 2291 (81.2%) | 337 (12.0%) |
| A service with a variety of work-related experiences | 149 (5.1%) | 240 (8.6%) | 2300 (82.0%) | 263 (9.4%) |
| A service known for group cohesion | 173 (5.9%) | 272 (9.8%) | 1721 (61.9%) | 786 (28.3%) |
| Pay associated with EMS | 177 (6.0%) | 1094 (39.4%) | 710 (25.6%) | 971 (35.0%) |
| Benefits associated with EMS | 175 (6.0% | 773 (27.8%) | 1157 (41.7%) | 847 (30.5%) |
| Self-growth within EMS organization | 154 (5.3%) | 423 (15.1%) | 1606 (57.4%) | 769 (27.5%) |
| Commute to EMS station/office | 151 (5.2%) | 1045 (37.3%) | 1495 (53.4%) | 261 (9.3%) |
| Organizational management known for leadership/direction | 154 (5.3%) | 219 (7.8%) | 1332 (47.6%) | 1247 (44.6%) |
| Meeting family demands in terms of time/commitment | 149 (5.1%) | 260 (9.3%) | 1880 (67.1%) | 663 (23.7%) |
| A service requiring a great amount of work – keeping busy | 173 (5.9%) | 683 (24.6%) | 1828 (65.8%) | 268 (9.6%) |
| Services are valued or recognized by organization | 149 (5.1%) | 242 (8.6%) | 1556 (55.5%) | 1005 (35.9%) |
| Scheduling | 163 (5.6%) | 434 (15.6%) | 1825 (65.4%) | 530 (19.0%) |
| Additional continuing educational requirements | 149 (5.1%) | 215 (7.7%) | 1942 (69.3%) | 646 (23.0%) |
| Ensuring personal safety/well-being | 156 (5.3%) | 66 (2.4%) | 2326 (83.2%) | 404 (14.4%) |
| Ensuring patient safety/well-being | 151 (5.2%) | 51 (1.8%) | 2532 (90.4%) | 218 (7.87%) |
| Having equipment/materials to do my job | 154 (5.3%) | 32 (1.1%) | 2227 (79.6%) | 539 (19.3%) |
| Opportunities for advancement within my organization | 148 (5.1%) | 485 (17.3%) | 1540 (54.9%) | 779 (27.8%) |
| Acquiring skills and gaining knowledge | 165 (5.6%) | 57 (2.0%) | 2316 (83.1%) | 414 (14.9%) |

Statewide, for all levels of providers from the three service types, the top five influencing factors (in rank order) considered to be "Not Important" include:

1. Pay associated with EMS
2. Commute to EMS station/office
3. Benefits associated with EMS
4. Amount of work, staying busy
5. Opportunities for advancement within the organization

The top five influencing factors EMS providers statewide believed were important and were being satisfied (in rank order) were:

1. A feeling of helping people (tie for first)
   Ensuring patient safety/well-being (tie for first)
2. A feeling of satisfaction
3. Ensuring personnel safety/well-being
4. Acquiring skills and gaining knowledge
5. Gaining a variety of work-related experiences

The top five influencing factors EMS providers statewide believed were important but felt dissatisfied with (in rank order) were:

1. Leadership/direction of the organizational management
2. Perceived value and recognition by organization
3. Pay associated with EMS
4. Benefits associated with EMS
5. Group cohesion

Given the organizational environment of the three distinct service types, it is necessary to examine the satisfaction of each service type independently. The following table provides a breakdown of Important and Satisfied responses to the influencing factors for each service type. Surveys in which there where no response or where the "Not Important" category was selected are not included in this table.

Row n= Important Responses Only

| **Service Type by Influencing Factors from your EMS Perspective** | **Career** **Important & Satisfied %** | **Volunteer** **Important & Satisfied %** | **Commercial** **Important & Satisfied %** |
|---|---|---|---|
| A feeling of helping people | 87.3 | 96.2 | 90.8 |
| A feeling of self-satisfaction | 85.5 | 95.1 | 87.3 |
| A service that is challenging | 82.2 | 92.4 | 71.1 |
| A service with a variety of work related experiences | 86.6 | 93.4 | 76.9 |
| A service known for group cohesion | 65.3 | 72.4 | 56.3 |
| Pay associated with EMS | 42.1 | 44.7 | 31.3 |
| Benefits associated with EMS | 54.1 | 65.0 | 38.3 |
| Self-growth within EMS organization | 57.7 | 77.7 | 44.7 |
| Commute to EMS station/office | 81.4 | 89.6 | 76.7 |
| Organizational management known for leadership/direction | 41.5 | 60.3 | 47.4 |

Row n= Important Responses Only

| Service Type by Influencing Factors from your EMS Perspective | Career Important & Satisfied % | Volunteer Important & Satisfied % | Commercial Important & Satisfied % |
|---|---|---|---|
| Meeting family demands in terms of time/commitment | 72.1 | 76.3 | 60.9 |
| A service requiring a great amount of work – keeping busy | 86.0 | 88.1 | 91.1 |
| Services are valued or recognized by organization | 47.1 | 72.5 | 53.2 |
| Scheduling | 77.4 | 78.0 | 70.6 |
| Additional continuing educational requirements | 76.9 | 73.9 | 69.2 |
| Ensuring personal safety/well-being | 81.6 | 88.8 | 76.3 |
| Ensuring patient safety/well-being | 90.6 | 94.0 | 83.3 |
| Having equipment/materials to do my job | 78.8 | 83.0 | 65.6 |
| Opportunities for advancement within my organization | 57.5 | 77.6 | 39.7 |
| Acquiring skills and gaining knowledge | 82.7 | 87.5 | 74.8 |

The top five influencing factors for which the provider has the **greatest level of satisfaction** are highlighted in green, the five influencing factors in which the provider has the least level of satisfaction are highlighted in red. Important and satisfied responses to the influencing factor are similar for each of the three service types. Of the top five Important and Satisfied responses, the only variance is the "a service requiring a greater amount of work–keeping busy" did not make the volunteer list. However, 88.1% of the volunteer providers responding felt it was important and were satisfied.

All three service types agreed that pay, benefits, and an organizational management known for leadership/direction were among the five influencing factors respondents believed were important, but with which they were the most dissatisfied.

Career and volunteer services were dissatisfied with "Services are valued or recognized by organization," while both career and commercial providers responding to the survey were not satisfied with the "Opportunities for advancement within my organization." Commercial EMS providers were dissatisfied with the influencing factor "Self-growth within the EMS organization," while volunteer providers ranked the "A service known for group cohesion" among the lowest level of satisfaction of the influencing factors.

The work force survey included a section wherein the individual provider could indicate whether he/she harbored any **thoughts about leaving EMS**. A total of 1,102 (37.3%) surveys were returned with this question left blank, meaning at least 67% or two-thirds of the EMS providers responding to the survey had thoughts of leaving EMS. The following table provides a statewide summary of the response for all levels of providers and all service types.

| **Statewide Input for:**<br>**If Any, Your Thoughts of Why Leaving EMS** | **Blank Response** | **(%)** | | **Yes Response** | **(%)** |
|---|---|---|---|---|---|
| **Surveys with All Blank Response** | 1102 | 37.0 | | | |
| Career Advancement | 2527 | 84.8 | | 452 | 15.2 |
| Salary/Benefits Improvement | 2743 | 92.1 | | 236 | 7.9 |
| Workload | 2827 | 94.9 | | 152 | 5.1 |
| Retirement | 2571 | 86.3 | | 408 | 13.7 |
| EMS Continuing Ed. Requirements | 2796 | 93.9 | | 183 | 6.1 |
| Health | 2834 | 95.1 | | 145 | 4.9 |
| Personal Conflict | 2655 | 89.1 | | 324 | 10.9 |
| Family Demands | 2521 | 84.6 | | 458 | 15.4 |
| Scheduling | 2750 | 92.3 | | 229 | 7.7 |
| Non EMS School/Education/Training | 2931 | 98.4 | | 48 | 1.6 |
| Exposure to Risks/Threats | 2614 | 87.7 | | 365 | 12.3 |
| Work not valued/recognized and by whom: Public | 2376 | 79.8 | | 603 | 20.2 |
| Work not valued/recognized and by whom: Family | 2797 | 93.9 | | 182 | 6.1 |
| Work not valued/recognized and by whom: Organization | 2736 | 91.8 | | 243 | 8.2 |

The top 10 reasons why EMS providers had thoughts of leaving EMS (in rank order) are as follows:

1. 20.2% Work not valued/recognized by Public
2. 15.4% Family demands
3. 15.2% Career advancement
4. 13.7% Retirement
5. 12.3% Exposure to risks/threats
6. 10.9% Personal conflict
7. 8.2% Work not valued/recognized by Organization
8. 7.9% Salary/benefits improvement
9. 6.7% Scheduling
10. 6.1% Work not valued/recognized by Family

To better appreciate the reasons a provider may be thinking of leaving EMS, the responses to the question "If any, your thoughts of why leaving EMS" were categorized by services type. The following table provides a breakdown of respondents' selections by service type.

| **Service Type for:**<br>**If Any, Your Thoughts of Why Leaving EMS** | **Response**<br>**Career** | **Response**<br>**Volunteer** | **Response**<br>**Commercial** |
|---|---|---|---|
| **N Respondents** | **1237** | **1527** | **127** |
| Career Advancement | 23.04 | 34.65 | 34.65 |
| Salary/Benefits Improvement | 7.03 | 9.04 | 7.09 |
| Workload | 3.96 | 5.57 | 12.60 |
| Retirement | 21.10 | 5.30 | 50.39 |
| EMS Continuing Ed. Requirements | 3.40 | 8.38 | 5.51 |
| Health | 5.90 | 4.26 | 4.72 |
| Personal Conflict | 12.29 | 10.54 | 6.30 |
| Family Demands | 7.44 | 22.46 | 14.17 |
| Scheduling | 9.05 | 6.55 | 11.02 |
| Non EMS School/Education/Training | 0.97 | 2.23 | 1.27 |
| Exposure to Risks/Threats | 16.01 | 9.04 | 20.47 |
| Work not valued/recognized and by whom: Public | 31.61 | 11.59 | 24.41 |
| Work not valued/recognized and by whom: Family | 4.20 | 7.20 | 13.39 |
| Work not valued/recognized and by whom: Organization | 5.09 | 11.13 | 7.09 |

Respondents functioning in career services selected "Work not valued/recognized by Public" as their number one reason for thinking of leaving EMS. Providers in volunteer and commercial also felt the public did not value or recognize their work, ranking this element third. Volunteer services cited "career advancement" as the number one reason they thought about leaving EMS. Career and commercial services ranked this element second on their list. Commercial services ranked "Retirement" (50.39%) as the number one reason they had thoughts of leaving EMS. Retirement also ranked third on the career services list. Exposure to risk/threats was ranked forth on both the career and commercials' lists for thoughts of leaving EMS while volunteer providers ranked "work not valued/recognize by Organization" fourth. Career and volunteer services agreed that "Personnel Conflict" was the fifth most frequent reason they though of leaving EMS, while commercial services ranked "work not valued/recognized by Family" as their fifth.

| **Certification Level For:**<br>**If Any, Your Thoughts of Why Leaving EMS** | **% Yes Response**<br>**EMT-B** | **% Yes Response**<br>**CRT** | **% Yes Response**<br>**CRT-I** | **% Yes Response**<br>**Paramedic** |
|---|---|---|---|---|
| **N Respondents** | **1783** | **82** | **54** | **898** |
| Career Advancement | 9.14 | 19.51 | 18.52 | 27.84 |
| Salary/Benefits Improvement | 6.90 | 10.98 | 5.56 | 10.24 |
| Workload | 4.60 | 3.66 | 1.85 | 7.13 |
| Retirement | 7.91 | 18.29 | 5.56 | 27.28 |

| Certification Level For:<br>If Any, Your Thoughts of Why Leaving EMS | % Yes Response EMT-B | % Yes Response CRT | % Yes Response CRT-I | % Yes Response Paramedic |
|---|---|---|---|---|
| **N Respondents** | **1783** | **82** | **54** | **898** |
| EMS Continuing Ed. Requirements | 6.17 | 6.10 | 5.56 | 6.79 |
| Health | 3.98 | 14.63 | 1.85 | 6.35 |
| Personal Conflict | 8.47 | 18.29 | 14.81 | 15.81 |
| Family Demands | 14.75 | 17.07 | 16.67 | 16.93 |
| Scheduling | 4.60 | 25.61 | 5.56 | 13.36 |
| Non EMS School/Education/Training | 1.54 | 3.66 | 0.00 | 1.67 |
| Exposure to Risks/Threats | 7.85 | 26.83 | 14.81 | 21.27 |
| Work not valued/recognized and by whom: Public | 19.57 | 23.17 | 7.41 | 24.39 |
| Work not valued/recognized and by whom: Family | 5.72 | 9.76 | 7.41 | 7.57 |
| Work not valued/recognized and by whom: Organization | 6.17 | 47.46 | 9.26 | 9.13 |

Respondents to the survey were asked **"Would you encourage friends/family to become a member of your EMS service?"** Statewide across all provider levels from all service types, 2,193 (73.6%) indicated they would encourage friends/family to become a member of their service. There were 223 (7.5%) blank responses with 563 (18.9%) respondents reporting they would not recommend their service to a family member or friend.

| Would you encourage friends/family to become a member of your EMS service? | Blank Response | (%) | Yes Response | (%) | No Response | (%) |
|---|---|---|---|---|---|---|
| | 223 | 7.5 | 2193 | 73.6 | 563 | 18.9 |

An analysis of this question based on service type was completed and 91.09% of the volunteers responding to this survey reported they would recommend their service to a friend/family member. Career and commercial services were not as willing to make the recommendation, with only 66.15% career and 69.68% commercial providers reporting they would encourage a family member or friend to join their EMS service.

| Would you encourage friends/family to become a member of your EMS service? | % Yes Response Career | % Yes Response Volunteer | % Yes Response Commercial |
|---|---|---|---|
| | 66.15 | 91.09 | 69.68 |

An analysis of the same question at the provider level for all service types indicates that the CRT-I (88.9%) is the most likely to recommend a family member or friend join their service followed by the EMT-B (78.8%), paramedic (67.2%), and the CRT (53.7%).

| Would you encourage friends/family to become a member of your EMS service? | % Yes Response EMT-B | % Yes Response CRT | % Yes Response CRT-I | % Yes Response Paramedic |
|---|---|---|---|---|
| | 78.8 | 53.66 | 88.89 | 67.15 |

Respondents were asked to indicate "How much longer do you plan to stay active within your EMS service?" The following table provides the averages (in years) for each level of EMS provider by service type.

| | EMT-B | CRT | CRT-I | Paramedic |
|---|---|---|---|---|
| **Career** | 13.7 | 10.2 | 21.0 | 13.0 |
| **Volunteer** | 21.4 | 12.9 | 24.2 | 16.6 |
| **Commercial** | 23.2 | NA | NA | 12.4 |
| **Unknown** | 17.1 | NA | NA | 11.0 |

The CRT-Is functioning in either a career or volunteer service reported they plan to stay active within their service the longest time (greater than 20 years) of all provider types. These data are directly related to age reported by our respondents, given the mean age of the CRT-I (32.3 years) was the youngest. The volunteer EMT-Bs also reported they planned to stay active in their EMS for greater than 20 years. The mean age of the volunteer EMT-Bs completing the survey was 36.5 years of age. Career and volunteer CRTs responding to the survey reported the highest average age and indicated they plan to stay active in their service the least amount of time, approximately 11 years.

In order to determine the educational goals and interest for additional levels of certification/licensure the provider was asked **"Do you plan to advance to a higher EMS provider level in the future?"**

| **Do you plan to advance to a higher EMS provider level in the future?** | **Blank Response** | **(%)** | **Yes Response** | **(%)** | **No Response** | **(%)** |
|---|---|---|---|---|---|---|
| | 228 | 7.7 | 1109 | 37.2 | 1642 | 55.1 |

One-thousand, one-hundred and nine providers responded "yes," that they had plans to advance to a higher EMS provider level. The "yes" responses were then evaluated based on service type and the results are listed in the following table.

| **Do you plan to advance to a higher EMS provider level in the future?** | **% Yes Response Career** | **% Yes Response Volunteer** | **% Yes Response Commercial** |
|---|---|---|---|
| | 30.87 | 45.46 | 54.48 |

Commercial ambulance service providers reported that they were most likely to advance to a higher care level, followed by the volunteer and then the career provider. When the same question is analyzed by provider type, it becomes clear that the CRT-I is the most likely provider to advance to a higher level care provider.

| **Do you plan to advance to a higher EMS provider level in the future?** | **% Yes Response EMT-B** | **% Yes Response CRT** | **% Yes Response CRT-I** | **% Yes Paramedic** |
|---|---|---|---|---|
| | 40.38 | 45.12 | 85.12 | 27.51 |

The final section of the EMS Work Force Survey was designed to allow EMS providers to list any specific barriers/obstacles to recruiting and retaining providers in their service. In addition to the barriers and obstacles, providers were also asked to suggest two changes that would improve their satisfaction with their own EMS service. Responses from surveys submitted electronically were placed into an Excel spreadsheet and sorted by jurisdiction, provider level, and service type. A representative from each jurisdiction, including commercial ambulance services, was provided with a complete list of all responses from his/her jurisdiction. Responses from surveys submitted on paper were typed into a Word document exactly as they appeared on the survey. Once all responses submitted electronically and on paper were gathered, a complete list was printed and responses were grouped to identify general categories. The majority of responses to the request for "… any barriers/obstacles to recruiting and retaining new providers in your service" were grouped into the categories below, listed in order by frequency of response. Specific suggestions reported by providers on how to improve EMS were listed at the end of each category.

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## Pay/Compensation

Of the responses identified as possible barriers/obstacles to recruiting new EMS providers, pay was identified as the most frequent concern. Comments such as "$," "pay," and "more money" dominated the responses. Many comments regarding pay specifically cited that salaries for EMS providers were not competitive with similar healthcare occupations. Several respondents compared the starting salaries of the Emergency Medical Technician-Paramedic to that of the Registered Nurse. Comments regarding pay also clearly identified the competition between jurisdictions to offer a better salary. Comments such as "Why go to work in this county for $30,000 a year when Montgomery County starts out around $36,000 with a better schedule" and "pay vs. other counties" can be found throughout the responses.

Throughout the work force committee's discussions and based on the written responses to the barriers and obstacles questions on the work force survey, it was clear that salaries were a key issue regarding the dissatisfaction of the Maryland EMS work force. In the absence of current salary data, a second survey was conducted to determine within a given jurisdiction how the services are staffed, the number of vacant positions, if the service has paid, volunteer, or both types of providers, the starting and projected five-year salaries of those providers, and the number of vacant positions.

MIEMSS Jurisdictional Advisory Council representatives were asked to complete the survey and list the starting and projected 5-year salary for each level of care provider in Maryland. Five jurisdictions—Garrett, Carroll, Harford, St. Mary's, and Calvert counties—reported that they had 100% volunteer and had no paid providers. The average starting and 5-year projected salaries for the reporting jurisdictions are provided in the following table.

| | Average Starting Salaries | Salary Range | Reported | Average Proposed 5-year Salary | Salary Range | Reporting |
|---|---|---|---|---|---|---|
| **EMT-B** | $29,074 | $16,320 - $35,862 | 17 | $35,198 | $20,400 - $50,002 | 12 |
| **CRT** | $31,658 | $24,480 - $37,708 | 6 | $42,211 | $33,000 - $53,922 | 4 |
| **CRT-I** | $32,669 | $24,480 - $37,708 | 14 | $41,114 | $36,640 - $53,922 | 10 |
| **Paramedic** | $34,782 | $24,480 - $44,229 | 22 | $44,214 | $30,703 - $56,318 | 18 |

Data collected from the LEADS study reported the mean annual salary for an EMT-Basic in the United States was $18,324 and for a paramedic, $34,645. Data from the LEADS study also indicated no health insurance benefits were made available to 26% of the compensated EMTs and 9% of the compensated paramedics. The majority of both EMTs and paramedics reported inadequate retirement plans. In a 2003, *EMS Magazine* article, mean paramedic salaries were reported from industrialized areas outside the United States. The mean paramedic pay in Toronto was reported to be $53,553, in London $43,182, and in Australia $46,571; all are considerably higher than the Maryland average.

Providers' suggestions for changes regarding salary include:

- Increase the pay and benefits for all levels of EMS providers
- Develop programs to promote pay equity in dual service with suppression

## Personal Safety/Well-Being

Neither volunteer, career, nor commercial EMS providers ranked "Ensuring personal safety/well-being" in the top five list of influencing factors for which the provider has the greatest level of satisfaction. Providers' comments to barriers/obstacles included the concern over longer shifts with higher call volumes. Many providers reported working multiple jobs, often swapping between day and night shifts.

In 2002, a Fire Safety and Health Committee, composed of representatives of Fire Chiefs, the Maryland State Firemen's Association, the Maryland State and District of Columbia Professional Fire Fighters, and the Department of Labor, Licensing and Regulation developed a health and safety standard for all emergency services providers. The standard included periodic medical evaluation of emergency responders, physical exams, immunizations, and a wellness/fitness program. The standard has not been funded.

Providers' suggestions for changes regarding personal safety/well-being include:

- Instituting shorter shifts, especially in high volume services.
- Give EMS providers the opportunity to participate in wellness programs either at the service or through a local fitness facility.
- Maintain consistent schedules that allow providers to become physically and mentally accustomed to day or night shifts.

## Education/Training

Education/training was frequently listed as a barrier/obstacle by the EMS providers completing the written response portion of the survey. The primary contributing factors to making education/training a barrier are the amount of time it takes to complete initial training and the additional company—or jurisdictional—level requirements to get "cleared" to function. One respondent clearly explains the combined effects of the State training with the local requirements: "It actually has no bearing on the state level, but the local entities are requiring so much con ed that people do not have the time for state level training and the local level as well."

Respondents listed the amount of time required for additional training to complete a CRT-I or paramedic course as the primary barrier/obstacle for becoming an ALS provider. "ALS training is very important! However, working a full-time job and volunteering while meeting family demands are overloading time availability." Other respondents' comments indicate that if an individual does not become an ALS provider at a younger age prior to commitments of occupation, home, spouse, and family, he/she will never have time. In spite of this, the number of CRT-Is and paramedics statewide continues to grow with over 2,800 reported for FY2004.

The jurisdictional "demands of cross training" (EMS and firefighter) were frequently listed as a barrier. Several respondents stated they simply were not interested in firefighting but were forced to obtain the training to be a member of that company/service. Likewise, EMS providers often listed comments regarding the disproportional workload and difficulties with transition to suppression once they were assigned to an EMS unit. The number one reason cited for wanting to transition from an EMS unit to suppression was decreased call volume (workload).

Continuing Education requirements were listed many times by providers at all levels, many of whom felt the number of hours should be reduced or the recertification cycle should be lengthened. The comments regarding continuing education were also referencing the extensive amount of company-level and county-level "clearing" requirements. As mentioned previously, the requirements to get cleared to function sometimes take months to a year or more depending on the jurisdiction. These "clearing" processes are often confused with continuing education requirements. Individuals considering EMS as a profession or advancement to ALS recognize that their initial training is only the beginning and that future employment will require ongoing education. The number of continuing education hours more than doubles when a provider moves from BLS to ALS.

There were several references to "making education available on evenings and weekends"; however, it was not clear whether education meant certification classes or continuing education. Recruiting providers to volunteer services may be almost impossible if the potential provider cannot participate in training on weekends and throughout the week. Throughout the thousands of comments, few listed cost or access to training as a barrier/obstacle.

Other respondents reported that the Maryland Medical Protocols for EMS Providers were too restrictive and should be relaxed to include additional skills, procedures, medications, and treat-and-release guidelines. The sentiment may be summarized as "Why take training that includes skills you are not allowed to use?" Comments regarding additional or more "relaxed" protocols were clearly directed at the addition of new skills and medications which would increase the length and time of educational programs.

Providing funding for the advancement of an EMS provider was also listed as a potential barrier/obstacle for recruitment, suggesting services may not be willing to hire a basic level provider and pay for his/her education to upgrade to ALS. In addition to actual compensation, respondents also cite issues such as the "pay equity in dual service with suppression" and "low salary for work demand." These responses seem to imply that EMS providers feel they are not being compensated equally based on the volume of calls they respond to versus the volume of firefighters' calls.

Providers' suggestions regarding changes in EMS education and training include:

- Increase the money provided to jurisdictions for ALS training
- Increase the providers' "scope of practice"
- Provide additional continuing education in the more rural areas of the state
- Increase the certification period for ALS providers
- Reduce the number of hours required for continuing education and focus the content of the required material on the types of illness and injuries we most frequently encounter.

## Organizational Concerns

The most frequent organizational issue cited as a barrier to recruiting and retaining new providers was the service or company's "lack of leadership and management skills within the organization." There were also numerous negative references to "old school mentality" and "leadership of EMS services by fire chiefs with little or no EMS experience." Comments such as "Lack of respect by administration," Lack of support from the fire department," and "Lack of respect from Federal and State levels, everything is geared toward the firefighter….Look at WMD grants, who does that funding go to …FD," are just a few examples.

Based on the survey responses, organizational requirements that mandate that EMS providers also become firefighters and that firefighters are being forced to become EMS providers are a major source of contention. Responses such as "not allowing just EMS providers to get hired to ride on just the medic unit" and "I want to fight fire not touch patients" are prevalent throughout the barriers/obstacles listed. In requiring providers to become dual trained, the service is forcing them into a line of work they have previously elected not to pursue. This issue appears to affect only the career services as, generally, commercial ambulance services and volunteer organizations do not require cross-training.

Respondents frequently cited that the focus in the current EMS environment is on filling positions. For example; "Not enough emphasis is being placed on skills, knowledge. It is based solely on getting bodies to fill the vacancies. This is an insult, as it leads to poor patient care. Poor care leads to bad patient outcomes and bad public/ hospital perception of EMS providers." The fast-paced educational programs, forcing "new hires" to become EMS providers, provider turnover rate, call volume, and mandatory overtime are being reported as principal deterrents to retention of EMS providers.

"The old does not welcome the new" and "nothing scares people off as well as not feeling wanted or appreciated" were listed with other comments that imply that the organizational culture may actually drive away potential volunteers or employees. "Cliques" were listed several times as a barrier to recruiting and retaining EMS providers, as well as something a provider would like to change about his/her service. Many comments from career, volunteer, and commercial services supported the findings of the Work Force Study relating to the EMS providers' belief their service was not valued or recognized by the service itself, the providers' family, and/or the public. Many of the comments speculated that the public had little understanding of their educational requirements, ability, and/or role in the overall health care system.

Reciprocity issues were listed frequently with several different foci. For example, one provider wanted a more streamlined process that would allow him/her to function in more than one jurisdiction in Maryland without "jumping through hoops." Another provider wanted his/her IV tech certification recognized in every jurisdiction in Maryland so a skill would not have to be "forgotten" when a county line was crossed.

Providers' suggestions regarding changes within EMS organizations include:

- Obtain better input from employees on their work situation
- Enable promotional opportunities based on education/experience/competence, NOT on suppression exam and suppression interview
- Educate the public on proper use of EMS service and its role in the health care delivery system
- Provide the required safety/protection courses and equipment to all volunteer EMS
- Provide courses on organizational management for the leaders of EMS services
- Develop a process that allows EMTs to transfer/add affiliations in multiple jurisdictions

## Workload

Workload was also cited frequently as a barrier/obstacle for recruiting new EMS providers. The following specific areas of concern were identified:

- Career and commercial EMS services with high call volumes have greater difficulty recruiting providers if they know they will be running continuously throughout their shift.
- Being routinely held over, mandatory overtime, and not allowing scheduled time off were listed frequently by career EMS services.
- The actual work hours emerged as a concern from volunteer providers required to "pull-duty" a certain amount of time per month.

Burnout was listed among all service and provider types as a key issue in retaining employees, especially ALS employees. From the respondents who listed call volume as a barrier or obstacle, many also included a comment about the necessity of care. It appears from the comments in this section that not all priority dispatch protocols are being followed. ALS providers stated that routinely responding to calls that could be handled by BLS was a serious source of frustration. One volunteer provider stated that "number of calls that wastes the time of a provider because they can be handled/triaged better prior to dispatching the ambo" was a problem. "Being just a taxi service because the patient does not have a car or way to get to the family doctor" was cited by a provider as a routine problem. A career provider from one of the largest public services in Maryland stated, "Too many BS calls, need a better screening system to provide 'emergency service,' not an 'I stubbed my toe call.'" The end result is a service that burns out its human resources on calls that do not require an advanced level of care.

Providers' suggestions for better management of the EMS workload include:

- Distribute the workload over the entire work force through providing no-cost training to fire service personnel
- Allow people who want to get off of the EMS unit the opportunity to do so
- Eliminate holdovers and mandatory overtime
- Rotate medics to engine and truck companies
- Work within the parameters of priority dispatch format to allow the 911 center to better triage (ALS & BLS) callers

## Time

Volunteer EMS providers at all levels cited time as the number one barrier/obstacle to recruiting and retaining new providers. A 2003 Bureau of Labor and Statistics' news release indicated that volunteers were involved in numerous activities/organizations, including religious, education/youth-related, social/community service, hospitals/health and public safety organizations. In a report prepared by the Virginia Department of Health, Office of Emergency Medical Services entitled "Keeping the Best, How to Use EMS Retention Principles," the author cited a growing number of dual-worker and single-parent families, longer work hours, family members working multiple jobs, and less flexibility in personal and professional schedules as limiting factors of volunteerism.

Respondents to the Maryland EMS Work Force Survey listed "Family Demands" as the second most likely reason they would consider leaving EMS. As the pool of volunteers decreases, it will become far more unlikely to recruit EMS providers who will commit to hundreds of hours of training, 24/7 availability, and in-station service time. One volunteer provider's response from Southern Maryland may sum it up: "Time, people are working 2 or more jobs and have family, so it does not leave much time to volunteer. The ones that do, sometimes cannot give much time so the few that are dedicated still have to run the organization and do all the work."

Providers' suggestions for managing the time commitment of a volunteer EMS provider include:

- Eliminate requirements to become a volunteer in multiple jurisdictions. "How many times do I need to prove I am a provider?"
- Streamline or develop a system for statewide background checks

## Retirement/Benefits

Similar to the issue of pay, "benefits" was listed as a barrier. Prospective employees of career and commercial services are looking more closely at benefit packages, including health and retirement plans, as part of their decision for employment. "Retirement" was listed on responses with and without salary. It appears from the list of barriers and obstacles that career and commercial EMS providers are looking beyond base pay to determine the service in which they would like to be employed.

Volunteer services also listed benefits such as tax incentives and Length of Service Awards Program (LOSAP) as considerations for remaining active in their service. The LOSAP benefit provides members of Emergency Services with a lifetime monthly income after a designated length of service period, as well as financial aid for their families in the event of premature death or disability. Seventeen Maryland counties use LOSAP as a tool to attract and retain volunteers to EMS services.

Providers' suggestions for improving retirement and other benefits include:

- Provide child/daycare allowances
- Restructure state-provided tax incentive programs to become more attractive to younger providers

## Scheduling

While scheduling patterns are often discussed in EMS services, the comments regarding scheduling as a barrier/obstacle were directly related to time and availability for volunteer providers. There were many references to "personal scheduling problems." In particular, comments such as "schedule commitment required by EMS department" were directed at volunteer companies that also have required and scheduled in-station duty times which a provider must cover to remain active in the service. The majority of scheduling issues for volunteer providers were directly related to the concerns presented under the "Time" section.

Within the career and commercial EMS services, respondents offered comments such as "move to 24 hour shift," "eliminate 8 hour truck," and "EMS services cannot function like the fire services" were listed as concerns. Most of the comments appear to be based on the call volume of the services. Some of the respondents were in favor of the 24-hour shift, and others were against the concept, citing the enormous call volume. Several of the respondents related that this schedule was developed for the fire services and was appropriate based on the lower call volume. However, respondents stated that long shifts in busy EMS services were indeed barriers to recruiting and retaining EMS providers.

Providers' suggestions for better management of EMS schedules include:

- Develop a schedule that meets the needs of EMS and do not simply adopt the fire service schedule

## Other Potential Causes of Maryland's EMS Provider Shortage

Academic advisors of students in high school and college may not consider a career in emergency medical services. In an effort to foster an interest in EMS as a profession, at least 10 jurisdictions in Maryland have instituted high-school "Cadet" programs. In addition, women may be directed away from EMS as a career choice given its predominate male work force and the perceived physical requirements necessary to function in the prehospital setting. The educational requirements and responsibilities of the various levels of EMS provider levels are not well understood and the salaries/benefit packages vary dramatically from service to service, often based on the local cost of living. Television shows often portray EMS in the fire and/or rescue setting and do not focus on the less dramatic EMS patient care perspective. The overall lack of public understanding of the true EMS environment may prevent individuals from considering it as a possible profession.

Another possible cause for the increase demand for ALS (intermediate and paramedic) providers appears to be the manner in which ALS services are dispatched, staffed, and deployed. In an effort to ensure the highest level of care is being provided, some EMS services have elected to dispatch ALS personnel/units on every call.

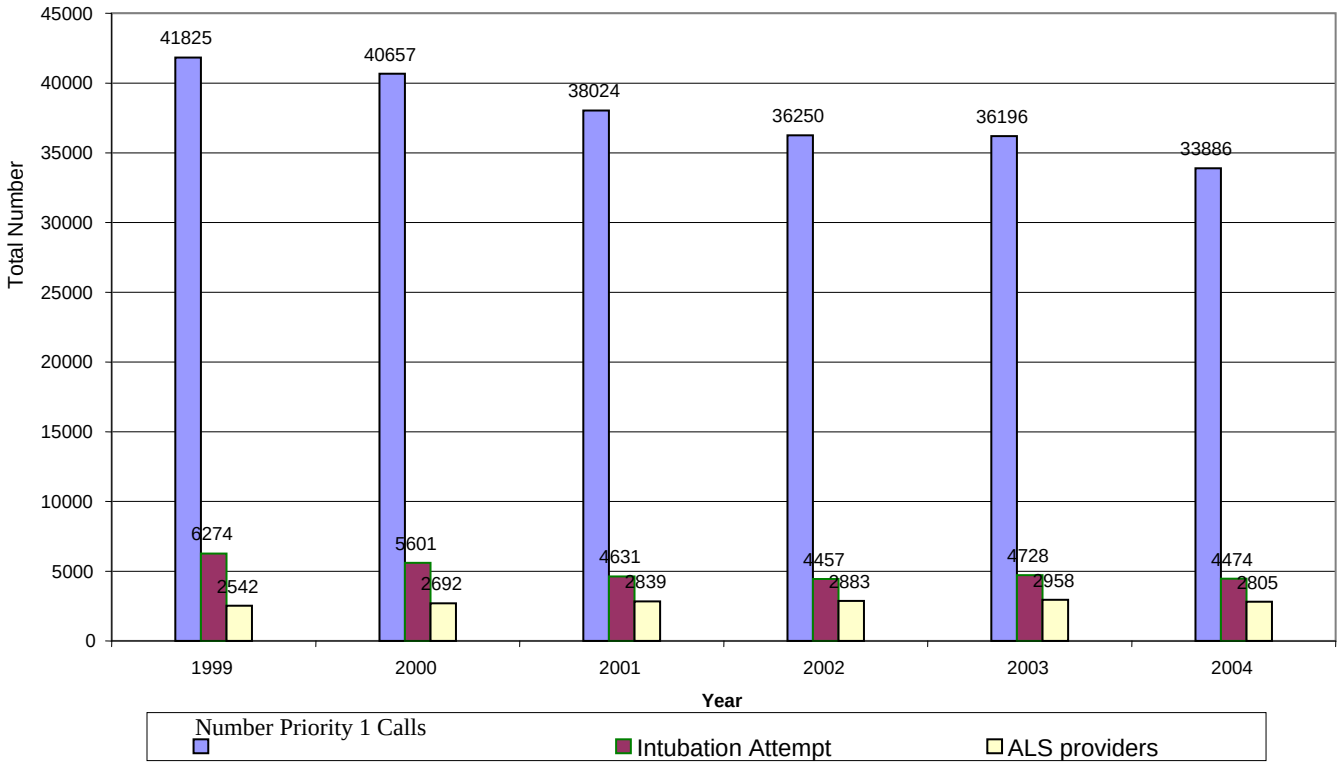
How the EMS service elects to staff and deploy its units has a significant impact on the number of ALS providers needed to cover a geographic area. Several EMS operational programs in Maryland have adopted the model of staffing two ALS providers on every ambulance and one on each first response vehicle, including fire apparatus. This action likely reflects an effort to improve the response and quality of patient care by decreasing the time it takes to get ALS at the patient's side.

Ironically this trend is taking place without the research to support that patient outcome is enhanced by the increased staffing. In fact, in a recent article in *USA Today* entitled "Fewer Paramedics Better?" the author indicated the cities that saved the most lives have the fewest paramedics per population and, conversely, the cities that save the fewest lives have the most paramedics. The relationship was consistent for all of the reporting top-tier cities. For every additional paramedic added per 100,000 people, the survival rate decreased by approximately 1%.

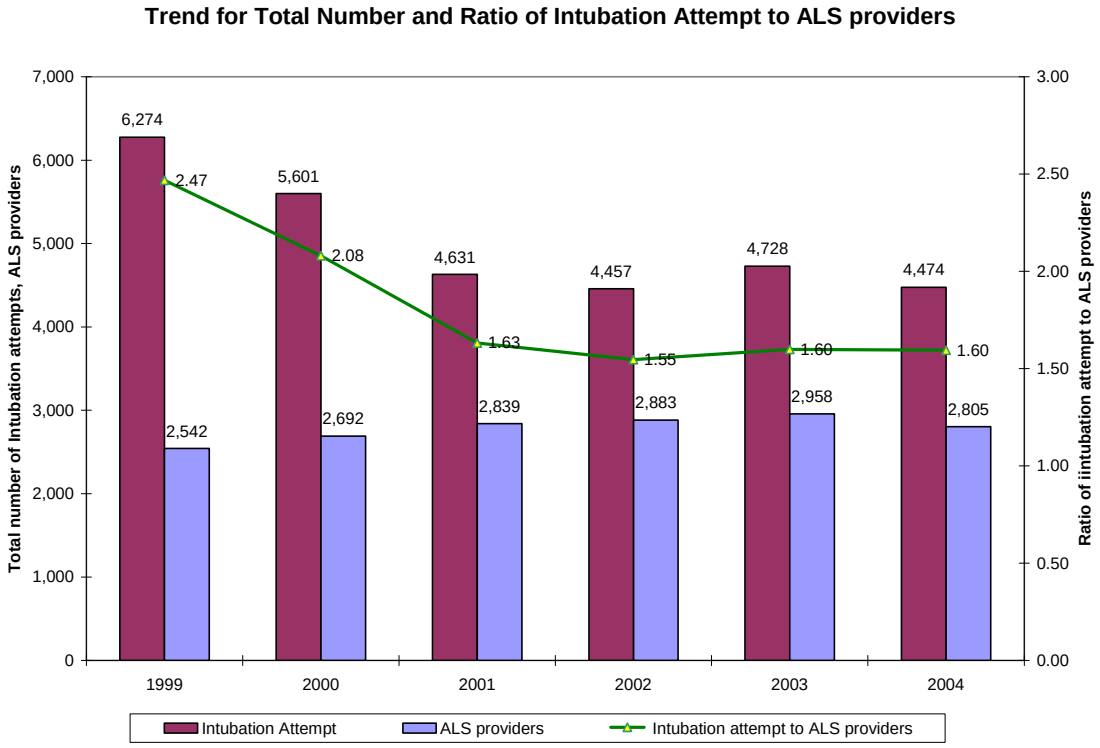
While the true research into the exact cause of this relationship is underway, there is some anecdotal evidence to support the notion that the more paramedics a service has, the less opportunities exist for a paramedic to perform a particular skill. If the skill is routinely performed, each provider may receive an adequate quantity to remain proficient. However, if this skill is not routinely performed, a provider may not have the opportunity to perform that skill enough to remain proficient.

The following chart illustrates the number of priority 1 calls and their relationship to the number of endotracheal intubation attempts in Maryland from CY1999 through CY2003. The number of ALS providers licensed in the State during that same time period increased 10% from a low of 2,542 in CY1999 to a high of 2,805 in CY2004.

**Number of Priority 1 Calls, Intubation Attempts and ALS Providers**



The following chart illustrates the relationship between the number of intubation attempts and the total number of ALS providers (CRT, CRT-I, and paramedic) in Maryland over the last six years. The line-graph represents the ratio of intubation attempts to ALS providers. There was an obvious decrease in the number of intubations between CY1999 and CY2001. If the total number of intubation attempts is distributed across the total ALS population, each ALS provider in Maryland would receive approximately two attempts at intubation annually.




The basic premise for staffing two ALS providers on each ambulance is to ensure enough assistance to provide ALS care to a critical patient. The EMS environment presents many challenges working solo in often dark and dangerous places, elevating the risk associated with injuries to the paramedic and possible errors in patient care. Again, the push to place additional ALS providers on first response units and the creation of two-provider ALS units were based on the need of time-critical interventions. The most obvious example is cardiac arrest. Prior to the introduction of the "Public Access" Automated External Defibrillators, this concept may have had merit; however, technology has taken a procedure once considered for ALS providers-only and conformed it into a skill that can be performed by a trained citizen. The question EMS services should be asking is how the service can optimally deploy its resources to meet the needs of the community.

In addition to skill retention, medical oversight, especially for the ALS provider, is essential in measuring performance. In systems with large numbers of ALS providers, the medical director has less opportunity to routinely interact with a provider. EMS line officers or even fire officers in a fire department-based system may have more impact on a paramedic's performance than the system's medical director, simply based on routine contact.

In several Maryland organizations, providers are hired into the EMS/fire service with the requirement that they become Cardiac Rescue Technicians-Intermediate or Paramedics within a given time period or be terminated. Progression raises and promotions are being used to force basic life support providers into becoming ALS providers. The result may be an ALS provider put into a position that he/she may not desire.

The educational requirements for EMS providers continue to increase as new technology and medications are introduced into the environment. Hospitals are sending patients home earlier and patients are accessing the system later, resulting in sicker patients being treated in the prehospital setting. The number of patients with special health care needs being cared for in the family home is increasing, introducing new challenges to the EMS providers in terms of skills and education.

## Recruitment of Minorities

A review of the data by the work force made it clear to the committee that the percentages of African Americans, Asian/Pacific Islanders, and other minorities in Maryland involved in EMS training and in the provider work force were much smaller than their percentages in the state's population. The need to identify the barriers to successfully recruiting and retaining minorities in EMS became obvious. A subcommittee was formed to participate in a nominal group process with the goal of identifying these barriers. (See **Appendix B**.)

The participants in the nominal group process identified that career and commercial EMS services often recruit providers from the local volunteer EMS companies. Therefore, increased recruitment of minorities will benefit both volunteer services and career services. For recruitment and retention efforts geared toward minorities and women to be successful, experienced female and minority providers need to step forward as role models/mentors. The development of community specific programs, especially those based on injury prevention, should be used as a venue for volunteer and career emergency services to promote careers within the service. Finally, the subcommittee agreed the success of minority and women recruitment and retention programs will depend heavily on the organizations' commitment to diversification.

Based on these issues, a second meeting took place to focus on solutions for improving diversity. The solutions identified at the second meeting focused on developing departmental diversity plans along with community outreach involvement.

## Conclusions

The problem of insuring adequate human resources is not isolated to Maryland. Similar trends have been reported in national EMS organizations and publications, newspapers and other states' studies. Despite efforts such as recruitment and retention programs, salary incentive programs and educational programs to "fast-track" EMS provider training many EMS services are struggling to fill existing vacancies.

Currently in Maryland there is an inadequate number of licensed/certified personnel to staff all of the volunteer services and fill the vacant positions within career and commercial services. While the number of vacancies continues to grow, the total volume of basic and advanced life support EMS providers is also growing. The twenty-one programs that offer initial EMS education in Maryland are capable of providing a sufficient number of EMS providers at all levels to meet the current and future demand.

Maryland's EMS providers (volunteer, career, and commercial) believe the services they provide are not valued by the organization and/or public they serve. EMS providers attribute a portion of the State's increased call volume to misuse of the system, a problem they believe stems from a public with very little understanding of their role in the health-care delivery system.

Volunteer services are continuously faced with obstacles such as time constraints and societal issues including multiple jobs, family commitments, and the exposure to risk, threat, and possible injury. The application process, amount of training needed to function, and the additional jurisdictional and individual company requirements are all barriers to services seeking to recruit new members.

Pay (in the paid services), benefits, schedules, organizational issues, workloads, and educational requirements are most often cited as barriers to recruitment and retention.

The driving demand for EMS providers, particularly at the ALS Level, appears to be the result of recent changes in staffing levels by some of Maryland largest jurisdictions more than the result of increased population, call volumes, or a declining number of EMS providers. The staffing configuration recently adopted by several jurisdictions utilizes two ALS providers on each unit, doubling the number of personnel required to provide an ALS service. In addition, fire base EMS services may be staffing a cross-trained ALS provider on fire apparatus functioning as a first response vehicle. The enhancements to the existing system configuration have generated an artificial demand for EMS provider that exceeds the population and EMS provider growth within the system.

Minority and female involvement in EMS is far less than its numbers in the general population would project. Efforts are needed to attract minorities and women to EMS in predominantly white and male bastions.

## Recommendations

Based on the findings in this report, the number of current vacancies, EMS provider satisfaction levels, and projected staffing requirements, MIEMSS, in partnership with the Maryland State Firemen's Association, Metro Fire Chiefs, local and the jurisdictional EMS programs, offers the following recommendations:

1. EMS operational programs should evaluate current delivery models in an effort to develop new approaches for more efficient and effective use of ALS providers that maximize outcomes from critical illness and injury.
2. EMS jurisdictions should utilize trained emergency medical dispatchers and protocols to selectively dispatch ALS providers to patients likely in need of ALS level care and should continuously evaluate compliance with protocols.

3. EMS operational programs should utilize more BLS personnel with AEDs to rapidly respond to incidents and transport patients who do not require ALS level care.
4. Public service messages should be created and distributed that effectively describe the EMS system in Maryland and the relationships between hospitals, trauma and specialty centers, local EMS jurisdictions, and providers.
5. The EMS system should take advantage of opportunities to educate the public about the role and benefits of EMS.
6. MIEMSS Public Information and Media Department should work with EMS operational programs to develop and disseminate a program that can be used to promote careers and volunteerism in EMS.
7. MIEMSS Public Information and Media Department should disseminate success stories regarding local EMS services and the statewide EMS system.
8. "Race" and "Gender" should be added to all initial and recertification applications. This data element should be tracked in the Maryland Prehospital Provider Registry.
9. Efforts to recruit and retain women and minorities in EMS should be enhanced.
10. Additional funding should be secured for EMS primary and continuing education. The additional funding should target areas of the state where ongoing educational programs may not exist.
11. MIEMSS should work cooperatively with the educational programs and hospital administrations to ensure appropriate access to clinical opportunities or, where appropriate, alternatives to clinical experiences without compromising the quality of the educational experience.
12. Funding should be provided for a statewide wellness program that promotes and monitors the health and safety of EMS (volunteer, career, and commercial) providers.
13. MIEMSS should study and make recommendations to reduce recruitment barriers related to the initial training and orientation of EMS providers.
14. MFRI and the University of Maryland Baltimore County Department of Emergency Health Services, in coordination with MIEMSS, should develop and implement a plan to provide leadership and organizational management training for personnel at the EMS supervisory level and above.
15. A program should be developed to encourage school systems (public and private) to implement EMS cadet programs for high school students.

**Appendix A: Meeting Summaries**

The EMS Work Force Committee was established through an initiative of Robert Bass, M.D., Executive Director of the Maryland Institute for Emergency Medical Services System. The Work Force Committee was comprised of organizational representatives from around the State who met over a one-year period. The following is a brief summary of each meeting.

- The organizational meeting was held on May 24, 2004.

The committee reviewed various data with regard to number of EMS providers and their respective levels within the Maryland EMS System. The Work Force Committee was given a charge to look at three important issues.

1. Gather various data relating to provider demographics and satisfaction through a survey that would be developed by the committee.
2. Identify the various issues relating to recruitment and retention in the Maryland EMS system.
3. Make recommendations from the committee's findings to SEMSAC and EMS Board.

A subcommittee was developed to draft a survey.

- Meeting of July 14, 2004

A presentation was given by Dr. Brian J. Maguire, Department of Emergency Health Services, University of Maryland Baltimore County. A copy of a position paper that was written by him and Dr. Bruce Walz (also a member of the Work Force Committee) on EMS Work Force Issues in the United States was distributed to the committee.

Gam Wijetunge, EMS Division of NHTSA, provided a presentation on the Longitudinal Emergency Medical Technician Attribute and Demographic Study (LEADS) Project. The LEADS project was designed to describe the attributes and demographic information that accurately reflect the individuals providing emergency medical services in the United States.

A draft proposal of a survey that would be going out to our providers at the EMT-B, CRT CRT-I, and paramedic levels was reviewed by the committee. Bill Seifarth coordinated the efforts of the committee to develop the survey. The committee made recommendations for revisions to the survey. A revised draft of the survey is to be sent out for further review.

- Meeting of August 25, 2004

Review of survey and explanation of different items on the survey by John New. The committee discussed the format and distribution of the surveys. Need to have forms in prominent location for our providers. The electronic survey will be placed on MIEMSS, MFRI, and MSFA websites. The survey will also be distributed through the MIEMSS Regional Offices; at JAC meetings; regional council meetings; EMS Newsletter, and County Association meetings. Discussion brought forth on diversity in the Emergency Services.

- Meeting of November 10, 2004

Discussion by Bill Seifarth on student race and gender breakdown, as it pertained to the various EMS Classes in the State of Maryland. Information was based on data that are provided from the MESSA Form.

Discussion of the distribution of the EMS Provider Surveys. Efforts need to be put forth by everyone to promote the surveys.

Eric Chaney reviewed documentation on transports and total responses on a Statewide and Jurisdictional level from Calendar Years 1994 through 2003.

Discussion on the formulating of the final report to Dr. Bass and other agencies.

Deputy Chief Simmons from Howard County spoke about diversity issues in the Emergency Services and the need to look at these as well.

A special meeting will be held on January 5, 2005 to review the issues regarding the diversity of the EMS work force.

- Meeting of January 5, 2005
- A Nominal Group Technique Meeting held on January 5, 2005

Various information reviewed with the attendees from eight jurisdictions.

Bill Seifarth acted as the facilitator, along with Deputy Chief Simmons of Howard County.

Purpose of meeting was to determine the top barriers and/or concerns related to recruiting and retaining minorities in the Emergency Services. Initial process identified 41 issues. The list of issues was narrowed down in importance to 16, and then through a process of the top barriers that impact the recruitment and retention of minorities to the emergency services, there were 5 that were identified as the most crucial.

A second meeting will be held to focus on solutions to the barriers that were identified.

- Meeting of January 12, 2005

Presentation by Paul Brown, Equity Coordinator for MFRI on "Diversity in the Emergency Services." Question and answer period followed.

Review of data from surveys by John New. As of today's meeting, MIEMSS has received approximately 2,952 responses through the various websites or on scannable forms. MIEMSS staff is currently reviewing the comments from the questions on the back page of the form.

The committee made a decision to end the survey collection period and base the final report on the surveys to date. The format of the final report was discussed.

The next meeting is scheduled for March 9, 2005.

**Appendix B: Minority Subcommittee Report**

**Maryland Emergency Services Minority Nominal Group Technique**
**Meeting Summary**

January 5, 2005

The EMS Work Force Committee reviewed data showing a disproportionate number of minorities represented within the EMS courses as compared to the breakdown of Maryland census figures. As an example, in 2002, the percentage of African Americans who were certified as EMT-Basic was 12.54%, compared to 27.66%, which is the estimated percentage of African Americans in the State population. Another example deals with the percentage of Asian/Pacific Islanders who enrolled in EMT-B Refresher courses, 0.50%, compared to the 4.38% of Asians/Pacific Islanders in the estimated population of Maryland for 2002. Given these examples and others, the need to identify barriers (opportunities for improvement) to successfully recruiting and retaining minority emergency services providers became obvious. Deputy Chief Kevin Simmons from Howard County DFRS and Committee member of the Metro Chiefs' Diversity Committee, as well as MIEMSS staff worked collaboratively to invite a representative group of career and volunteer providers to participate in a nominal group process. The purpose of the meeting was to determine the top barriers (opportunities for improvement) to recruiting and retaining minorities in the emergency services field.

Representatives from all public safety services (volunteer and career) were sought with the following attending the January 5, 2005 meeting at MIEMSS:

**Baltimore City FD**
- Trudy Booker
- Charles Brown
- Lloyd Carter

**Baltimore County FD**
-Glenn Blackwell
-Jimmy Artis

**Howard County DFRS**
- James Reese
- Gary Clark
- Dr. Kevin Seaman
- Kevin Simmons

**Prince Georges County FD**
-Barry Contee

**Anne Arundel County FD**
- Arnita Dunham
- Noldon Pope
- Julian Jones, Jr.
- Frank Stamm

**Salisbury FD**
- Kara Bailey
- Lorenzo Cropper

**UMBC**
- Bruce Walz

**MFRI**
- Paul Brown

The 18 participants consisted of eight senior officers (Captain and above), a physician, a professor, and other EMS providers. The group consisted of three females and fifteen males. There were fourteen African American participants and four Caucasian participants.

To identify the most important issues, "opportunities for improvement" impacting the recruitment and retention of minorities into the emergency services field, a nominal group process took place. Nominal Group Technique (NGT) is a process that allows a team to quickly come to a consensus on the relative importance of issues by completing individual importance rankings. NGT promotes equal participation for all members such that quiet team members have equal footing to dominant members. Once issues are identified, they are prioritized based on importance or significance. The top issues (opportunities for potential improvement) can then be focused on to achieve the greatest success.

The NGT process initially identified forty-one (41) opportunities for improvement by the group. The comprehensive list was narrowed down to sixteen (16) "opportunities" and then weighted by the group using multi-voting techniques. By the end of the process, the top five opportunities for improvement impacting the recruitment and retention of minorities to emergency services were identified, in order, as follows:

*1. Volunteer fire service is a "gateway" to many career emergency service positions.* Given that preference is provided to EMS providers and firefighters who have experience, most jurisdictions rely on the supply of providers from volunteer companies and services. There is potential for volunteer and career services at local and jurisdictional levels to enhance the minority representation within emergency services. Increased recruitment of minorities will dually benefit the volunteer services at local levels, as well as at the career services which are dependent on volunteer providers.

*2. Commitment to diversification by administration.* There is potential for more embracing of diversification of emergency services at both career and volunteer administrations. Administrators can dedicate more resources to enhancing diversity.

*3. Need for role models/mentors.* There is a need for experienced volunteer and career minority providers who can serve as role models and mentors for prospective emergency services providers. This provides a culture that is welcoming to career and volunteer minorities, as well as ultimately improves their recruitment and retention.

*4. Need for relationship with minority community.* Similar to the law enforcement's "community policing," EMS and fire services need to have more community outreach programs to improve the rapport with the minority communities they serve.

*5. Disconnect between "decision makers" and mandate/commitment to diversity.* There is a perception that the development of EMS curricula and the new proposed scope of practice were done without full consideration of impacts to, or proportionate representation of, minorities. There should be more opportunities for minority participation with decision making groups including federal, state, and county committees, as well as groups impacting the development of EMS policies at all levels.

The above weighted issues are felt to be the top issues as identified by the committee. Based on these issues, a second meeting took place to focus on solutions for improving diversity. The solutions identified at the second meeting focus on developing a departmental diversity plan, along with community outreach involvement, to substantially overcome the five obstacles identified through the nominal group process.

The recommendations from this study encourage similar nominal group technique and brainstorming processes to be duplicated throughout regions of the state not initially covered by this study.

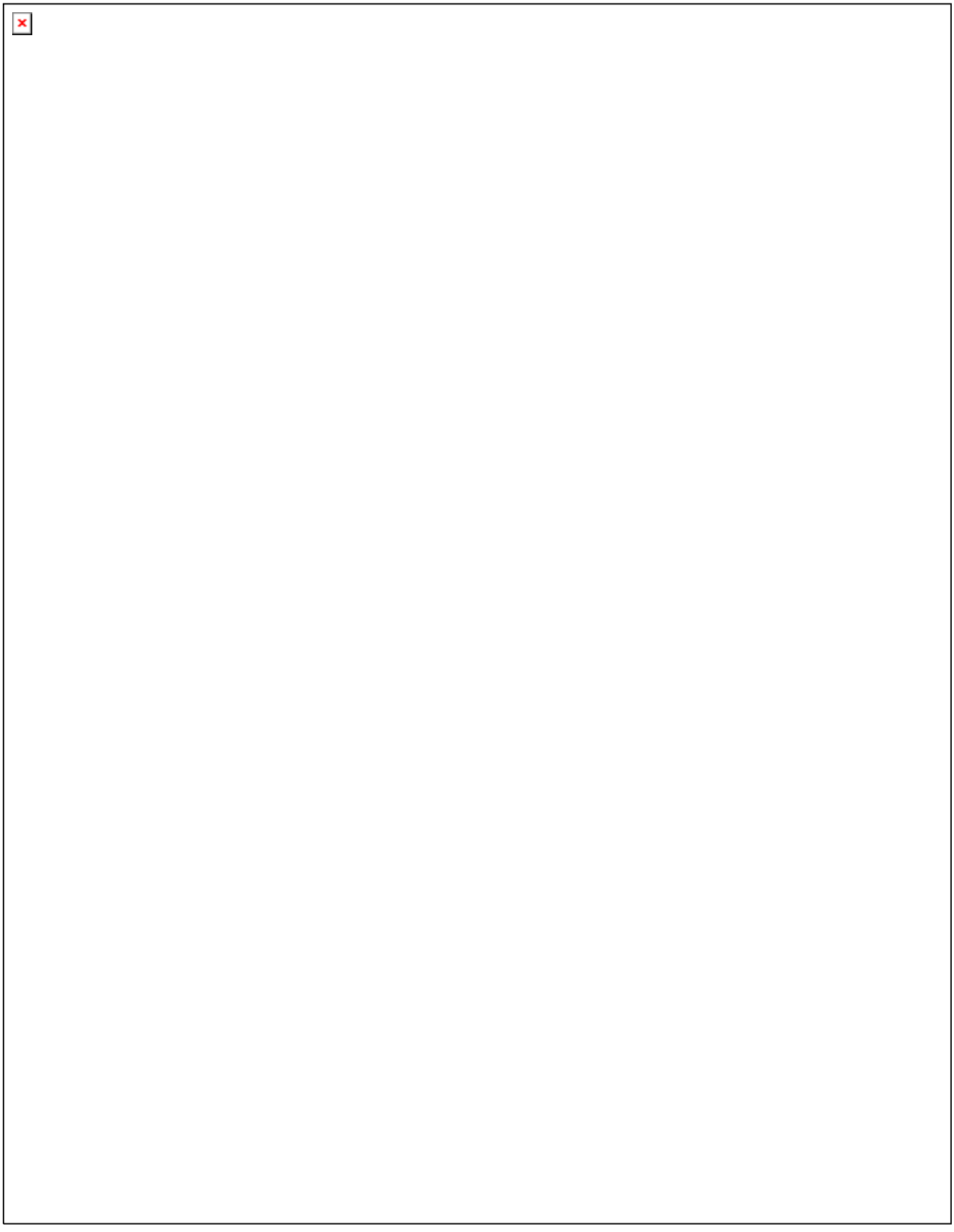
**Appendix C: Work Force Committee Members**

| | |
|---|---|
| Robert Bass, MD | Executive Director, Maryland Institute for Emergency Medical Services Systems |
| Steve Carter | MFRI – Director of Field Operations |
| Eric Chaney | Chief, Division Licensure and Medical Affairs, Maryland Institute for Emergency Medical Services Systems |
| Mike Clemens | Assistant Chief – Montgomery County Fire/Rescue |
| Craig Coleman | Director of Planning, Maryland Institute for Emergency Medical Services Systems |
| Dale Crutchley | City of Annapolis Fire Department (Captain EMS Division) |
| Deborah Davis, MD | Regional Medical Director |
| John Denver | MSFA Recruitment and Retention Committee |
| Marcine Goodloe | MSFA Recruitment and Retention Committee Chairperson |
| Terry Horrocks | Baltimore City Fire Department |
| Phil Hurlock | Ombudsman, Maryland Institute for Emergency Medical Services Systems |
| Chip Jewell | Director Volunteer F/R Services – Frederick County |
| Barbara Knippenburg | MSFA EMS Committee (not able to participate) |
| James Miller | Prince George's County Fire-EMS/ALS Committee |
| John New | Quality Assurance, Maryland Institute for Emergency Medical Services Systems |
| Danny Platt | CASAC |
| Michael Robinson | Baltimore County Fire Department/Council of Academies/MFRETC |
| Lee Sachs | 1st Vice President - MSFA |
| Kevin Seaman, MD | Regional Medical Director |
| William Seifarth | Licensure and Certification, Maryland Institute for Emergency Medical Services Systems |
| Chris Shimer | Howard County Fire Rescue |
| Lee Silverman | Montgomery County Training Academy |
| Kevin Simmons | Deputy Chief – Howard County Fire Rescue |
| Roger Simonds | SEMSAC Chair and EMS Board Member |
| Charlie Simpson | MSFA EMS Committee (Originally w/JAC) |
| Frank Stamm | Anne Arundel County Fire Department |
| Wayne Tome | MSFA EMS Committee Chairperson |
| Andy Trohanis | Director, Licensure and Certification, Maryland Institute for Emergency Medical Services Systems |
| Richard Yinger | EMS Board Member/Past President MSFA |
| Bruce Walz | UMBC Department of Emergency Health Services |
| Elaine Wedding | MSFA EMS Committee an ALS Committee |
| Charles Wills | SEMSAC, MSFA EMS Committee and BLS Committee Chairperson |
| Mary Alice Vanhoy | SEMSAC and ALS Committee |

## Appendix D: Population/Call Volume Spreadsheet

| | Population 2000 | Calls 2000 | Calls per 1000 | Population 2001 | Calls 2001 | Calls per 1000 | Population 2002 | Calls 2002 | Calls per 1000 | Population 2003 | Calls 2003 | Calls per 1000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Allegany | 74,818 | 6,454 | 86.3 | 74,390 | 6,550 | 88.0 | 73,999 | 6,362 | 86 | 73,830 | 6,801 | 92 |
| Anne Arundel | 491,347 | 27,387 | 55.7 | 496,937 | 29,418 | 59.2 | 502,081 | 30,468 | 60.7 | 505,205 | 32,531 | 64 |
| Baltimore | 755,995 | 51,785 | 68.5 | 762,214 | 52,701 | 69.1 | 768,623 | 51,355 | 66.8 | 775,152 | 56,184 | 72 |
| Calvert | 75,187 | 4,553 | 60.6 | 77,664 | 5,182 | 66.7 | 80,905 | 5,239 | 64.8 | 84,155 | 5,480 | 65 |
| Caroline | 29,849 | 2,112 | 70.8 | 30,020 | 2,249 | 74.9 | 30,347 | 2,191 | 72.2 | 30,878 | 1,522 | 49 |
| Carroll | 151,639 | 7,856 | 51.8 | 154,748 | 8,038 | 51.9 | 159,323 | 8,128 | 51.0 | 163,213 | 8,962 | 55 |
| Cecil | 86,481 | 5,327 | 61.6 | 88,385 | 5,575 | 63.1 | 90,366 | 5,165 | 57.2 | 92,951 | 5,635 | 61 |
| Charles | 121,282 | 7,509 | 61.9 | 124,955 | 7,693 | 61.6 | 128,215 | 8,037 | 62.7 | 132,286 | 8,870 | 67 |
| Dorchester | 30,594 | 2,217 | 72.5 | 30,593 | 2,023 | 66.1 | 30,494 | 2,422 | 79.4 | 30,594 | 1,856 | 61 |
| Fredrick | 196,579 | 12,010 | 61.1 | 202,388 | 12,535 | 61.9 | 209,103 | 13,102 | 62.7 | 213,623 | 13,319 | 62 |
| Garrett | 29,832 | 1,927 | 64.6 | 29,813 | 1,889 | 63.4 | 29,915 | 1,950 | 65.2 | 30,093 | 1,994 | 66 |
| Harford | 219,506 | 11,124 | 50.7 | 222,683 | 11,749 | 52.8 | 227,361 | 11,673 | 51.3 | 232,030 | 12,225 | 53 |
| Howard | 249,576 | 10,692 | 42.8 | 255,374 | 906 | 3.5 | 259,901 | 9,866 | 38.0 | 263,948 | 11,462 | 43 |
| Kent | 19,276 | 1,224 | 63.5 | 19,349 | 1,345 | 69.5 | 19,426 | 1,423 | 73.3 | 19,483 | 1,544 | 79 |
| Montgomery | 877,699 | 24,394 | 27.8 | 893,137 | 39,894 | 44.7 | 905,995 | 44,572 | 49.2 | 915,058 | 44,967 | 49 |
| Prince George's | 803,581 | 44,533 | 55.4 | 817,271 | 47,820 | 58.5 | 827,704 | 49,775 | 60.1 | 836,369 | 50,369 | 60 |
| Queen Anne's | 40,779 | 3,176 | 77.9 | 41,468 | 3,510 | 84.6 | 42,876 | 3,518 | 82.1 | 44,270 | 4,036 | 91 |
| St. Mary's | 86,528 | 6,430 | 74.3 | 87,483 | 6,796 | 77.7 | 89,951 | 7,267 | 80.8 | 92,697 | 7,671 | 83 |
| Somerset | 24,730 | 1,675 | 67.7 | 25,236 | 1,654 | 65.5 | 25,465 | 1,738 | 68.3 | 25,563 | 1,866 | 73 |
| Talbot | 33,906 | 2,702 | 79.7 | 34,096 | 2,820 | 82.7 | 34,367 | 2,943 | 85.6 | 34,562 | 3,093 | 89 |
| Washington | 132,120 | 9,238 | 69.9 | 133,016 | 9,713 | 73.0 | 134,787 | 9,750 | 72.3 | 136,941 | 10,192 | 74 |
| Wicomico | 84,891 | 7,404 | 87.2 | 85,396 | 6,967 | 81.6 | 86,162 | 7,829 | 90.9 | 87,552 | 8,099 | 93 |
| Worcester | 46,759 | 4,692 | 100.3 | 47,529 | 5,067 | 106.6 | 48,024 | 5,297 | 110.3 | 48,553 | 3,085 | 64 |
| Baltimore City | 648,554 | 74,315 | 114.6 | 645,305 | 74,315 | 115.2 | 636,141 | 41,668 | 65.5 | 643,304 | 63,002 | 98 |
| Maryland | 5,311,508 | 596,703 | 112.3 | 5,379,450 | 590,101 | 109.7 | 5,441,531 | 616,140 | 113.2 | 5,512,310 | 663,299 | 120 |

## Appendix E:  Maryland EMS Provider Workforce Survey



**Appendix F: Maryland EMS Education Programs**