JOINT LEGISLATIVE AUDIT AND REVIEW COMMISSION
OF THE VIRGINIA GENERAL ASSEMBLY

Review of Emergency Medical Services in Virginia

House Document No. 37 (2004)

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Preface

House Joint Resolution 133 of the 2004 General Assembly called for the Joint Legislative Audit and Review Commission (JLARC) to conduct a comprehensive review of pre-hospital emergency medical services (EMS) in Virginia. The mandate directed JLARC staff to address several broad areas, such as reviewing and assessing emergency care services in Virginia, identifying emerging issues and problems in the EMS system, and considering the effect on the EMS system of issues such as health care costs, funding for emergency medical care, and third-party reimbursement.

JLARC staff found that Virginia's EMS system is currently in a state of transition. Training requirements for EMS staff are increasing, and in many areas of the State, EMS is moving from a free service provided by volunteers to a service that bills for the care it provides and uses paid staff to ensure the availability of a high level of emergency medical care 24 hours a day, seven days a week.

Overall, this report found that all Virginians have access to some level of emergency medical services. However, the availability of advanced life support providers, particularly paramedics (the highest skill level of EMS provider), varies substantially across the State. The time it takes for an ambulance to respond to a 911 call also varies across the State; response times are longer in some parts of the State due to factors such as terrain, population and traffic densities, and EMS agency staffing levels.

Other issues are also affecting the EMS system. For example, agencies are having difficulties recruiting and retaining providers, both volunteer and paid. Access to advanced life support training has been reduced because of new accreditation requirements. In addition, many EMS agencies do not bill patients' health insurance for emergency medical services, forgoing a substantial revenue source.

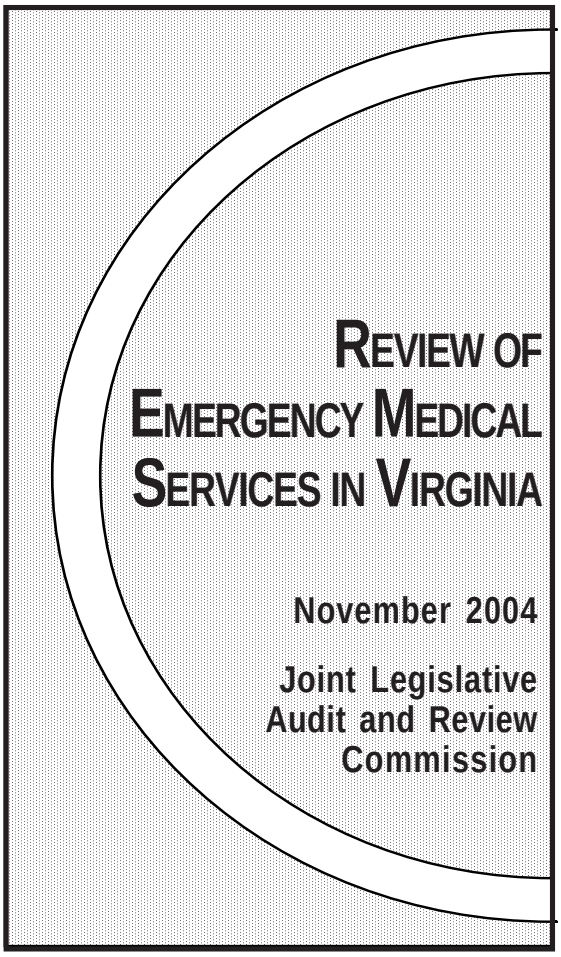
This report makes several recommendations to address these issues, including amending the *Code of Virginia* to require local governments to ensure the provision of EMS, requiring EMS agencies to have response time goals, requiring new squad captains to take leadership and management training to improve recruitment and retention, improving access to advanced life support training, and encouraging agencies to bill patients' health insurance for services. Several organization and management recommendations are also presented to help improve services.

On behalf of the JLARC staff, I would like to thank the staff of the Office of Emergency Medical Services in the Department of Health, and the local EMS agencies and providers that provided assistance during our review.

Philip A. Leone
Director

November 15, 2004

JLARC Report Summary



House Joint Resolution 133 of the 2004 General Assembly calls for the Joint Legislative Audit and Review Commission (JLARC) to conduct a comprehensive review of pre-hospital emergency medical services (EMS) in Virginia. The mandate lists several broad areas the study is to address, such as reviewing and assessing emergency care services in Virginia, identifying emerging issues and problems in the EMS system, and considering the effect of issues such as health care costs, funding for emergency medical care, third-party reimbursement, and indigent care on the EMS system.

Pre-hospital emergency medical services are a large and critical part of Virginia's health care system. Virginia's EMS providers reported more than 1.3 million responses to emergency medical incidents during the 2002-2004 biennium, according to data maintained by the Virginia Department of Health's Office of Emergency Medical Services (OEMS). Nearly 33,000 people are certified to provide emergency medical care in 815 licensed EMS agencies located throughout the State.

Emergency medical services in Virginia are in transition. Training requirements for EMS staff are increasing, and in many areas of the State, EMS is moving from a free service provided by volunteers to a service that bills for the care it provides and uses paid staff to ensure the availability of a high level of emergency medical care 24 hours a day, seven days a week.

Public expectations for emergency medical care tend to be high. A 1999 VCU Commonwealth Poll found, for example, that 59 percent of the respondents said they would expect a paramedic, the highest skill level among EMS providers, to provide care in response to an emergency in their home. In reality, however, only ten percent of all certified providers are paramedics. The same poll found that 55 percent of the respondents rated the quality of the emergency medical care in their community as excellent or good.

Virginia's EMS system is well above the national average in the number of emergency medical vehicles and personnel relative to the population served. In 2003, the Commonwealth was ranked first in the nation in the ratio of population per emergency vehicle, with one vehicle for every 1,749 residents, and tenth in the ratio of population per certified EMS personnel, with an average of one certified EMS provider for every 215

people. These excellent national rankings do not mean that vital EMS resources are uniformly distributed within the State; in fact, the ratio of providers to population varies from a high of one provider for every 70 people in Surry County to a low of one provider for every 1,211 residents in Manassas.

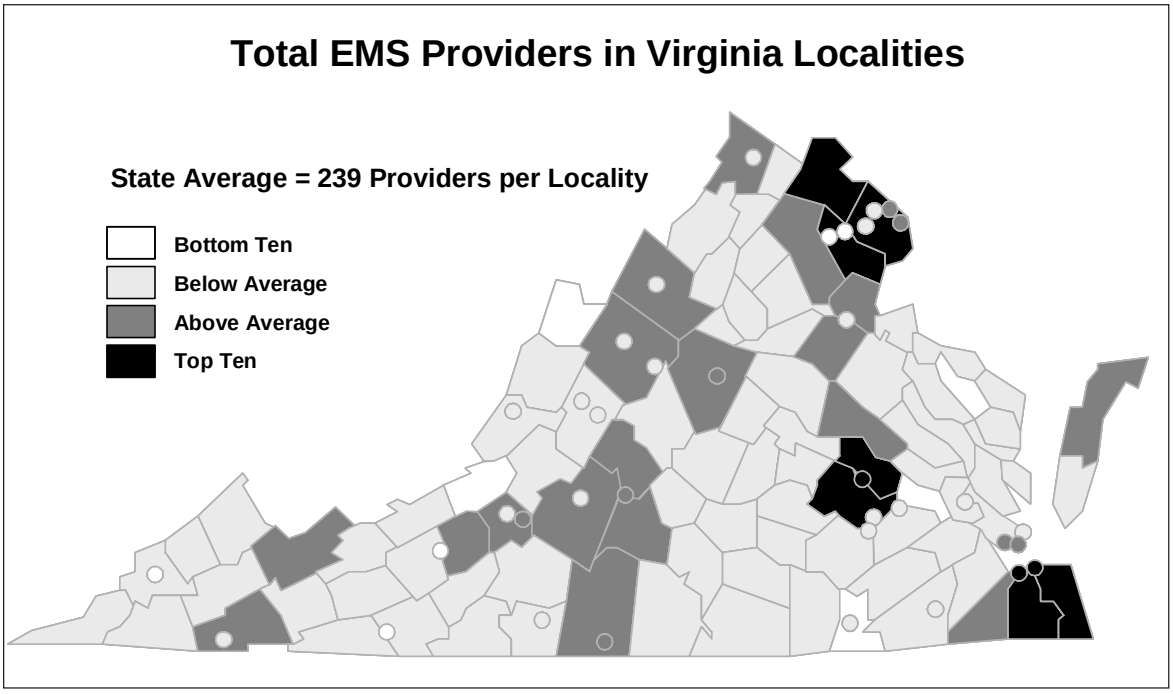
In 2003, the average reported time required for a unit to arrive on scene after it was dispatched was approximately 12 minutes, and 72 percent of all reported responses were provided in less than 10 minutes. Less than one percent of the reported responses took more than one hour from the time the unit was dispatched until it arrived on scene. This analysis is, however, based on a review of the limited data on response times, as at least 200 EMS agencies did not submit this data to OEMS as required by law.

There are places in Virginia where response times may be longer, due to a combination of factors such as terrain, population and traffic densities, and EMS agency staffing levels. This is important because the patient's chance of surviving major injuries is much greater if treated at an appropriate facility within the first hour after the incident (the "golden hour").

All localities have access to some level of EMS, although 53 percent of all Virginia paramedics (the highest skill level of EMS provider) are in just 14 localities, and 12 localities have no paramedics. Overall, most EMS providers are located in the State's major population areas (see map below).

In many areas of the State, EMS is available only because individual residents have volunteered and organized themselves to provide the services – there is no State requirement for EMS to be available. While State law directs the Board of Health to develop a comprehensive and coordinated system of EMS, no agency, either State or local, is required to actually provide emergency medical services. Local governments provide EMS in 84 localities, but have played only a minimal role in other areas. For example, 18 localities (13 counties, three cities, and two towns) were reported as having provided less than $10,000 in financial support to the volunteer EMS agencies operating within their jurisdictions, according to grant applications filed by the agencies.

Total EMS Providers in Virginia Localities



As shown in the table below, there are 485 EMS agencies classified as volunteer agencies. Some localities are totally dependent on these volunteer agencies for EMS. Virginia is fortunate to have such extensive participation by volunteers, especially when there is no State mandate for EMS. Among the 84 EMS agencies operated by local governments, some rely on full-time employees to provide services, while others use a combination of career EMS providers alongside volunteer providers. Several localities also contract with private firms for EMS. While many EMS agencies appear to provide a reasonable level of emergency care, there are several actions that should be taken to improve and strengthen the system statewide.

Availability of Emergency Medical Services Should Be Mandated

To ensure that all Virginians have access to emergency medical services in light of the significant challenges facing volunteer rescue squads, the State needs to ensure the provision of these services by statute. Most citizens probably recognize EMS as a vital public service, like firefighting and law enforcement. Moreover, the public appears to expect a high level of emergency medical service, in which an ambulance staffed with highly-trained medical personnel arrives within minutes of a call to 911. In many places in Virginia, reality meets these high expectations.

Because of the lack of a State law, however, it is unclear who is supposed to take corrective action when EMS services are inadequate or unavailable. There is no statutory requirement for any entity to ensure continuity of services when volunteer agencies close or disband, as four did in FY 2003 and FY 2004. In each of these cases, local government EMS agencies assumed responsibility for the services, but such actions were not required by law.

The General Assembly may wish to amend the *Code of Virginia* to require that local governments ensure the continuous provision of EMS. This would not necessarily require any changes in current practice, but would assign localities the responsibility to take action in the event that the continuity of service is jeopardized. This change

Licensed EMS Agencies

Category	Number of Agencies August 2004	Percent	Incident Responses Reported in 2002-2003	Percent
Volunteer	485	60	456,604	34
Non-Emergency Wheelchair Transportation	93	11	N/A	--
Governmental	84	10	487,418	36
Commercial	63	8	379,505	28
Air Ambulance or Fixed Wing	14	2	N/A	--
Other (Industrial, Federal, Nonprofit)	59	7	29,533	2
Total	815	100	1,353,060	100

N/A = Not available.

would also enhance the statutory responsibility of the Board of Health to provide a comprehensive and coordinated EMS system statewide, and the statutory duty of OEMS to increase the accessibility of EMS to all citizens.

Recruitment and Retention Are Critical Problems

In many areas of the State, recruiting and retaining EMS providers are critical issues. Local agencies are experiencing problems with retaining current EMS providers as well as problems with recruiting new providers. The problems are particularly serious for volunteer agencies, and may be putting some volunteer agencies at risk of not being able to provide services on a 24-hour basis, as required by State regulations.

There are various reasons for the recruitment and retention problems, including difficulties obtaining the training necessary to maintain certification, and competition among agencies and other health care organizations for providers. The time commitment required to be a volunteer provider and weak management in some volunteer agencies are also important issues. In addition, approximately 26 percent of the State's certified providers are not currently affiliated with any EMS agency.

OEMS and the local EMS agencies are currently working to address recruitment and retention issues. OEMS has recently retained a consultant to develop specific methods for EMS agencies to improve personnel recruitment and retention. Many local agencies already offer various incentives, such as free training, free local vehicle stickers, and college tuition reimbursement. OEMS should take additional actions, including:

- consider reallocating some of the "$4-for-Life" funding to help agencies fund recruitment and retention incentives;
- require squad captains to take leadership and management training within six months of becoming captain; and
- define a larger role for the regional EMS councils in assisting agencies with recruitment and retention.

Access to EMS Training Needs to Be Expanded

A shortage of trained advanced life support (ALS) providers is a problem for many EMS agencies. Part of the reason is limited access to and the increased cost of ALS training. Recent EMS regulations require that ALS training take place only at an accredited training site. Since the regulations took effect in January 2003, 12 paramedic training programs have achieved accreditation. These programs have 19 sites which are primarily centered around Richmond, Tidewater, and Northern Virginia, but are also available in Roanoke and Norton.

EMS providers in other parts of the State thus have very little access to this level of training. Several additional sites are in the accreditation process, but it can take a year or more and cost up to $40,000 to establish a site, leading to delays in the provision of this training, and a sharp increase in the cost. The increased cost and reduced number of sites may be barriers to ensuring that Virginia continues to have adequate numbers of paramedics.

Even though the total number of ALS–certified providers has increased, OEMS should expand the availability of paramedic and other ALS training, by encouraging online training and the development of satellite locations for already-accredited sites.

EMS Funding Could Be Enhanced by Billing for Services

An estimated $356 to $598 million was spent and contributed statewide in 2003 for the emergency medical services provided

by volunteer and governmental agencies in Virginia, based on a JLARC staff estimate. All EMS agencies require funds to operate. Even agencies operated entirely with volunteers still require costly items such as vehicles, fuel, station houses, utilities, medical supplies, and training.

EMS agencies receive funding and support from many sources, such as fund raising and contributions, local tax revenue, and charging fees for services. The State's financial contribution to EMS agencies has been limited, and currently represents less than five percent of total statewide EMS spending. With the recent doubling of the EMS earmark on motor vehicle registrations to "$4-for-Life," State funds should have doubled, but not all of the additional funding has been provided to EMS. In FY 2005, $3.45 million of the revenue is appropriated to the State's General Fund. This in turn has had the effect of preventing new legislation changing the distribution formula for the $4-for-Life funding from taking effect. The revised formula places a higher priority on EMS system development and improved emergency preparedness.

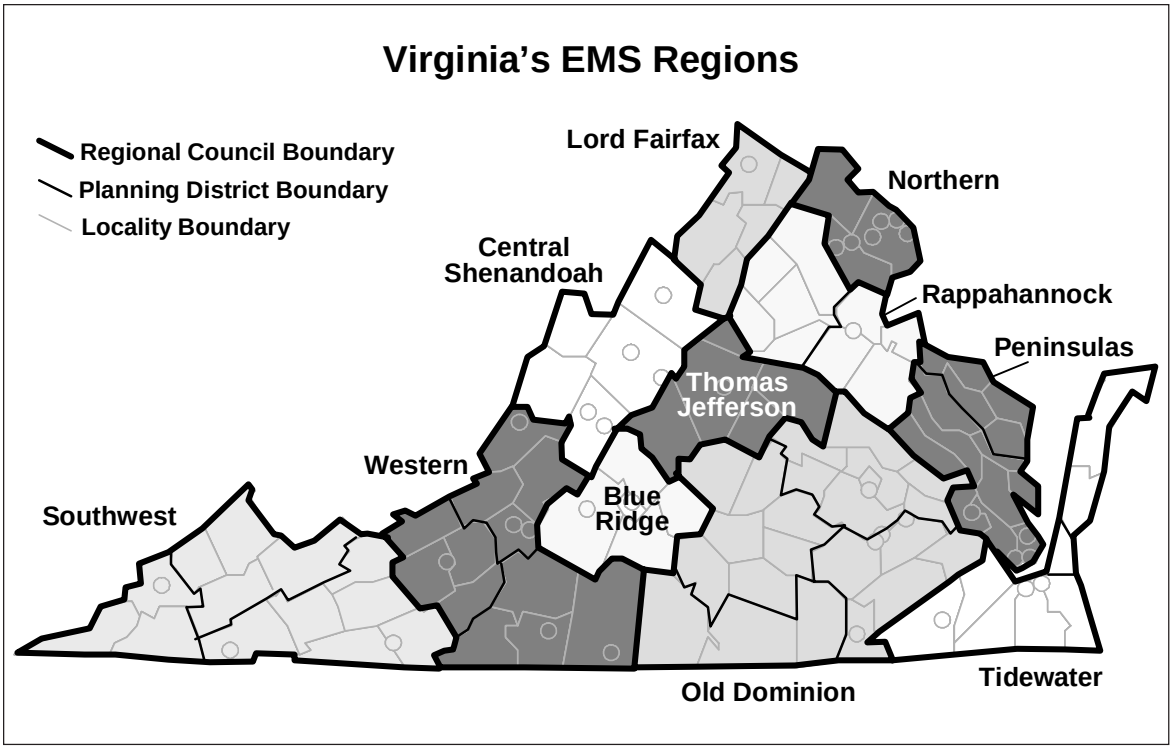
EMS agencies' need for stable and reliable revenue is increasing. This is due partly to the competitive environment for certified EMS providers, especially paramedics, and partly to volunteer agencies hiring staff to ensure 24-hour coverage. Patients' health insurance represents a viable and largely untapped source of revenue for EMS. The U.S. Census Bureau recently estimated that 87 percent of Virginians had health insurance coverage in 2003. Billing for EMS services will help address the financial need. Failure to recover this revenue simply leaves unclaimed the health insurance benefits for which most patients have already paid. In addition, Medicaid reimbursement policies and rates need to be updated and adjusted, as they no longer accurately represent the EMS services provided to patients.

Organizational and Management Structures Could Improve Services

Virginia's emergency medical services system is large and complex. The State's role, according to the *Code of Virginia,* is to develop and coordinate the system, and provide some funding for training and equipment. To carry out these broad responsibilities, OEMS develops and enforces plans and regulations, administers grant and other financial assistance programs, and contracts with the regional EMS councils for specific services and functions. The State EMS Advisory Board also reviews the statewide system and makes recommendations to the Board of Health for improvements.

Some actions are needed to strengthen the State's role with EMS. As first noted in the 1999 JLARC study of air medevac services, the Board of Health has not met the statutory requirement for a triennially-revised statewide EMS plan. A revised plan should address the recommendations of this report. OEMS should also request some additional staff (funding is already available) to improve quality control and monitoring of training. These positions should be located in some of the 11 regional councils (see map, next page).

The approved 2003 EMS regulations contain several flaws, such as contradictory provisions, which need to be corrected. Several proposed regulations were withdrawn at the last minute, and should be reconsidered. For example, a requirement for each EMS agency to establish a response time goal and meet it 90 percent of the time was withdrawn, but appears to meet a reasonable public expectation. Of the 278 EMS agencies responding to the JLARC survey, 77 percent indicated they already had such response time goals.



A Separate State Agency Is Not Needed

HJR 133 directs JLARC staff to consider whether a separate State agency is needed for EMS. Of the 278 EMS agencies and 892 EMS providers who responded to JLARC surveys, none identified the need for a separate agency as a top issue. Among the 165 persons interviewed during the course of this review, there was a clear consensus that the State EMS function should continue to be linked to health and medical responsibilities of State government, as opposed to public safety. Additionally, there would be some costs for establishing an agency, and the benefits are unclear. Consequently, it would appear that a separate EMS agency is not needed.

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I. Introduction

House Joint Resolution 133 of the 2004 General Assembly calls for the Joint Legislative Audit and Review Commission (JLARC) to conduct a comprehensive review of pre-hospital emergency medical services (EMS) in Virginia. The mandate lists several broad areas the study is to address, such as reviewing and assessing emergency care services in Virginia, identifying emerging issues and problems in Virginia's EMS system, and considering the effect of issues such as health care costs, funding for emergency medical care, third-party reimbursement, and indigent care on the EMS system. It also identifies more specific tasks, such as evaluating the need for a separate Department of Emergency Medical Services. A copy of the study mandate is provided as Appendix A.

This chapter discusses the study mandate, provides an overview of Virginia's EMS system, the training required to become a certified EMS provider, and describes some prior studies that have evaluated the EMS system. Later chapters discuss statewide access to emergency medical services, the staffing and funding of Virginia EMS agencies, and other organizational issues.

OVERVIEW OF EMERGENCY MEDICAL SERVICES IN VIRGINIA

Pre-hospital emergency medical services are a large and critical component of the health care system. According to Virginia Department of Health data, EMS providers reported more than 1.3 million responses to emergency medical incidents in the 2002-2004 biennium. Nearly 33,000 people are certified to provide emergency medical care, and they work out of 815 licensed EMS agencies located throughout the State.

In a well-functioning EMS system, when an individual experiences a medical emergency, the EMS system is quickly accessed by calling 911, appropriate resources are immediately dispatched to the scene, pre-arrival instructions to start care and treatment are provided to the caller, well-trained personnel arrive within minutes and provide care at the scene, and the patient is quickly transported in a properly equipped ambulance (ground or air) to the most appropriate hospital or trauma center, where the patient receives the required treatment. When a larger-scale incident occurs, a coordinated response from neighboring EMS agencies brings skilled people and the required equipment to the scene, and patients are quickly transported to appropriate hospitals and trauma centers.

The EMS system in Virginia is varied and complex. EMS services are locally based, and only certified personnel can provide emergency medical care. The Office of Emergency Medical Services (OEMS) within the Virginia Department of Health is responsible for certifying EMS personnel, licensing EMS agencies, and issuing permits for EMS vehicles. Although local units of government are not required to ensure that such services are available, EMS services appear to be available in all localities.

All EMS personnel must meet State certification requirements, but there are no State standards or requirements for response time (generally, the time that elapses between the initial phone call for assistance and the arrival on scene of EMS personnel and equipment). Response times may be longer in some areas of the State and at certain times of the day or week. The crew that responds to a call may come from a neighboring jurisdiction; may arrive in a fire truck or an ambulance; may be volunteers, paid career staff, or a combination; and may provide medical services at several skill levels, from first responder to paramedic. Sometimes the operational medical director (the supervising physician) may even respond to the scene with the crew. The crew carries out medical procedures in accord with protocols approved by the squad's operational medical director, under whose medical license they provide services. In general, the patient will be taken to the nearest appropriate hospital or emergency room. In trauma cases, area hospitals are often bypassed in order to quickly transport (in many cases, by helicopter) the patient to a trauma center.

The State's role, as assigned by statute (*Code of Virginia* §32.1-111.3) to the Board of Health, is to provide for a comprehensive, coordinated EMS system in the Commonwealth. Under the oversight of the Board, OEMS implements this requirement through a variety of methods and personnel. The Board sets standards and regulations governing emergency medical services, and OEMS inspects local EMS agencies for compliance, certifies all EMS providers and instructors, and issues permits for all EMS vehicles.

OEMS also makes State funding available for emergency medical services, primarily from the "$4-for-Life" fee paid on each motor vehicle registration. This fee increased to $4.00 in July 2002, although a portion of the proceeds have gone to the general fund. In FY 2005 this fee is expected to generate nearly $26 million; $3.45 million is appropriated to the State general fund, and $1 million is transferred to the Department of State Police for air medevac services. The bulk of the money is used for training and equipment for local squads and personnel.

The remainder of this section includes a discussion of the statutory and administrative requirements of the EMS system, the history of Virginia's EMS system, the organization of EMS services in the State, and the funding of EMS in Virginia.

Requirements for the Provision of Emergency Medical Services

The provision of emergency medical services in Virginia is voluntary – no statute requires the State, local governments, or any other entities to provide EMS. Although there is no mandate, 84 EMS agencies are provided or operated by local governments. Perhaps the most important section in the *Code of Virginia* specifying local authority is §15.2-955, which requires that the local governing body must approve the creation of volunteer rescue squads or other emergency medical services organization (if created after July 1, 1984) operating within the jurisdiction. This puts localities in the position of having an important say in the implementation of services, without mandating their provision.

If a locality does choose to provide emergency medical services, the *Code of Virginia* provides significant flexibility. The *Code of Virginia* authorizes localities to contract with or provide for EMS companies or associations, and allows them to use government-employed, private, and/or volunteer EMS personnel (§27-23.6). Section 27-23.1 of the *Code of Virginia* also allows local governing bodies to "create and establish fire/EMS zones or districts, within which may be established one or more fire/EMS departments."

Although EMS services are locally based, the *Code of Virginia* assigns major planning and coordination responsibilities to the State. The *Code of Virginia* (§32.1-111.3) requires the Board of Health to develop a comprehensive, coordinated, emergency medical care system in the Commonwealth and prepare a statewide emergency medical services plan. Other key requirements of the Board of Health include:

- prescribing regulations for EMS personnel and vehicles (§32.1-111.4),
- certifying and recertifying EMS personnel (§32.1-111.5),
- issuing permits for EMS vehicles and to EMS agencies (§32.1-111.6), and
- designating regional emergency medical services councils (§32.1-111.11).

The *Code of Virginia* directs OEMS to increase accessibility of EMS to all citizens, and to promote the continuing improvement in all aspects of the EMS system (§32.1-111.3). The *Code of Virginia* outlines the duties of the State Emergency Medical Services Advisory Board (§32.1-111.10); establishes the "$4-for-Life" program (§46.2-694); creates the Virginia Rescue Squads Assistance Fund (§32.1-111.12); establishes the emergency medical services patient care information system to collect data on the incidence, severity, and causes of trauma; to integrate the information available from other State agencies on trauma; and to improve the delivery of pre-hospital and hospital emergency medical services (§32.1-116.1). Exhibit 1 outlines the 13 objectives of Virginia's EMS system provided in the *Code of Virginia*.

In addition to the requirements in the *Code of Virginia,* OEMS has developed the *Virginia Emergency Medical Services Regulations* (12 VAC 5-31). Recent revisions to the regulations took effect January 15, 2003. The regulations cover a variety of areas, including agency licensure and requirements, vehicle classifications and requirements, EMS personnel requirements, EMS education and certification, EMS physician regulations, and wheelchair interfacility transport. For example, the regulations:

- specify the equipment to be carried in each EMS vehicle;
- specify the requirements for basic and advanced life support certifications;

Exhibit 1

Objectives of Virginia's EMS System

1. Establish a comprehensive statewide emergency medical care system, incorporating facilities, transportation, manpower, communications, and other components as integral parts of a unified system that will serve to improve the delivery of emergency medical services and thereby decrease morbidity, hospitalization, disability, and mortality;
2. Reduce the time period between the identification of an acutely ill or injured patient and the definitive treatment;
3. Increase the accessibility of high quality emergency medical services to all citizens of Virginia;
4. Promote continuing improvement in system components including ground, water and air transportation, communications, hospital emergency departments and other emergency medical care facilities, consumer health information and education, and health manpower and manpower training;
5. Improve the quality of emergency medical care delivered on site, in transit, in hospital emergency departments and within the hospital environment;
6. Work with medical societies, hospitals, and other public and private agencies in developing approaches whereby the many persons who are presently using the existing emergency department for routine, non-urgent, primary medical care will be served more appropriately and economically;
7. Conduct, promote, and encourage programs of education and training designed to upgrade the knowledge and skills of health manpower involved in emergency medical services;
8. Consult with and review, with agencies and organizations, the development of applications to governmental or other sources for grants or other funding to support emergency medical services programs;
9. Establish a statewide air medical evacuation system which shall be developed by the Department of Health in coordination with the Department of State Police and other appropriate State agencies;
10. Establish and maintain a process for designation of appropriate hospitals as trauma centers and specialty care centers based on an applicable national evaluation system;
11. Establish a comprehensive emergency medical services patient care data collection and evaluation system pursuant to Article 3.1 (§ 32.1-116.1 et seq.) of this chapter;
12. Collect data and information and prepare reports for the sole purpose of the designation and verification of trauma centers and other specialty care centers pursuant to this section; and
13. Establish a registration program for automated external defibrillators, pursuant to § 32.1-111.14:1.

Source: Code of Virginia, § 32.1-111.3.

- allow OEMS to suspend or revoke a license, permit, certificate, or endorsement;

- require designated emergency response agencies to maintain written mutual aid agreements with adjacent designated emergency response agencies in another location with which it shares a common border; and

- require each EMS agency to have an operational medical director who is a licensed physician holding endorsement as an EMS physician from OEMS.

History of Emergency Medical Services in Virginia

While many people today see EMS as a vital public service, in fact the modern EMS system is relatively new. Although the first rescue squad in the nation was established in Roanoke, Virginia in 1928, a more comprehensive and coordinated system of emergency medical services in Virginia did not evolve until the late 1960s, after the passage of federal legislation and the Virginia Ambulance Law in 1968. Prior to that, there were no State standards, planning, or coordination, and a variety of different types of vehicles were used for emergency transportation, including hearses. The Virginia Ambulance Law called for the development and enforcement of standards for all ambulance services, whether volunteer, commercial, or municipal. At that time, the Bureau of Emergency Medical Services was established in the Department of Health. Exhibit 2 lists major milestones in the development of Virginia's EMS system.

Virginia has a "rich, proud, and deep-rooted tradition of volunteer rescue squads," according to the director of OEMS. These volunteer squads have operated for decades in a fairly autonomous fashion, raising revenue through numerous local fund raising activities. In fact, Virginia is home to "the nation's largest volunteer rescue squad system," in Virginia Beach. While it and others are integrated into the local government structure, some volunteer squads have little to do with government, State or local. For example, OEMS staff have indicated that some volunteer squads refuse to accept any government funding and also refuse to provide budgetary or other information to the State or localities.

No State funding was provided for EMS until 1978, when the Virginia Rescue Squads Assistance Fund was established. In 1983, the "One For Life" legislation was passed, adding a $1.00 fee on motor vehicle registration to support EMS. The legislature increased this funding source, which will be discussed in more detail in Chapter IV, to $2.00 in 1990 and $4.00 in 2002.

Exhibit 2

Major Milestones in Virginia's EMS System

1928	The first independent volunteer rescue squad in the country, Roanoke Lifesaving and First Aid Crew, was established in Roanoke, Virginia.
	1960s
1968	State involvement in emergency medical services (EMS) began with the passage of the Virginia Ambulance Law, which called for the development and enforcement of standards for all ambulance services, whether volunteer, commercial or municipal. The Bureau of Emergency Medical Services established within the Department of Health.
1969	The first Rules and Regulations Governing Ambulance Services promulgated.
	1970s
1971	The National Standard Curriculum for Emergency Medical Technicians (EMT) implemented in Virginia.
1974	The Virginia General Assembly passed more comprehensive EMS systems legislation.
1976	The first EMT-Paramedics certified. EMT Instructor Trainer Program initiated.
1978	Virginia Rescue Squads Assistance Fund created by legislation. Virginia's Regional EMS Councils formally recognized in the *Code of Virginia*.
	1980s
1980	Regional EMS Councils designated by the State Board of Health.
1981	Virginia's first air medical evacuation service dedicated in Salem. A federal block grant permits statewide funding for all EMS Regional Councils.
1982	First Responder program initiated. The first State EMS Plan adopted.
1983	"One For Life" legislation passed, adding a $1.00 fee on motor vehicle registration to support EMS. Funding for Regional EMS Councils shifted from federal block grant to state funding.
1986	Governor's EMS Awards initiated to recognize outstanding individuals and EMS agencies.
1987	Statewide Trauma Registry legislated for collecting data. Developed and adopted first State MEDEVAC plan for the Commonwealth.
1988	Major efforts initiated to address widespread problem of recruitment and retention of qualified EMS personnel.
1989	EMS Advisory Board established the Medical Control Committee and the Office of EMS contracted part-time with a physician to serve as the State EMS Medical Director.
	1990s
1990	"Two For Life" legislation passed, which doubled to $2.00 the annual motor vehicle registration fee for EMS. Rules and Regulations Governing EMS revised to incorporate Guidelines and Procedures for BLS and ALS Training Programs.
1997	Recertification requirements for all certification levels updated and Operational Medical Directors allowed to waive recertification testing for qualified EMS agency members under their supervision.
1998	New Continuing Education requirements for all EMS certification levels took effect.
1999	EMS agencies required to start submitting Pre-Hospital Patient Care Reports.
	2000s
2000	Initiated extensive review of EMS Rules and Regulations, the first update since 1990. Statewide collection of Pre-Hospital Patient Care Report data initiated.
2002	"Four for Life" legislation passed, which doubled to $4.00 the annual motor vehicle registration fee.
2003	Revised regulations took effect.
2004	Revised distribution formula for $4-for-Life funding adopted by General Assembly.

Source: Office of Emergency Medical Services.

ORGANIZATION OF EMERGENCY MEDICAL SERVICES IN VIRGINIA

The organizational structure of emergency medical services in Virginia is complex. The structure includes the State Office of Emergency Medical Services in the Department of Health, the Virginia Emergency Medical Services Advisory Board, regional emergency medical services councils, and a wide variety of local EMS providers. Each of these levels of the organization is discussed below.

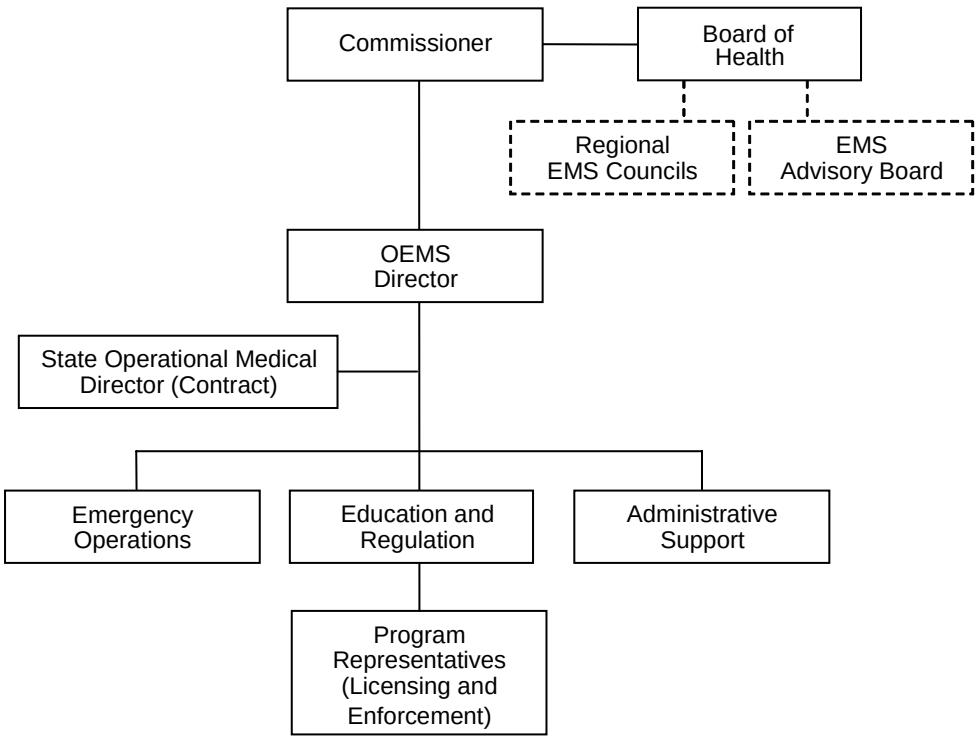
Office of Emergency Medical Services

The Office of Emergency Medical Services (OEMS) in the Virginia Department of Health is the State entity charged with the responsibility for developing a comprehensive, coordinated emergency medical care system in the Commonwealth. The 44 staff positions in OEMS are responsible for certifying EMS providers, licensing EMS agencies, permitting EMS vehicles, coordinating EMS training, enforcing EMS regulations, and providing technical assistance to local agencies, among other duties. OEMS also contracts with a physician (approximately eight hours per week) to serve as the State's operational medical director.

There are three major divisions within OEMS (Figure 1). Education and Regulation, the largest division, is responsible for education and training, trauma

Figure 1

Organization of Emergency Medical Services in Virginia



Source: Office of Emergency Medical Services.

and critical care, technical assistance to localities, and regulation and compliance. This division includes eight program representatives who inspect local EMS agencies and enforce the EMS regulations. The Administrative Support Division handles grants to local agencies and provides internal administrative services to OEMS. The Emergency Operations Division manages emergency communications and an emergency operations center, and provides related training.

Virginia Emergency Medical Services Advisory Board

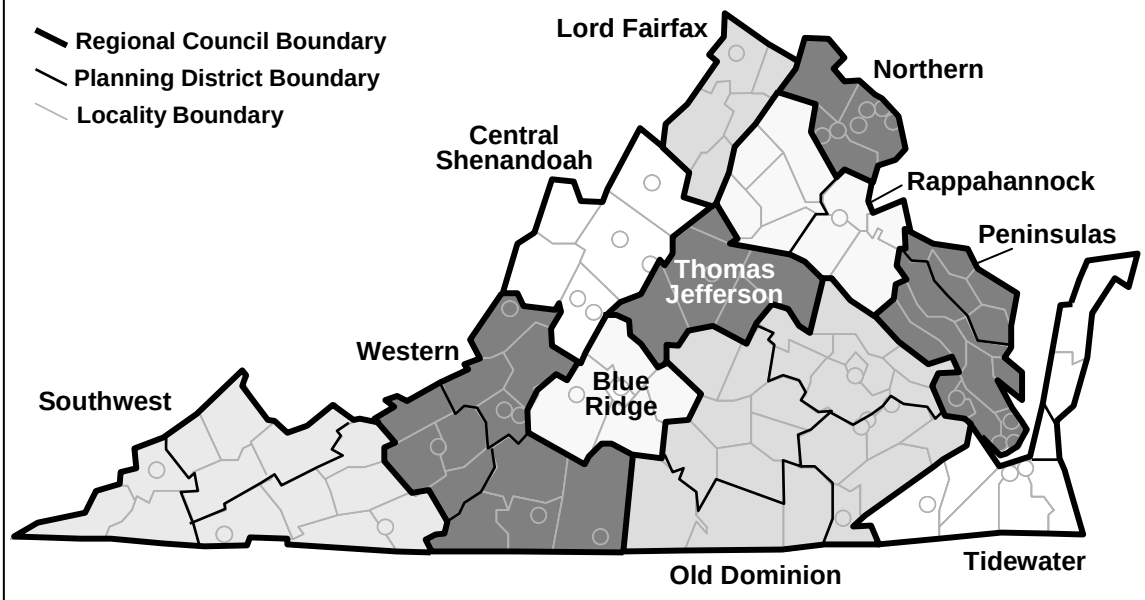
The *Code of Virginia* (§ 32.1-111.10) creates the State Emergency Medical Services Advisory Board. The Board has 25 members appointed by the Governor, including representatives from the regional EMS councils and various medical and EMS associations. The Board advises the State Board of Health on the administration of the statewide emergency medical care system, and reviews and makes recommendations on the statewide Emergency Medical Services Plan. In addition, the Board reviews the annual financial report of the Virginia Association of Volunteer Rescue Squads, and reviews reports submitted by OEMS on the status of all aspects of the statewide emergency medical care system, including the financial assistance and review committee, the Rescue Squads Assistance Fund, the regional emergency medical services councils, and emergency medical services vehicles.

Regional Emergency Medical Services Councils

The regional EMS councils were established by the *Code of Virginia* in 1978 (§32.1-111.11). Currently, there are 11 regional councils that correspond to the State planning districts (Figure 2). The *Code* charges the regional councils with the development and implementation of an efficient and effective regional emergency

Figure 2

Virginia's EMS Regions



Source: JLARC staff graphic based on Virginia Regional EMS Councils website.

medical services delivery system. Regional councils provide technical assistance and local support to EMS agencies, provide and/or coordinate training, develop regional medical protocols, develop regional emergency medical services plans, and develop trauma triage plans.

The regional councils are organized as 501c(3) nonprofit corporations. The councils operate under contract with OEMS, and are expected to achieve specific objectives and deliverables outlined in the contract in order to receive State funding. The *Code of Virginia* requires the councils to match State funds with local funds obtained from private or public sources (§ 32.1-111.11). Each council appears to have a limited number of staff. The council for the Old Dominion region, for example, has three full-time staff. Regional council staff are neither State nor local employees, and instead work for the nonprofit corporation.

Local Emergency Medical Services Providers

The local EMS providers are the heart of the EMS system. Most providers respond to emergency calls, and all are certified to provide some level of medical care. Table 1 shows the number and types of active licensed EMS agencies. This report focuses primarily on 691 ground-based emergency medical service agencies, including the volunteer, governmental, commercial, industrial, federal and nonprofit agencies that serve the general public.

Table 1

Licensed EMS Agencies

Category	Number of Agencies August 2004	Percent	Incident Responses Reported in 2003-2004	Percent
Volunteer	485	60	456,604	34
Non-Emergency Wheelchair Transportation	93	11	N/A	--
Governmental	84	10	487,418	36
Commercial	63	8	379,505	28
Air Ambulance and Fixed Wing	14	2	N/A	--
Other (Industrial, Federal, Nonprofit)	59	7	29,533	2
Total	815	100	1,353,060	100

N/A = Not available.
Source: Office of Emergency Medical Services.

An individual provider can be certified at a variety of different levels including first responder, emergency medical technician (EMT), shock trauma technician, EMT-enhanced, cardiac technician, intermediate EMT, or paramedic. Table 2 lists the number and percentages of providers in each of these categories. In addition to individual EMS providers, there are more than 300 local operational medical directors (OMDs), physicians who oversee the training and skill levels of EMS providers. State regulations require each EMS agency to have an OMD, and individual providers in that agency deliver medical services under the license and general direction of the OMD. Most OMDs volunteer their services, and many serve more than one EMS agency.

As noted earlier, local providers include both volunteer and career personnel who work in a variety of different settings, including all-volunteer rescue squads, paid rescue squads, and rescue squads that are a combination of paid and volunteer personnel. Agencies vary in size from as few as eight or nine squad members who respond to fewer than 100 incidents per year, to Virginia Beach, with more than800 EMS volunteers who responded to more than 30,000 calls in 2003, and Fairfax County, with 1,225 uniformed paid personnel who responded to 61,500 calls in 2003.

Table 2

Certified Emergency Medical Services Providers

As of August 2004

	No. of Providers	Percent of Total
First Responder	1,675	5
EMT	23,339	71
EMT Enhanced	441	1
EMT Shock Trauma	1,098	4
EMT Cardiac Technician	2,200	7
EMT Intermediate	1,014	3
Paramedic	3,130	10
Total Providers	**32,897**	**100**

Source: Office of Emergency Medical Services.

EMS PERSONNEL ARE CERTIFIED AT DIFFERENT SKILL LEVELS

While providing appropriate emergency medical care begins with the individual responder, ensuring that the responder is appropriately trained and skilled is the responsibility of the State Board of Health and the Office of Emergency Medical Services. The State Board of Health prescribes by regulation the qualifications required for certification of the individual EMS provider. Working with committees of the EMS Advisory Board, OEMS establishes the specific knowledge, skills, and abilities required of EMS providers, and certifies the skill level of each individual provider as well as of each instructor. In order to provide the necessary training for individuals, OEMS works with the State's 11 regional councils, the Virginia Association of Volunteer Rescue Squads, and others.

Training classes for individual providers are available in many places and from many instructors. OEMS also maintains certification and continuing education records for all of the State's certified providers. Approximately 706 certification exams, 400 test waivers, and 10,000 requests for continuing education credits are processed each month.

Basic and Advanced EMS Skill Levels

Virginia EMS providers are certified as either basic life support (BLS) or advanced life support (ALS) providers. The BLS and ALS programs provide for a gradual increase in the complexity and comprehensive level of material presented, and each succeeding level of certification reinforces the basic skills and adds additional medical procedures.

Over the past 30 years, the amount of training required to maintain certification at a given level has increased. For example, the amount of training first required for the EMT-Basic certification when it was established in the 1970s was 72 hours. Effective with the 2003 EMS regulations, 110 hours of training and 10 hours of clinical observation are required (Exhibit 3).

There are seven levels of certification, although the State is in a transitional phase of reducing these certifications to five, in order to be more closely aligned with national certification levels set forth in the National EMS Education Agenda for the Future developed by National Highway Traffic and Safety Administration (NHTSA). Currently, the certification levels recognized in Virginia are:

- First responder,
- Emergency Medical Technician (EMT) – Basic,
- EMT – Enhanced,
- EMT - Shock trauma,
- EMT - Cardiac technician,
- EMT – Intermediate, and
- Paramedic.

Exhibit 3

Becoming an EMT

To enroll in a BLS course, an individual must first meet the following prerequisites:

- Be proficient in reading, writing and speaking the English language.
- Be at least 16 years of age at the start of the training program.
- Have no physical impairment which would render him or her unable to perform all practical skills required for that level of training.
- Have never been convicted of a felony involving any sexual crime.
- Not be convicted of any act which is a felony under the laws of this state or of the United States, except that such felon is eligible for certification if within five years after the date of final release no additional felonies have been committed.
- Hold current certification in an approved course in Cardio-Pulmonary Resuscitation (CPR) at the start date of the training program.

An individual who meets these requirements must then locate an EMS Instructor in the area who is planning to teach a class. The regional EMS councils help coordinate this process by organizing groups of potential providers. OEMS also lists available BLS classes on their website.

The EMT-Basic class is required to be a minimum of 110 classroom hours. In practice, these classes typically run somewhat longer.

In addition, the student must obtain 10 hours of clinical observation time. The 10 hours of clinical observation must be actual "patient contact" time, and not just time spent in a hospital emergency room or on an ambulance.

After completing the course, the course instructor must certify that an individual has passed the course and has demonstrated the ability to perform the required skills of an EMT to the instructor in order for a potential provider to take a final test.

In August 2004, there were 23,339 persons certified as EMT-Basics in Virginia.

Source: Office of Emergency Medical Services

The following discussion outlines the training requirements for each of these seven levels of certification. Table 3 outlines the differences in the hours of training required for each certification level.

Table 3

EMS Certification Requirements

Certification Type	Level	Minimum Age	Minimum Hours (Classroom + Clinical)
EMS First Responder	BLS	16	40
EMT-Basic	BLS	16	121
EMT-Enhanced	ALS	18	120
EMT-Intermediate	ALS	18	272
EMT-Paramedic	ALS	18	778

Source: Office of Emergency Medical Services.

Basic Life Support Training

OEMS offers two levels of individual BLS certification: EMS First Responder and Emergency Medical Technician-Basic. All BLS certified providers must be at least 16 years of age.

First Responder. The EMS first responder program is a 40-hour minimum course intended to provide a basic understanding of human body systems and lifesaving. This certification lasts four years and is designed for use by fire, law enforcement, or private individuals that may be the first person to arrive at the scene of a medical emergency. Among other skills, EMS first responders learn to control bleeding, perform CPR, provide oxygen, and stabilize fractures. While EMS first responder certification is not intended for individuals whose primary duty is the provision of ambulance services, it can be used as a base level at which individuals are introduced to emergency medical care training.

EMT - Basic (EMT-B or EMT). The EMT-Basic program is the basis for all higher levels of certification in Virginia (Exhibit 3). This program provides general instruction in all areas of human body systems and initial care for a wide range of medical conditions. EMT-B providers are trained to assess a patient's medical or trauma condition and immobilize severe fractures. They are also trained to deliver babies and treat shock, various illnesses and minor cardiac problems.

In 1994, the course requirements were increased from 84 hours to a minimum of 110 hours of classroom instruction plus 10 hours of clinical observation in a hospital or pre-hospital setting. In practice, training programs can run significantly longer in order to adequately cover the material

Advanced Life Support Training

Nationally, there are two levels for advanced life support (ALS) currently certified by the National Registry of Emergency Medical Technicians (NREMT): intermediate and paramedic. In Virginia, there are currently three mid-range levels: shock trauma, cardiac tech, and enhanced. These levels are not recognized by the National Registry and therefore not eligible for reciprocity with other states. Shock trauma and cardiac technician are Virginia-developed programs which are currently being phased out. The original purpose of these classifications was to facilitate ALS provision in rural areas by having ALS certified providers who did not have to meet the full training requirements of a paramedic. Both of these programs were revamped in the late 1980s.

In 1996 both the shock trauma and cardiac technician levels were found to be problematic by the State medical direction committee of the EMS Advisory Board. This conclusion was based on field surveys showing that providers were routinely performing outside the scope of their certification. In addition, the cardiac technician and shock trauma curricula were outdated and needed rewriting. It was also difficult to bring providers into the State from other states because these levels were not in line with national standards. There is also general agreement in the EMS community that the technical complexity of EMS has increased in recent years and that higher standards are needed in order to ensure quality patient care.

All ALS-certified providers must be at least 18 years of age, possess at least a high school or general equivalency diploma, and hold current certification of at least EMT-Basic.

EMT - Shock Trauma. As noted, this category was developed primarily to provide an ALS level of care for areas that were unable to afford the equipment necessary for cardiac techs. The shock trauma level requires an additional 80 hours (approximately) beyond EMT-Basic. This level will not be available after 2008.

EMT - Cardiac Technician. This level requires a minimum of 141.5 additional hours of training beyond the EMT-Basic. Most programs provide 210 to 220 training hours. Training focuses more extensively on heart-related conditions. Persons with this certification can administer a broader range of medications than EMT-Basics or EMT-Shock Traumas. This level will not be available after 2008.

EMT - Enhanced. This is a new certification in Virginia that was created to replace the shock trauma certification. It is a Virginia-specific certification that also serves as a bridge between the EMT-Basic level and the EMT-Intermediate level. The EMT-Enhanced provider is trained to start intravenous fluid lines, administer limited medication and employ specialized airway management techniques. The course requires a minimum of 120 hours of total instruction.

EMT - Intermediate. This national certification level trains a provider to administer a variety of medications and employ advanced airway management techniques, cardiac monitoring and manual defibrillation in cardiac emergencies. This level is intended to replace the cardiac technician level of certification, contain-

ing all the skills required for that level, plus additional skills. The course requires a minimum of 272 hours of training including extensive in-hospital and out-of hospital clinical experience as well as advanced study in trauma care, pharmacology, and the cardiovascular system.

EMT - Paramedic. This level offers the highest level of out-of-hospital emergency care in Virginia. Certification requires a minimum of 778 hours of training in medical, trauma, pediatric, and geriatric emergencies. The EMT-Paramedic is trained to administer a greater variety of medicines, practice more advanced airway management techniques, provide a higher degree of specialized cardiac monitoring and defibrillation, as well as provide advanced trauma care. Additionally, this program fulfills all of the requirements of the National Standard Curriculum for the EMT Paramedic established by the National Registry of Emergency Medical Technicians.

EMS Instructors

Basic Life Support (BLS) training is provided by a group of independent contractors certified by the state as EMT-Instructor. There are currently 529 EMT Instructors, who hold 300 – 330 classes each year around the Commonwealth. Becoming an EMT-Instructor requires extensive training (Exhibit 4).

Unlike many states, Virginia has chosen not to establish designated training sites. Programs are currently conducted in areas requiring a minimum of travel for the provider in facilities such as rescue squad buildings, fire departments, community colleges, or regional EMS council offices.

In order to conduct a BLS course, an instructor must first receive approval from OEMS. Any size class can be approved but the course must have at least 13 enrollees in order for the instructor to be fully reimbursed by OEMS. If there are circumstances in which that number cannot be reached (or if individuals drop out before the third class), the instructor can request a class size waiver. Upon completion of a class, the instructor may be reimbursed by OEMS at a rate of $20 per classroom hour, up to a total of $2,220 per course.

Advanced life support training is provided in a different manner than basic life support training. An ALS instructor can be any knowledgeable individual (nurse, doctor, etc.) who has the endorsement of the physician course director (the doctor who oversees the ALS site.) OEMS regulations focus on accreditation of ALS training programs and endorsement of the ALS site coordinator, who administers the site. To become an ALS site coordinator, an individual must complete the ALS coordinator endorsement program. This requires a person to attend an eight hour class, be trained at or above the certification level being taught, and be endorsed by the local regional council and an operational medical director. ALS coordinators can then employ any knowledgeable person to teach any portion of the class.

Exhibit 4

Becoming an EMT Instructor for Basic Life Support Training

The prerequisites to become an EMT-Instructor are:

- Must be a minimum of 21 years of age.
- Must have a minimum of two years of field experience as an Emergency Medical Technician.
- Must be a high school graduate or equivalent.

A potential EMT-Instructor must then:

- Take the written pretest which is administered at consolidated testing sites and obtain a minimum score of 85 percent. If a potential instructor fails the test, he/she must wait a minimum of six months before they can retest. The pretest score will remain valid for a period of two years from the date tested.
- Demonstrate proficiency and ability to perform all skills by taking the same practical required for EMT-Basic certification without a partner.

After meeting these prerequisites, an individual is eligible to attend the EMT Instructor Institute held three times a year in various locations throughout the state. Because enrollment in these classes is limited, the Office of Emergency Medical Services chooses attendees based on their regional location in order to ensure adequate EMT instruction is available throughout the State.

The institute is a four-and-one-half day program that focuses on adult instruction techniques, use of audio-visuals, test construction and skill demonstration, as well as the administrative procedures involved in conducting a Basic Life Support program. After passing the Instructor Institute, an individual is certified as an EMT-Instructor and is authorized to conduct Basic Life Support classes by OEMS.

In August 2004 there were 529 certified EMT-Instructors in Virginia.

Source: Office of Emergency Medical Services.

There are national guidelines for emergency medical technician skill sets, established by the National Registry of Emergency Medical Technicians (NREMT); however, Virginia does not use NREMT as the basis for training and certification. In Virginia, all EMT-Paramedic programs are required to satisfy the testing guidelines established by the NREMT. However, upon successful NREMT Paramedic certification, each technician still must apply for Virginia certification before they can practice in the State. After receiving Virginia credentials, the individual has the option of maintaining national certification without affecting their Virginia certifica-

tion, yet still must meet Virginia's continuing education requirements in order to continue practicing in the State.

EMS Providers Are Covered by the State's "Good Samaritan" Law

As with the provision of any medical care, there is some risk associated with providing emergency medical services. EMS providers practice under the medical license of their agency's operational medical director (OMD), and all OMDs are required by regulation to hold adequate civil and medical malpractice liability indemnification. Virginia's "Good Samaritan" law (*Code of Virginia* §8.01-225) states that EMS personnel are not liable for civil damages resulting from the provision of care, so long as they are acting without compensation and within the regulations of the State and the guidance of an OMD. Absent gross negligence or willful misconduct, OMDs who serve without compensation are also exempt from civil liability "resulting from the rendering of emergency medical services in good faith," according to the statute.

PRIOR STUDIES ASSESSING EMERGENCY MEDICAL SERVICES

There have been numerous studies and reports on EMS at the national level. One document which Virginia EMS personnel often reference was completed by the National Highway Traffic Safety Administration (NHTSA) in 1997. Other studies have assessed various aspects of Virginia's EMS system. The following section provides brief summaries of some of the studies that are relevant to the current JLARC study.

The 1997 NHTSA *EMS Agenda for the Future* recommended improving the overall quality of patient care by better coordination of EMS systems, increased and more formalized training, and expansion of the medical component of EMS. Coordination of EMS was to be achieved by better integration with the rest of the health care and public safety systems, better communications systems, and a focus on EMS-related data and research. Training and certifications were to be formalized and standardized with the goal of providing high quality EMS in all areas. An increased medical component was proposed through formalizing physician medical direction and ensuring the quality of this key component of EMS.

One of the more comprehensive Virginia-oriented studies was the *Report of the EMS Funding Task Force*, published in 1999 by a task force of the State EMS Advisory Board. The goal of the task force was to "study both short-term and long-term funding needs for EMS in Virginia, and the divergence of prioritized needs, available funding and funding necessary to maintain reasonable and consistent prehospital care across the Commonwealth." The task force was also charged with identifying unfunded State and federal mandates.

The report concluded that additional funding was needed to meet the challenges of the EMS system. A major challenge of the EMS system is to provide the appropriate level of response in a timely manner to all parts of the Commonwealth. The report stated that a significant number of localities could not meet this chal-

lenge, and that chances of patient survival were better in some areas of the State than others. To address these challenges, the task force identified total EMS budget needs of $36.2 million for fiscal years 2001 through 2005. This funding would be used to increase EMS capabilities at the local level, and improve coordination and planning at the regional and State levels.

In 1998 OEMS contracted with a consultant to assess the regional EMS system. The overall conclusion of the report, *An Assessment of the Virginia Regional Emergency Medical Services System*, was that "the current regional system is not meeting today's challenges or preparing Virginia's EMS system for the future." Specifically, the report found that the regional system led to inconsistencies around the State, and allowed the level and standard of care to vary widely from region to region and community to community. In addition, the report found that the borders of the regions, which are based on State planning districts, may no longer be appropriate for EMS system purposes. Recommen-dations included: maintain a regional EMS structure, but re-examine the number and boundaries of the regional councils; make the regional councils more accountable to OEMS; and create an organizational structure that promotes sharing, cooperation, and best practices among the regions.

In 1999 JLARC reviewed one aspect of Virginia's EMS system: air medevac services. Several of the issues raised in this report appear to be relevant to the statewide EMS system as well. The study found that although air medevac coverage appeared to be adequate in most areas of the State, there were some inconsistencies in the programs that posed the potential for problems. The study also found that statewide access to air medevac services was provided by a mix of public and commercial providers, and that the adequacy of air medevac services could be threatened by commercial providers' financial losses. The State did not have a contingency plan to address the potential loss of a commercial provider. Other issues raised in the report included billing for air medevac services and strengthening OEMS's role in the planning and coordination of air medevac services.

In 2000, OEMS conducted a study of expense and travel requirements imposed on rural volunteer rescue squads for training and certification, and the impact of training and certification time and cost requirements on the ability to fund services and recruit volunteers. Specifically, the study examined issues related to the availability of training programs, the cost of training, the number of miles that must be driven to obtain training, and the type and availability of clinical experiences offered. The study found a wide variation in the cost of EMS education and training throughout the State, and suggested that community colleges could provide more EMS training.

In 1999, the Survey and Evaluation Research Laboratory of the Center for Public Policy at Virginia Commonwealth University conducted a telephone survey of 800 Virginians regarding their views of emergency medical services. The *Report on the Emergency Medical Services Survey*, published in January 2000, found that overall, 66 percent of the respondents rated the quality of the emergency medical care in their community as excellent or good. Interestingly, 55 percent of the respondents, including a majority of respondents in every demographic group and every region of the State, said that they would expect care to be provided by a para-

medic, the highest skill level among EMS providers. Less than one-fourth of respondents said that they would consider joining a volunteer rescue squad.

JLARC REVIEW

The JLARC study focuses on several key issues identified in HJR 133 (2004 Session):

- To what extent are emergency medical services available statewide?
- Does Virginia's emergency medical system provide an adequate level of care across the State?
- Are EMS agencies able to recruit and retain adequate EMS personnel?
- Are current funding mechanisms for EMS services adequate, and what, if any, other sources of funding should be explored?
- Do current organizational and management structures promote a comprehensive and coordinated emergency medical care system, as required by the *Code of Virginia*?

Research Activities

Staff undertook a number of research activities to complete the review of emergency medical services required by HJR 133. These activities are discussed below.

Agency Survey. Because this study focuses on EMS agencies, a survey was developed to collect information from them. The survey contained 46 questions concerning each agency's operations, funding, staffing, training, and other activities. Agencies were notified of the availability of this survey in several ways. Initially, notices were sent via U.S. Postal Service to licensed volunteer, governmental, commercial, industrial, federal, and nonprofit agencies. Because the focus was on agencies which provide emergency medical services primarily to the general public, non-emergency wheelchair transportation agencies were excluded from the survey. Additional notices about the survey were posted on the OEMS website and on the regional council websites. Regional council and OEMS staff were also asked to encourage responses through their routine meetings and other interactions with EMS agencies.

The agency survey was made available on the Internet at the JLARC website beginning June 17, 2004, and was removed from the website August 9, 2004. In addition, links to the survey were included on the OEMS and regional EMS council internet websites. This gave agencies 55 days in which to respond. (Agencies were also given the option of filling out a paper survey if they did not have Internet ac-

cess.) Two follow-up reminders were sent via U.S. Postal Service to agencies that had not responded as of July 14 and July 28, 2004.

Of the 712 possible responding agencies, JLARC staff received 278 completed responses to the agency survey, for a response rate of 39 percent.

Provider Questionnaire. A second on-line questionnaire was also administered as part of this review. This questionnaire was made available between July 1 and September 1, 2004, on the JLARC website, and was intended for the approximately 33,000 EMS providers. It included questions about the provider's level of experience and training, and sought open-ended comments about their experiences as EMS providers.

While JLARC staff could not notify each of the 33,000 individual EMS providers in Virginia about the questionnaire, notices were distributed in several ways. Copies of the notice were mailed to each EMS licensed agency and distributed at meetings of the EMS Advisory Board. Copies were also provided to the regional directors and OEMS staff. The group meetings held by JLARC staff were also used to publicize the questionnaire. Of the approximately 33,000 providers statewide, 892 took the opportunity to complete the questionnaire.

Group Meetings. To achieve a better understanding of the variation in emergency medical services around the State, JLARC staff arranged to interview groups of EMS agency representatives in eight regional meetings. The regional EMS council directors and the OEMS program representatives were asked to select attendees that would be representative of the geography of the area as well as represent the variation across agencies (for example, career and volunteer agencies, as well as large and small agencies needed to be included).

Eight group meetings were arranged, each including between seven and 25 EMS agency representatives. The group meetings allowed JLARC staff to interview and receive comments from a total of 96 EMS agency representatives. Most of these meetings were held in the evenings, and lasted three hours or longer.

Structured Interviews. Structured interviews were conducted with OEMS personnel, regional council directors, current and former operational medical directors (OMDs), current and former members of the EMS Advisory Board, commercial EMS agency directors, city and county administrators, and hospital and trauma center personnel. Structured interviews were also combined with site visits at several local EMS agencies.

Data Analysis. Data was collected from several sources for this review. OEMS supplied financial data from grant applications submitted by local EMS agencies during FY 2004, licensure and compliance data for all EMS agencies, prehospital patient care report data for 2002 and 2003, detailed staffing data by locality and EMS agency for 2002-2004, and OEMS budget data for FY 2001 through FY 2005.

Document Reviews. A variety of documentation and prior studies were reviewed during this study. The director of OEMS provided copies of relevant reports from the 1980s onwards, including reports of the EMS Advisory Council. Several EMS agencies supplied copies of consultants' reports that focused on their local operations. Staff also reviewed relevant statutory and regulatory provisions.

Report Organization

This chapter has provided an overview of EMS in Virginia, including the statutory framework and how the State is organized to oversee and coordinate emergency medical services. Chapter II examines factors affecting access to and adequacy of EMS. Chapter III focuses on the recruitment and retention of EMS personnel. Chapter IV considers several funding issues affecting EMS, and Chapter V discusses organizational and management issues affecting EMS.

II. Statewide Availability of Emergency Medical Services

Virginia's system of emergency medical services (EMS) is extensive, with 815 licensed EMS agencies and nearly 33,000 State certified individuals (referred to as providers) capable of providing at least a basic level of emergency medical care statewide. Access to basic emergency medical care is available to all of Virginia's residents and visitors.

There are differences, however, in responses to a 911 call for medical assistance, in the level of emergency medical care that can be provided by the personnel who respond, and in the timeliness of the response provided. In some localities, the first EMS personnel to respond to a call may arrive on a fire truck carrying advanced life support equipment, with an ambulance arriving later to handle patient transport. In other localities, an ambulance driven by a person with basic EMS skills may rendezvous with an advanced provider at the scene. In some cases, response may be provided by an agency from a neighboring jurisdiction.

While all Virginians have access to some level of EMS, a State law appears to be necessary to ensure the continuous provision of EMS when agencies close. Response time goals for all EMS agencies are needed and OEMS should enforce existing statutory reporting requirements. There are also several "best practices" that can help agencies improve their performance.

EMERGENCY MEDICAL SERVICES ARE AVAILABLE STATEWIDE BUT THE LEVEL OF SERVICES VARIES

EMS providers are located in all Virginia localities, and there are more than 4,000 emergency vehicles issued permits by the State to respond to calls for emergency medical care. Of Virginia's 32,987 providers, 76 percent are certified to provide emergency medical care at the EMT level of basic life support (BLS) or lower, and ten percent are certified to provide emergency medical care at the paramedic, or highest, level (Table 4). The majority of EMS agencies in the State are licensed by OEMS to provide an advanced life support (ALS) level of service, but only 24 percent of Virginia's individual providers are certified to provide ALS care. Consequently, many agencies may not provide the ALS level of emergency medical care 24 hours a day, seven days a week.

Based on the volume of personnel and vehicles, Virginia ranks high in national comparisons. For example, *EMS Magazine* recently ranked Virginia second in the nation in the number of emergency vehicles, and first in having the lowest ratio of population per emergency vehicle (Table 5). These rankings, however, do not mean that vehicles and equipment are distributed evenly across the State, or that EMS coverage is available at all times of the day in each locality. While Virginia has a large number of EMS providers and equipment, analysis of the statewide dis-

Table 4

Certification Levels of Virginia's EMS Providers
August 2004

Personnel Type	Total Providers	Percent*
Basic Life Support Providers	25,014	76
Advanced Life Support Providers (includes EMT-Enhanced, EMT-Intermediate, EMT-Shock Trauma, EMT-Cardiac Technician)	4,753	15
Advanced Life Support – Paramedics	3,130	10
Total	32,897	100

*Totals may not add to 100 due to rounding.
Source: JLARC staff analysis of OEMS data.

tribution of available emergency medical providers and vehicles indicates a wide variation in the availability of EMS across Virginia's localities.

Further ensuring the statewide availability of emergency medical services are mutual aid agreements between Virginia's designated emergency response agencies. These agreements are designed to ensure that there will be a response to every call for emergency medical assistance at all times in all areas of the State. Therefore, even in localities with no EMS agencies located within their borders, all residents are ensured access to Virginia's EMS system.

Under current State law, however, it is unclear who is supposed to take corrective action when EMS services are inadequate or unavailable. OEMS has also not enforced the existing statutory requirement for all EMS agencies to submit basic data about their responses to emergency incidents.

Emergency Medical Services Are Available Across the State

Virginia has 32,897 individual providers capable of delivering emergency medical care to the State's seven million residents. Given the total number of providers, Virginia has an average statewide ratio of one certified EMS provider for every 215 residents (Table 6). Throughout the State, an overwhelming majority of Virginia's EMS providers (76 percent) are certified at the EMT or First Responder level of basic life support. This level of care is intended as a first level of response to calls for emergency medical assistance, and is provided by all types of volunteer, local government, and commercial agencies. In 2003, slightly more than 80 percent of calls for emergency medical assistance required a basic life support (BLS) level of care, based on a JLARC staff review of OEMS-maintained data on more than 485,000 incident responses.

Table 5

State Rankings for Population per EMS Vehicle
(2003)

Rank	State	2000 Population	Total Vehicles	People Per Vehicle
1	**VA**	**7,078,515**	**4,047**	**1,749**
2	WV	1,808,344	861	2,100
3	MT	902,195	408	2,211
4	ME	1,274,923	550	2,318
5	ND	642,200	261	2,461
6	SD	754,844	276	2,735
7	ID	1,293,953	456	2,838
8	WY	493,782	158	3,125
9	OK	3,450,654	1,096	3,148
10	VT	608,827	183	3,327
11	NV	1,998,257	593	3,370
12	NJ	8,414,350	2,400	3,506
13	NH	1,235,786	350	3,531
14	RI	1,048,319	285	3,678
15	NY	18,976,457	5,000	3,795
16	KY	4,041,769	1,062	3,806
17	PA	12,281,054	3,216	3,819
18	NC	8,049,313	2,000	4,025
19	SC	4,012,012	967	4,149
20	KS	2,688,418	645	4,168
21	NE	1,711,263	401	4,267
22	AL	3,990,000	850	4,694
23	IN	6,080,485	1,258	4,833
24	AR	2,673,400	550	4,861
25	WI	5,363,675	1,100	4,876
26	WA	5,894,121	1,189	4,957
27	MA	6,349,097	1,276	4,976
28	TN	5,689,283	1,105	5,149
29	MS	2,844,658	534	5,327
30	DE	783,600	141	5,557
	Totals/Average	**273,063,670**	**52,845**	**5,505**
31	IL	12,419,293	2,224	5,584
32	MO	5,595,211	978	5,721
33	TX	20,851,820	3,473	6,004
34	NM	1,819,046	300	6,063
35	FL	15,982,378	2,619	6,102
36	MN	4,919,479	806	6,104
37	CT	3,405,565	540	6,307
38	OR	3,421,399	526	6,505
39	MI	9,938,444	1,521	6,534
40	GA	8,186,453	1,250	6,549
41	MD	5,296,486	807	6,563
42	IA	2,926,324	370	7,909
43	AZ	5,130,632	550	9,328
44	CO	4,301,261	450	9,558
45	OH	11,353,140	940	12,078
46	CA	33,871,648	2,202	15,382
47	HI	1,211,537	71	17,064

Notes: Analysis of 2003 total emergency vehicles. Includes both public and private vehicles. Vehicle data for Iowa from 2002. Vehicle data unavailable for Alaska, Louisiana, and Utah.

Source: *EMS Magazine* 2003 Survey, Pennsylvania Bureau of EMS and Iowa Department of Public Health.

Table 6

Ratio of Virginia's EMS Providers to Total Population, 2004

Personnel Type	Provider to Population Ratio
Statewide Average, All Providers	1 : 215
Basic Life Support Providers	1 : 283
Advanced Life Support Providers	1 : 898
Paramedics	1 : 2,262

Note: According to the 2000 U.S. Census, Virginia's total population was 7,078,515.

Source: JLARC staff analysis of 2004 OEMS data and U.S. Census Bureau population data for 2000.

Distribution of Emergency Medical Personnel Varies Across the State. Virginia's EMS system is supported by a network of individual providers certified by the State to provide a basic life support (BLS) level of emergency care. Over 75 percent of the individual EMS providers across the State are certified at the Emergency Medical Technician or First Responder level and the statewide average ratio of one BLS provider for every 283 residents.

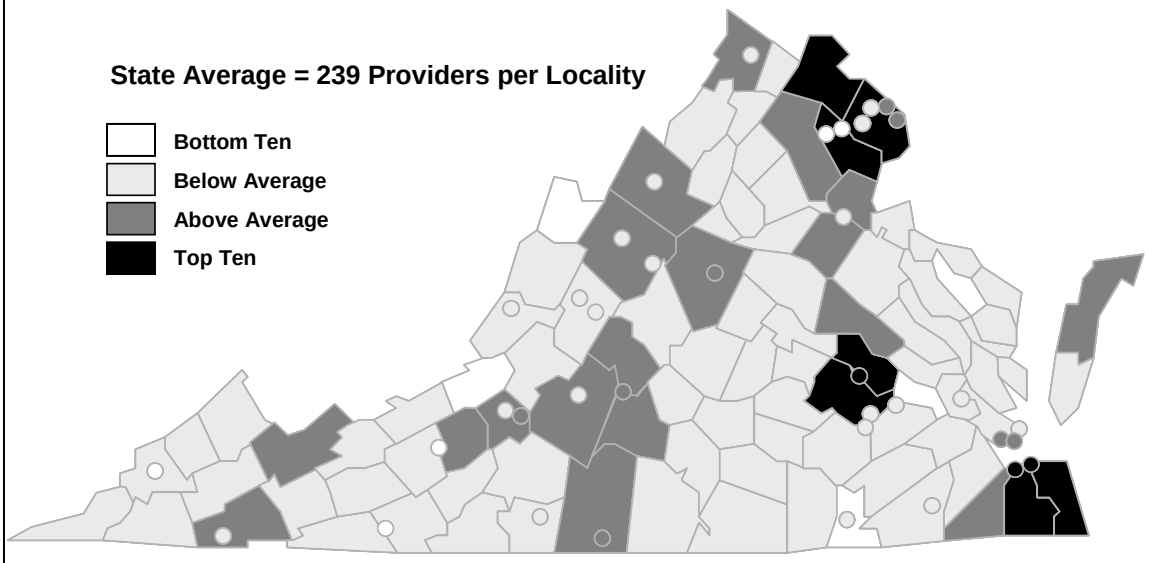
There is, however, substantial variation in the distribution of these providers across Virginia's localities. JLARC staff analysis of the total number of providers affiliated with EMS agencies in each locality shows that ten localities have fewer than 30 total providers (such as Manassas Park, Norton, Radford, and Highland and Craig counties), while Fairfax County has more than 2,100 total providers. In fact, more than 11,000, or 34 percent of all providers, are located in just ten Virginia localities. Figure 3 illustrates the statewide distribution of total providers. While this analysis is based on the number of providers within a given locality, it is important to note that a locality may have multiple EMS agencies, and that EMS is not necessarily organized or provided at the city or county level

Further analysis of the distribution of these providers indicates that 42 localities have a provider to population ratio that is greater than the State average of one provider for every 215 residents. Figure 4 illustrates statewide variation in local provider-to-population ratios. At the locality level, the provider-to-population ratios range from a low of one provider for every 1,211 residents in Manassas to a high of one provider for every 70 people in Surry County. Appendix B contains a listing of the provider to population ratios for all of Virginia's localities.

Distribution of Vehicles. Based on the number of State-permitted emergency medical vehicles per capita, Virginia has been ranked highest in the nation, as noted earlier. Not all of these vehicles, however, are used in day-to day responses to calls for emergency medical care. As illustrated in Table 7, Virginia has 2,572

Figure 3

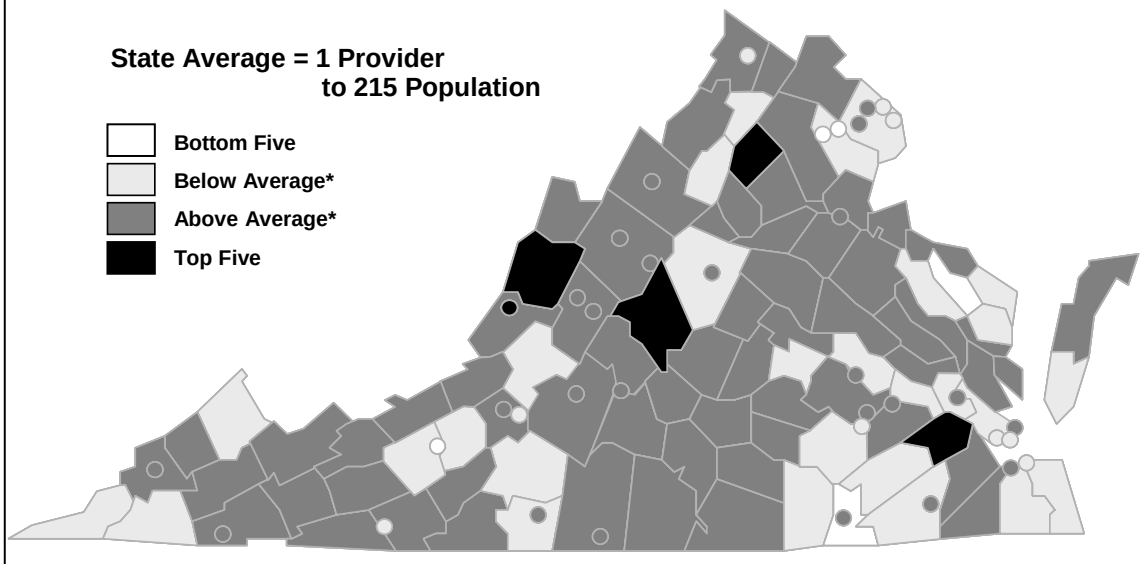
Total EMS Providers in Virginia Localities



Source: JLARC staff analysis of OEMS data.

Figure 4

Ratios of EMS Providers to Local Population



*Note: "Below" and "above" average refer to the degree of provider coverage attained. In this graphic, darker-shaded areas have a *smaller* provider-to-population *ratio*, indicating better coverage.

Source: JLARC staff analysis of OEMS data.

Table 7

Types of Emergency Response Vehicles, 2004

Type	Total	Percent
Ground Ambulance	2,572	63
Non-Transportation Vehicle	960	24
Neo-Natal Ambulance	25	<1
Air Ambulance	32	<1
Non-emergency Wheelchair Transportation	463	11
Total	4,054	100

Source: JLARC staff analysis of OEMS data.

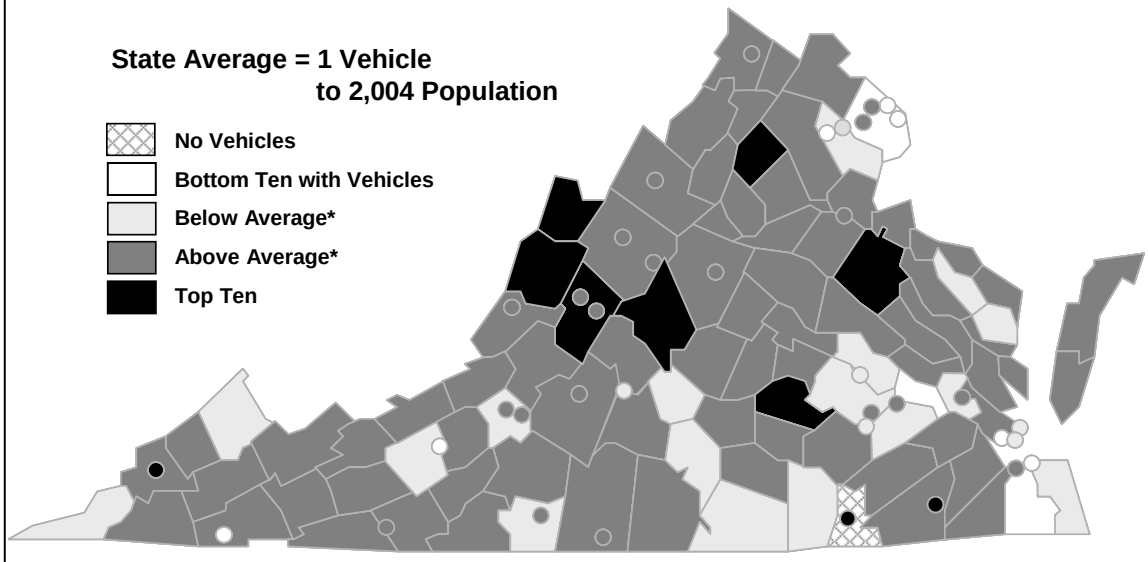
ground ambulances (63 percent of the total) that are permitted by OEMS to provide emergency ground transportation. These ground ambulances are supplemented by an additional 960 EMS non-transport response vehicles that are typically fire trucks and other first response vehicles. These 3,532 vehicles are the basis for further JLARC staff analysis of the statewide distribution of emergency vehicles. Excluded from this analysis are 520 specialty vehicles including: 32 emergency air ambulances (helicopters); 25 neonatal life support vehicles; and 463 non-emergency wheelchair transportation vehicles.

OEMS has established regulations governing the types of equipment that can be used in the provision of emergency medical care, but there are no State requirements concerning how these resources should be distributed to meet local needs. Analysis of the distribution of emergency ground response vehicles across the State indicates significant variation, with 18 localities having five or fewer vehicles to serve the local population. At the higher end, five localities each have more than 90 vehicles. For example, Fairfax County has more than 180 emergency ground response vehicles to serve its residents. (Again, this analysis focuses on vehicles per locality even though EMS is not necessarily organized that way – there may be multiple EMS agencies providing coverage in a single locality.)

When the availability of emergency medical response vehicles (excluding the specialty vehicles) is analyzed based on the proportion of total emergency ground response vehicles to the State's population, the statewide average is one vehicle for every 2,004 residents. There are 33 localities that have a population-to-vehicle ratio above the State average, indicating that these localities have a higher number of people served by each emergency ground response vehicle. Again, at the locality level there is wide variation in the ratio of vehicles available to serve a local population. As illustrated in Figure 5, localities such as Bath County and the City of Nor-

Figure 5

Ratios of Emergency Ground Response Vehicles to Local Population



*Note: "Below" and "above" average refer to the degree of vehicle coverage attained. In this graphic, darker-shaded areas have a *smaller* vehicle-to-population *ratio*, indicating better coverage.

Source: JLARC staff analysis of OEMS data.

ton have a ratio of one emergency vehicle for fewer than every 500 residents, while localities such as Fairfax, Arlington and Alexandria have a ratio of one ambulance for more than every 5,000 residents. Appendix B contains a list of the total number of vehicles and the ratio to population for each of Virginia's localities.

Given the variations in the distribution of individuals and vehicles available to serve a local population, it is important that these resources be appropriately balanced within each locality. Statewide there is an average of nine certified providers for every emergency ground response vehicle. There is considerable local variation in the ratio of certified providers for each emergency vehicle. Five localities (including the cities of Norton, Winchester, and Manassas Park, as well as Richmond and Southampton counties) have fewer than five providers for each emergency ground response vehicle, while five localities have a ratio of more than 20 providers for each available vehicle. Cities such as Alexandria and Bristol have more than 30 certified providers for each emergency ground response vehicle. By comparing the total number of providers in each locality to the total number of emergency ground response vehicles, OEMS could identify localities that may not be sufficiently staffed to utilize all available equipment, or areas where there may be an abundance of providers with limited equipment.

Availability of Advanced Life Support Services Varies

In Virginia, there are 7,883 certified individuals and 522 licensed agencies authorized by the State to provide an advanced life support (ALS) level of emergency care. Only five localities do not have at least one ALS-licensed agency within their boundaries.

More than 90 percent of Virginia's EMS agencies are authorized to provide an ALS level of care, however this does not mean that an ALS level of care will be available from a specific agency for all responses. There are some ALS-licensed agencies capable of providing only a basic life support (BLS) level of emergency medical care at certain times of day because fewer than 25 percent of all providers are certified to provide an ALS level of care.

About one-fourth of all EMS providers across the State are certified by OEMS to provide an advanced life support level of service. Therefore, the distribution of these 7,883 providers is another indicator of the overall availability of ALS services. The statewide average is approximately one ALS certified provider for every 898 residents.

Moreover, only 9.5 percent of all providers are certified at the paramedic, or highest, level of advanced life support. These individuals tend to be located in the Tidewater, Richmond, and Northern Virginia regions of the State. Given the relatively few number of individuals certified to provide this level of care, distribution of these providers is critical to ensuring access to the highest level of emergency medical care. The statewide average ratio is one paramedic for every 2,662 residents.

Most Agencies Are Licensed to Provide Advanced Life Support. While slightly more than 80 percent of reported incident responses in 2003 required a basic life support (BLS) level of care, the majority of EMS agencies in Virginia are certified by OEMS to provide an advanced life support level of care, which means they may also provide the lower BLS level of care. In the past two years, the 522 ALS-licensed agencies reported more than 1.2 million responses to calls for emergency medical assistance. The OEMS data considers an "incident response" to be one vehicle or one person responding to a call that comes in to the dispatch center via 911. Therefore, if an ambulance, a fire truck, and a police car all respond to one call, this would count as three responses generated for one incident and patient.

For an agency to be licensed as providing advanced life support, the agency must have at least one active certified ALS provider. The ALS agency must also operate at least one ALS permitted vehicle that has appropriate temperature controls and security, and be stocked with ALS drugs and equipment. An ALS provider does not have to be available around the clock for a squad to maintain ALS certification. However, when a certified ALS provider is not on board the ambulance, only a BLS level of emergency medical care can be provided. These classifications are designed to allow an ALS ambulance to be dispatched to a scene and meet a certified ALS provider on-scene who may have been dispatched from another location.

Emergency medical responses by ALS agencies are provided primarily by volunteer organizations, local government agencies, and commercial providers. Of the 522 licensed ALS agencies in Virginia, 365 (70 percent) are volunteer organizations, 71 (13 percent) are local government based, and 52 (10 percent) are for-profit commercial providers. Additionally, there are 15 industrial providers, nine federal government agencies, and six nonprofit organizations authorized by OEMS to provide ALS services.

The types of ALS-licensed agencies and the total number of incident responses reported by each type between 2002 and 2004 are shown in Table 8. In that biennium, volunteer ALS agencies reported having 426,174 incident responses. Therefore, the statewide average number of ALS responses reported by volunteer agencies was approximately 1,168 responses for each agency during the biennium. However, the actual number of responses reported for these agencies ranges from fewer than 25 to more than 60,000.

Table 8

Emergency Medical Responses by ALS Agencies
(July 2002 – July 2004)

	Number of Agencies	Percent	Number of Responses	Percent
Volunteer	365	70	426,174	34
Governmental	71	13	453,740	36
Commercial	52	10	367,828	29
Other	34	7	20,680	2
Totals	522	100	1,268,422	100

Note: Incident responses as reported to OEMS staff during biennial agency inspections. Percent totals may not add to 100 because of rounding.

Source: JLARC staff analysis of OEMS data.

Localities providing ALS services reported 453,740 incident responses. With just 71 local government ALS agencies, the statewide average number of incident responses reported was approximately 6,391 for each governmental agency. The range was from fewer than 500 incident responses reported in Botetourt and Amherst counties, to more than 70,000 incident responses reported in Fairfax County.

Local government providers include local government fire departments and rescue squads, and consist primarily of paid service providers. In addition to the services provided by these local government employees, some of these providers also rely on volunteer providers that work within the local system. For example:

> *Chesterfield County has 18 fire and rescue stations, providing eight 24 hour ambulances and five additional ambulances for daytime*

service. The county employs 430 career staff who perform both fire and EMS functions. In addition, the county has four volunteer rescue squads.

There are also 52 independent commercial ALS providers that reported responses to almost 368,000 incidents. These providers, such as Lifeline Ambulance, and Medical Transportation Inc., are located across the State, and often provide services in more than one locality. Commercial EMS providers are increasingly being used to augment staffing in some agencies. For example:

Southampton County hires a commercial provider during the day that supplies the EMS staff. During these shifts, the commercial providers wear the volunteer squad uniforms and drive the volunteer squads' ambulances.

As a consequence, the reported responses for commercial agencies may not accurately reflect the responses provided by individual commercial providers. Similarly, the reported responses for volunteer agencies may overstate the responses that are actually from volunteer providers.

Finally, there are 15 industrial agencies, nine federal government agencies, and six nonprofit organizations certified to provide an ALS level of service that reported responses to more than 20,000 calls for assistance. Industrial ALS providers include such businesses as Adolph Coors Inc., Chaparral Virginia Steel, and the Surry Nuclear Power Plant. Federal agencies include entities such as Langley Air Force Base, Fort Eustis, and the Defense Supply Center in Richmond. The nonprofit organizations include specialized ALS transportation providers such as Children's Hospitals of the Kings Daughters in Norfolk, and larger incorporated local providers such as the Bluefield and Wythe County rescue squads.

Availability of ALS Providers Varies Substantially. About one-fourth of all EMS providers across the State are certified by OEMS to provide an advanced life support level of service. Therefore, the distribution of these 7,883 providers is another indicator of the overall availability of ALS services. The statewide average is approximately one ALS certified provider for every 898 residents.

There is considerable variation in the distribution of these providers at the local level. One locality, Charles City County, has no ALS certified providers, and an additional 17 localities have fewer than ten ALS certified providers located in or affiliated with squads in their jurisdictions. In contrast, there are 14 localities with more than 150 ALS certified providers (Table 9). About half of all ALS certified providers are affiliated with agencies in these jurisdictions.

The relative distribution of ALS providers to a local population is important in assessing the overall availability of ALS providers across the State. When ALS providers are compared to local populations, the cities of Bristol, Emporia and Fairfax, as well as Rappahannock County, have the highest ratio of certified ALS providers to local population with one ALS provider for less than every 350 residents. In

Table 9

Localities with High Populations Relative to ALS Providers
(2004)

Locality	Total Population	Total ALS Providers	Total Paramedics	Population per ALS Provider
Suffolk	63,677	178	43	358
Portsmouth	100,565	271	76	371
Norfolk	234,403	448	166	523
Roanoke City	94,911	151	99	629
Newport News	180,150	218	88	826
Chesapeake	199,184	238	98	837
Hampton	146,437	167	29	877
Henrico	262,300	265	132	990
Loudoun	169,599	176	71	964
Chesterfield	259,903	239	166	1,087
Virginia Beach	425,257	340	177	1,251
Prince William	280,813	220	138	1,276
Richmond City	197,790	154	114	1,284
Fairfax	969,749	458	259	2,117
Total	**3,584,738**	**3,523**	**1,656**	**1,018**

Note: This table illustrates the 14 localities with the highest number of certified ALS provider and the ratio of population to ALS providers in each of these localities. This table does not show the localities with the highest concentration of ALS providers.

Source: JLARC staff analysis of OEMS data and U.S. Census Bureau population totals for 2000.

contrast, the cities of Radford and Manassas, as well as Greensville County, have one ALS provider for more than every 5,000 residents.

Variation in the Distribution of Paramedics. Only 3,129 (9.5 percent) of Virginia's EMS providers are certified by OEMS to provide emergency medical

care at the paramedic level, and the average statewide ratio for the overall availability of these providers is one paramedic for every 2,262 residents (see Table 6). Given the limited number of certified paramedics in Virginia, the relative distribution of these individuals across the State is a critical measure of the availability of the most advanced level of emergency medical care.

The State does not require local rescue squads to maintain a paramedic level of staffing, and there are no guidelines for the appropriate distribution of these providers across the State. Analysis of the distribution of paramedics indicates that these most highly skilled ALS providers tend to be concentrated in the more densely populated areas of the State served primarily by local government and commercial providers.

Currently, there are 12 localities with no paramedics residing in the locality or affiliated with a specific squad within their boundaries (Exhibit 5). As illustrated in Figure 6, an additional 65 localities have fewer than ten certified paramedics in their jurisdictions. On the other hand, there are seven localities with more than 100 paramedics affiliated with squads in their jurisdictions. More than one-third of Virginia's paramedics are affiliated with squads in just seven localities (Richmond, Norfolk and Virginia Beach, and the counties of Henrico, Prince William, Chesterfield, and Fairfax).

Exhibit 5

Localities With No Paramedics
(2004)

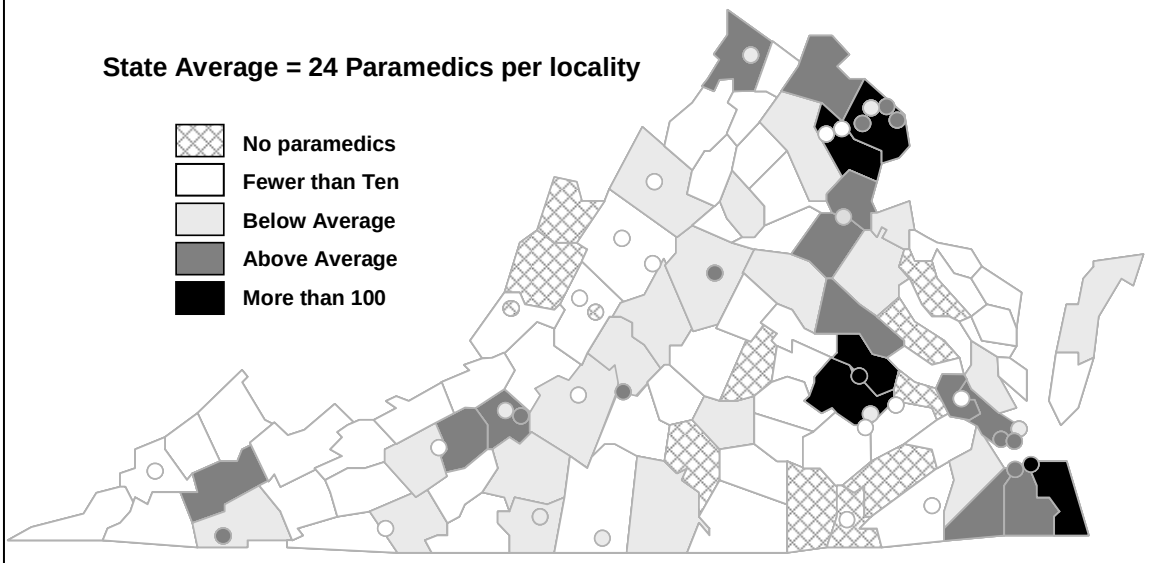
Buena Vista City	Cumberland County
Covington City	Essex County
Bath County	Greensville County
Brunswick County	Highland County
Charles City County	King William County
Charlotte County	Sussex County

Source: JLARC staff analysis of OEMS data.

In addition to the 12 localities that do not have paramedics located within their boundaries, there are 80 localities that have a paramedic to population ratio below the statewide average, indicating that they have a higher number of residents for each paramedic. However, as illustrated in Figure 7, nine localities (the cities of Fairfax, Bristol, Norton, Falls Church, Poquoson, Roanoke, Charlottesville, and the counties of Rappahannock and Caroline) have a ratio of one paramedic for every

Figure 6

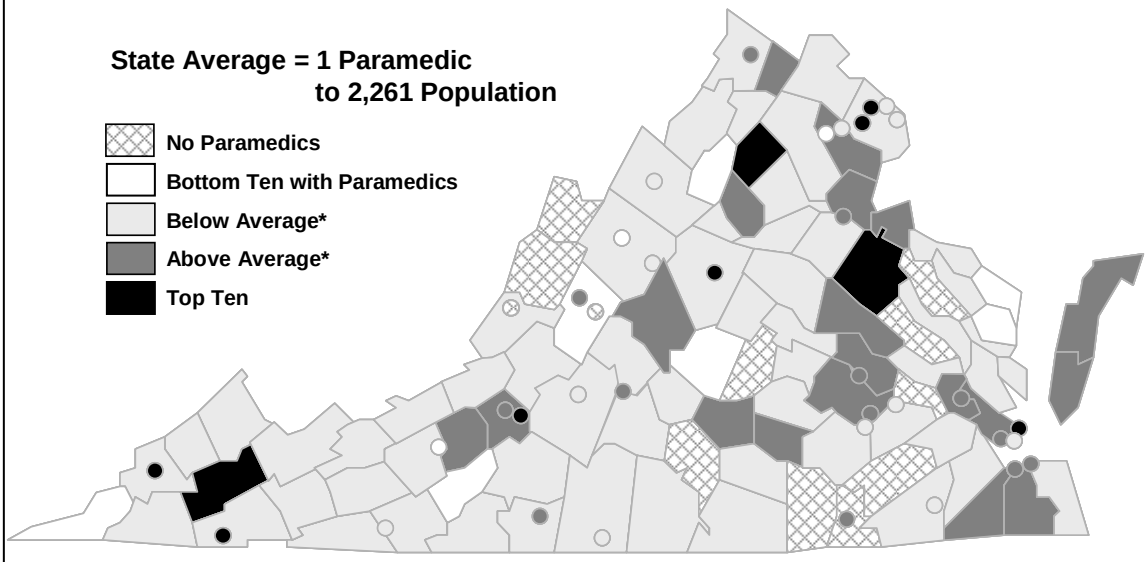
Total Paramedics by Locality



Source: JLARC staff analysis of OEMS data.

Figure 7

Ratios of Paramedics to Local Population



*Note: "Below" and "above" average refer to the degree of paramedic coverage attained. In this graphic, darker-shaded areas have a *smaller* paramedic-to-population *ratio*, indicating better coverage.

Source: JLARC staff analysis of OEMS data.

1,000 or fewer residents. The City of Fairfax has the lowest ratio, at one paramedic for every 457 residents. Appendix B contains a listing of the total number of paramedics in each of Virginia's localities and the ratio of those providers to the local population.

Non-transport ALS Agencies Augment Services. Several areas of the State are also served by non-transport ALS agencies. Of the 522 licensed ALS agencies, 28 provide non-transport services. Every locality of the State that is served by a designated non-transport ALS provider is also covered by an ALS transport agency. Typically, these non-transport agencies are fire departments or other first responders. These agencies have the personnel and equipment to perform advanced life support skills and administer a wide range of medications, although they are unable to transport a patient directly to a hospital. In many cases, these agencies serve as a first-line ALS response to calls for medical assistance and help to ensure that a locality can provide an ALS level of response within a desired response time. For example, the cities of Bristol, Charlottesville and Virginia Beach, as well as Frederick and Amelia counties have designated non-transport ALS agencies within their jurisdictions. Additionally, there are several industrial EMS agencies that also provide some non-transport ALS services within their specific location.

Mutual Aid Agreements Help to Promote EMS Availability

All licensed EMS agencies in Virginia are required to provide emergency medical response 24 hours a day, seven days a week. On occasion, an individual agency may not be able to respond to a call for service given available staffing levels or current call volume. Therefore, the State has required that all designated emergency response agencies maintain written mutual aid agreements with surrounding jurisdictions and squads in order to help ensure that all calls for emergency medical assistance are answered.

There are two primary types of mutual aid agreements: automatic aid, triggered when an individual agency is unable to respond to a call; and advanced life support (ALS) mutual aid, triggered by a call for assistance from a BLS agency. While the mutual aid process in Virginia appears to work well overall, there is limited enforcement authority for OEMS to ensure compliance with existing agreements, and there appear to be some potential for over-reliance on this system.

Automatic mutual aid agreements between localities or their designated emergency response agencies are designed to ensure that the closest available agency to the location of the call for service is the first to respond. These agreements are standardized, and generic contracts are available on the OEMS internet web site. OEMS staff are responsible for working with individual agencies to develop mutual aid agreements and for ensuring that these agreements remain in place as long as the agency remains operational.

Automatic mutual aid agreements can exist between agencies within one locality or cross-jurisdictionally between localities. For example, Chesterfield Fire and EMS has automatic response agreements with Colonial Heights, Dinwiddie, and

Richmond. These agreements can also be entered into between a squad or locality and a commercial provider. For example, Lifecare Inc. mainly provides non-emergency transportation, and contracts to handle some 911 calls for the Northern Neck Rescue Squad in Tappahannock (among others). In this case, if the volunteer squad does not respond to a call for service within three minutes of being dispatched, the dispatcher alerts the commercial provider who handles the call.

Many localities have also adopted an ALS mutual-aid process, in which ALS can be brought in upon request of the BLS responder. These agreements allow a responding BLS agency to request assistance from an ALS provider outside of their agency. In this situation, a BLS crew that arrives on a scene and determines the situation is beyond its abilities is encouraged to call ALS if medically necessary and will cause no significant delay at the scene. When the ALS crew arrives, it assumes control and cannot transfer care or control back to the BLS crew.

While the mutual aid process appears to work reasonably well, there are some localities that are too dependent on this system. In fact, five localities are totally dependent on mutual aid to provide ALS coverage. These localities (the counties of Cumberland, Charles City, Greensville, and Northampton, and the City of Manassas) do not have an ALS agency located within their boundaries.

There also appears to be limited enforcement authority granted to OEMS to ensure that this coverage is provided. There does not appear to be enforcement of mutual aid agreements at the local level given perceptions that provision of mutual aid services extends the local liability for the services provided. While mutual aid agreements are in the form of written documentation specifying a formal relationship between rescue squads or localities to lend aid to an EMS agency, most localities have been reluctant to penalize a rescue squad for not responding to calls for service outside of their primary coverage area.

OEMS allows mutual aid agreements to count towards the State's requirement that all agencies provide 24-hour coverage as part of the biennial recertification process. As a result, almost all agencies in the State have increasingly relied upon mutual aid agreements resulting in a general increase in the number of calls for mutual aid. According to one provider:

> One of the problems with mutual-aid is abuse by some localities. In Newport News, over the past 29 years, the number of mutual aid calls has increased from approximately eight to nine a year to eight to nine a day.

This reported increase in mutual aid calls has led to difficulties for several EMS agencies in being able to honor existing agreements because the time and resources required to respond to these calls has limited the availability of services in the agency's primary coverage area. For example:

> *In Nelson County there are fewer people who are available to run calls during the day. The Wintergreen career squad has increasingly been asked to respond to calls in the Rockfish Valley area be-*

cause the Valley squad members are unable to cover the daytime shift. The Wintergreen squad recently told the county they were being paid to handle Wintergreen, not the Valley, and this could mean the Valley will not be covered during some periods.

* * *

An OEMS program representative stated that a rescue squad in Brunswick County was relying heavily on mutual aid for basic coverage and that it took more than a year to successfully remediate the situation with the use of commercial squads. In the end, the county became involved in the dispute resolution process, although they were not required to be, and an independent operations board was established to oversee the agency.

Availability of Emergency Medical Services Should Be Mandated

Although the *Code of Virginia* requires the Board of Health to develop a comprehensive, coordinated, emergency medical care system in the Commonwealth, the *Code* does not require anyone to provide EMS, nor can the Board or Department of Health compel any locality or other entity to provide EMS. Localities that do provide EMS have done so in response to public need and demand, not because of a State mandate. In fact, some localities do not provide EMS, depending instead on volunteers to provide the service. This has been a reasonably effective long-term strategy in many areas of the State, and most volunteer agencies work very hard to maintain services, even to the point of conducting additional fund raising so they can hire staff to ensure 24-hour coverage.

In current law it is unclear who should take corrective action when responsiveness degrades to unacceptable levels, such as when coverage is routinely provided through mutual aid provided from a nearby rescue squad, or when response times stretch into several hours. There is also no statutory requirement for any other agency or entity to step in and assure continuity of services when volunteer agencies close or disband, as four did in FYs 2003 and 2004.

Neither the *Code of Virginia* nor OEMS regulations provide a framework or direction for what should happen when an EMS agency disbands or closes. In the cases of the four recently closed volunteer agencies, nearby local government-operated agencies began providing services in the former agency's territory, ensuring continuity of service. However, there was no statutory or other legal requirement for this to happen.

In the case of lengthy response times, corrective actions are up to the individual squads. Local governments may even be unaware of the problem. Because the *Code of Virginia* does not require local governments or any other entity to ensure the provision of EMS, no one is required to ensure the continued provision of services in a timely manner.

The *Code of Virginia* (§15.2-955) prohibits the provision of emergency medical services without prior authorization by the local governing body (however, this section grandfathers all EMS providers established prior to 1984). The apparent intent of this provision was to allow localities to establish areas to be served by the providers as well as to prevent unqualified providers from offering services. Interviews with various EMS personnel indicated that some local governments have used the issuance or potential withholding of a permit to have a say in the provision of EMS within their jurisdiction, but granting or withholding a permit to operate is not the same as ensuring that responsive services in fact are provided.

Current State law requires some public services be provided but not others. The logic is not always clear or consistent. For example, localities are not required to provide for EMS or fire protection and suppression services, but are required (in the *Code of Virginia* §44-146.19) to have a director of emergency management, an emergency operations plan, and an annual emergency assessment.

During the course of this study, JLARC staff found widespread support among EMS personnel for a statutory requirement that local governments should ensure the provision of emergency medical services within their jurisdictions. The suggested change would not require localities to provide EMS with local government employees, nor require any change in current practices. Instead, it would in most cases require the local government to endorse current arrangements for the provision of emergency medical services, and to have a plan for ensuring the continued provision of these services. In most cases, this could be through the temporary provision of mutual aid from neighboring EMS agencies, the reconstitution of the volunteer agency, contracting with a commercial provider, or through the direct provision of services by local government employees.

It does appear that there is a gap in State law. It is conceivable that an existing EMS agency may close, or that an agency's typical response times could be unreasonably long, and neighboring agencies could be unable to assist due to their own resource limitations. Local governments may need the statutory direction and authority to ensure the continuous provision of EMS. It should also be clear that localities would not be required to provide EMS with their own employees. Instead, it would be the locality's responsibility to make sure that emergency medical services are available within the jurisdiction through a variety of methods.

The *Code of Virginia* should assign the responsibility to ensure the continuous provision of EMS to local governments. This would not necessarily require any change in current practices, but would assign localities the responsibility to take action in the event that continuity of services is jeopardized.

Recommendation (1). **The General Assembly may wish to amend the *Code of Virginia* to require local governments to ensure the continuous provision of emergency medical services.**

EMERGENCY RESPONSE TIME DATA ARE INADEQUATE AND RESPONSE TIME STANDARDS ARE NEEDED

The availability of EMS services across the State can be further measured by assessing the length of time it takes for an agency to respond to an individual call for assistance. A reduction of response times is one of the specific statutory goals of Virginia's EMS system. Quick response to a medical emergency is essential because the patient's chance of surviving major injuries and illness is much greater if treated within the first hour after the incident, the "golden hour" concept. In fact, for some medical emergencies, such as a heart attack or stroke, it is critical to provide care within the first six minutes in order to help reduce the possibility of long term disability or death.

Based on a JLARC staff review of the limited response time data available, the average time reported for an emergency vehicle to arrive on scene from the time of dispatch was slightly over 12 minutes statewide. In 87 percent of the emergency responses reported, the provider arrived in less than 15 minutes. There were 711 calls (less than one percent) in which it was more than one hour from the time the unit was dispatched until it arrived on scene. Although JLARC staff heard numerous anecdotal accounts of calls for emergency medical assistance that went unanswered, the State does not have any formal mechanism for tracking these calls.

These results may not be representative of the experience of many patients and EMS agencies because response times are not measured in a consistent manner across the State, there are no State guidelines defining what is considered an appropriate response time, and because many agencies failed to report the required data. For example, 214 of the 273 agencies responding to the JLARC survey reported having some form of response time goals for their individual. The other 59 agencies apparently had no response time goals. Agency response times are driven by public expectations and have been established locally, if they have been established at all.

There are several factors that affect response times, including geographic location, population and traffic densities, agency staffing levels, and the volume of calls received during a typical time period. Local EMS agencies have taken several approaches to addressing the impact of each of these factors on emergency response times. There appear to be some "best practices" that agencies use to improve response times. These will be discussed after a review of response time measurement and reported response time performance.

Standardized Measurement of Response Times Is Needed

One of the most critical issues facing an individual during a medical emergency is how long it takes until an EMS unit arrives at the patient. In Virginia, the acceptable time frame for an emergency response is a decision made locally, often by the EMS agency itself. There are no State requirements for local EMS agencies to establish response time metrics. Therefore, there is no uniform definition of how response times are measured, and no statewide measure of what is considered an appropriate response time. A requirement for agencies to establish response time

goals was included in the 2003 *Virginia Emergency Medical Services Regulations* (12 VAC5-31), but was withdrawn by the Board of Health before promulgation (this will be discussed in more detail in Chapter V).

Standard Definition and Measurement of Response Time Is Needed. There are several variations in the ways in which the timeliness of an emergency medical response is measured. The starting point for a response time can range from the time when a call is received at an emergency dispatch center to the time at which a squad has assembled and departs for the scene. Similarly, the way in which the ending time for a response is measured ranges from the time the unit is en route to the time the unit arrives at the patient or the time the unit departs the scene for the hospital. Agencies that choose to measure the response time from when a call is received to the time the unit is en route are able to track the timeliness of the actual dispatch, but do not adequately capture the amount of time required for emergency medical care to be provided to a patient, and so may be reporting lower response times than are actually experienced by patients. Conversely, measures of response time based on the time a call is received until the time the unit arrives on scene may capture the total length of time to provide an emergency medical response, but could lead to higher reported response times because of difficulties in situations involving multiple calls or mutual aid.

Based on an analysis of the 214 agencies that reported having established response time goals, 90 agencies (42 percent) indicated that their response time goals were measured from the time the call is received, while 124 agencies (58 percent) indicated that their response time begins at the time the unit is dispatched. Most agencies (70 percent) reported that the response time is considered to end when the unit arrives on scene, while 61 agencies (30 percent) say it ends when the unit departs the scene for the hospital. Since the most common starting and ending points for measuring response time are from the time the unit is dispatched until the time the unit arrives on scene, this serves as the basis of JLARC staff analysis of actual response times reported to OEMS.

Collection of Response Time Data Should Be Improved. While response time goals have been established by more than 200 individual agencies, there is currently no statewide system for tracking whether agencies are meeting the goals they have established. Based on JLARC staff analysis of the limited data available in the OEMS patient pre-hospital care reports (PPCR), it does appear that many EMS agencies are meeting the goals that have been established. Based on the limited PPCR data, the statewide average time required from when a unit is dispatched until the time of its arrival on scene is approximately 12 minutes (Table 10). More than 72 percent of all reported responses were provided in less than ten minutes.

State law requires that all licensed EMS agencies submit to the Virginia Department of Health data on each medical emergency to which the agency responds, the response time, and the treatment provided. The Health Department has delegated this responsibility for collection of the data to OEMS. OEMS has not enforced this requirement, however, so the statewide response time information is incomplete. Some EMS agencies do submit data, although not all submit it in automated format. The OEMS requirement is that a patient pre-hospital care re-

Table 10

Reported Response Times

Response Time	Total Number	Percent
5 Minutes or Less	130,430	34
6 to 10 Minutes	148,624	39
11 to 15 Minutes	55,246	14
16 to 20 Minutes	25,013	6
21 to 30 Minutes	18,849	5
31 to 60 minutes	6,617	2
1 to 2 Hours	512	<1
2 to 3 Hours	55	<1
3 to 4 Hours	27	<1
Over 4 Hours	117	<1
Total	385,490	100

Source: JLARC staff analysis of OEMS data.

port be completed for each incident to which an agency responds. OEMS was able to provide JLARC staff with automated PPCR data for more than 485,000 specific incidents in 2003, excluding non-emergency transportation responses. Of this total, 385,490 (77 percent) of the reported incidents in the PPCR, had quantifiable response time data.

While it is possible to provide an aggregate analysis of the response times reported using the PPCR data, it is not possible to analyze this data at the local level because of several limitations in the way in which this data is collected. The primary factors limiting the reliability of this data for further analysis are the lack of data from several large providers and the underreporting of data from several agencies.

By comparing the response time data included in the 2003 PPCR data to the 691 agencies in the OEMS Licensure and Compliance database, JLARC staff identified 200 agencies that had no response time data reported. For these agencies, however, the OEMS Licensure and Compliance database indicated a total of 284,798 incident responses. Several higher-volume agencies without automated PPCR data were Arlington Fire Department, Charlottesville-Albemarle Rescue Squad, Forest View Rescue Squad, Richmond Ambulance Authority, and Hanover Fire and EMS. In addition, there were many smaller volunteer rescue squads located across the State that did not have automated PPCR data.

Another issue limiting the analysis of the PPCR response time data at the local level is that 15 agencies apparently reported response time data for just one emergency response, while the OEMS Licensure and Compliance database indicated a total of 59,089 incident responses for these agencies. Agencies reporting only one PPCR response included such agencies as the Alexandria Fire and EMS, the Franklin County Rescue Squad, the Fredericksburg Rescue Squad and the Harrisonburg Rescue Squad.

Throughout the course of this review, many of the EMS providers, regional council directors, and OEMS staff interviewed indicated that it would be of significant benefit to all residents of the Commonwealth if there were standardized response time metrics and definitions that could serve as the basis for assessing the timeliness of emergency medical responses.

OEMS should develop a uniform definition of response time, and should require EMS agencies to report response time data. As noted, 78 percent of the agencies responding to the JLARC staff survey indicated that they already had such goals in place. OEMS should play an increased role in standardizing the way in which these goals are defined and measured. There are national models, such as the National Fire Protection Association's *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments (NFPA 1710)*, which could be used as a basis for discussion. Any definition of response time at the State level needs to be broad enough to not arbitrarily limit the application of response time metrics.

Recommendation (2). **The Office of Emergency Medical Services (OEMS) should develop a uniform definition for measuring agency response times, starting from the time a call for emergency medical care is received until the time an appropriate emergency medical response unit arrives on scene. EMS agency response time data should be required to be submitted to OEMS on a regular basis. OEMS should make this information publicly available.**

Response Time Goals Are Needed for Each EMS Agency

While the State does not require that EMS agencies establish response time metrics, many agencies have chosen to do so. Several factors can affect response time, and there are some "best practices" for how to manage some of these factors.

Factors Affecting Response Times. There are several factors that can affect ambulance response times and public perceptions of their adequacy. Reasons for variation in an agency's actual response time include the terrain of the area served, the location of the rescue squad, population and traffic densities, agency staffing levels at a particular time of day, increased call turnaround times, and increases in non-essential call volumes.

The ability to reach remote residents in a medical emergency is a particular concern for many of Virginia's more rural EMS agencies. Throughout the course of this review, many EMS personnel indicated that the large areas and mountainous terrain covered by many EMS agencies have a direct impact on the timeliness of emergency medical responses. In addition, the location of many rescue squad buildings is not always optimal.

Many providers indicated that population densities directly impact response times in two ways. First, higher population densities result in more calls for emergency medical care. Second, increased traffic density has a direct impact on the length of time required for a ground ambulance to arrive on scene from the point of dispatch.

Depending on the time of day, there can be significant variation in the staffing levels of a particular agency. This issue appears to have more of an effect on volunteer rescue squads, particularly in covering daytime and late-night hours, when most volunteers are working full-time jobs or sleeping. Several agencies commented on this problem on the agency survey:

> *We are having trouble with day time help because our volunteers need to work to provide for their family. We do fair at night and on weekends to cover calls, but we are taxing our people to burnout levels. We need more volunteers to help us during the week days.*
>
> * * *
>
> *Due to a shortage of jobs in this area, very few young people are able to stay within this area, which hinders our recruitment process. Most squad members drive 25 to 35 miles a day to work. Because of the above, coverage in the county, and especially our service area, is very difficult to maintain during daylight hours.*
>
> * * *
>
> *Right now we are having trouble meeting our daylight calls. We have no EMTs to cover daylight calls. I am in every other week so I run all the daylight calls and a lot of night calls the week I am in. There are no jobs in this area to attract new people and the young people are leaving.*

While agency staffing levels seem to have a larger impact on volunteer agencies, available staffing levels can impact agency response times for all types of providers in all areas of the State. Many volunteer agencies, particular in rural areas, struggle to provide coverage 24/7 as required by the State due mainly to lack of manpower. For example:

> *A former medical director indicated that in one rural county, there may only be one ambulance staffed after midnight although there are five EMS agencies in the county. If this one ambulance is on a call, then finding an additional ambulance crew for the next call may not be possible. Neighboring counties may then be asked to re-*

spond through mutual aid agreements. Some of these counties have expressed reluctance to routinely respond outside their primary service area for non-disaster situations because this would leave their own citizens without EMS coverage. Either way, the next patient may wait for an extended time for an EMS response. The medical director ultimately resigned because efforts to pool resources and improve after-midnight coverage were ineffective. Similar quandaries were described by rural EMS agencies throughout Virginia.

Many EMS agencies reported that call volumes are increasing, and the amount of time spent on each call is increasing. For example, based on a JLARC staff analysis of PPCR response time data, more than 33 percent of reported calls required between one and two hours before the unit returned to service, and 5,683 (one percent) reported incident response required more than three hours until the vehicle was returned to service. According to several providers, the reasons for increasing turnaround time include the location of hospital emergency departments and pharmacies, hospital diversion, and the paperwork required for the transfer of patient care.

An additional reason cited for the increase in response time is a general increase in non-essential call volumes from individuals, nursing homes, and hospitals. Many of the providers interviewed stated that there is a public perception that they will be seen faster in the hospital emergency room if they arrive in an ambulance. These providers indicated that individuals will call for EMS assistance using key words such as "shortness of breath" and "chest pains" when, in reality they may have a prescription that has run out. Several solutions have been suggested, such as filing charges under §18.2-212 of the *Code of Virginia* for falsely summoning an ambulance, punishable as a Class I misdemeanor. However, localities have been reluctant to pursue this solution.

Some Agencies Have Established Response Goals. Despite the lack of a State requirement for response time goals, 214 individual agencies (78 percent of responding agencies) responding to the JLARC survey reported having either formal or informal response time goals, while 59 (22 percent) agencies reported that they did not have such goals in place. Agencies with some form of response time goals represent all types of providers, including 122 volunteer agencies, 44 local government agencies and 48 other agencies such as commercial and industrial providers.

Of the 214 agencies reporting that they had established some form of response time goals, 55 percent of the responding agencies indicated that their goals were stated in written documents, with the remaining 45 percent indicating that these goals were established informally. Of those agencies with response time goals, a majority of local government and commercial agencies reported having formalized written goals, and a majority of volunteer agencies reported that these goals were informally established.

Instead of State guidelines defining what is considered an appropriate response time, agency response times are driven by local expectations.

The Winchester city manager indicated that city ambulances are expected to arrive on site within five minutes of the time a call comes in to the dispatch center.

* * *

Virginia Beach EMS has a response time expectation for the "first on the scene" (which could be a fire truck or an ambulance) to arrive within six minutes of receiving the call.

* * *

Richmond Ambulance Authority (RAA) requires that for life-threatening (Priority 1) emergencies, an ALS ambulance will respond within 8 minutes and 59 seconds, 90 percent of the time.

* * *

An EMS agency spokesman from a rural area indicated that, due to terrain and limited personnel availability, an average response time of 45 minutes would be realistic.

As illustrated in Table 11, the reported response time goals for more than 200 individual agencies range from less than five minutes to less than 45 minutes. One-third of the agencies reported having response time goals of less than five minutes, and an additional 43 percent of responding agencies reporting having response time goals of less than 10 minutes. Altogether, 91 percent of agencies reported having response time goals of less than 15 minutes.

Recommendation (3). **All EMS agencies in Virginia should be required to establish response time goals based on a common statewide definition of response time.**

Table 11
Reported Response Time Goals

Response Time Goal	Number of Agencies	Percent
5 Minutes or Less	70	33
6 to 10 Minutes	90	43
11 to 15 Minutes	32	15
16 to 20 Minutes	8	4
21 to 30 Minutes	2	<1
Under 45 Minutes	1	<1
Other	7	3
Total	210	100

Note: Of the 214 agencies that reported having established response time goals, only 210 reported what those goals were.

Source: JLARC staff survey of licensed EMS agencies.

Best Practices for Providing Emergency Medical Responses Are Available

Given that geographic location, population, traffic volumes, time of day, agency staffing levels, and call volume can impact the timeliness of emergency medical response, local EMS agencies have implemented several creative approaches to addressing the impacts of each of these factors on emergency response times.

To address the impacts of inconsistent agency staffing on agency response times, several of Virginia's larger localities have implemented various versions of a management structure in which volunteer organizations operate within a local government framework. Other localities have implemented various versions of the public utility model, in which a private provider is used to provide full or partial coverage.

Some localities have implemented emergency medical dispatch and tiered response times that allow for dispatchers to prioritize calls for assistance and dispatch an appropriate vehicle for each call. Other localities have taken a similar approach through the use of zone vehicles that allow for a BLS provider and ambulance to be initially dispatched, followed by an ALS provider. Finally, several large urban agencies have implemented temporal demand staffing and vehicle location models. This approach ensures that the greatest numbers of providers are available at times when call volumes are highest, and that those crews can be prepositioned in areas that have a higher probability of an incident occurring at a given time of day.

Combination Career and Volunteer Squads. One of the most common practices for providing timely emergency medical response employed by several Virginia localities is the implementation of a local government management structure for the coordination of governmental and existing volunteer rescue squads. Because these combination squads consist of both paid and volunteer providers, this can be a cost effective way to provide EMS at the local level. In the past several years, many Virginia localities of varying size and location have brought existing volunteer rescue organizations operating within their jurisdictions under local government management structures through the use of a State statute that authorizes localities to issue a permit for EMS agencies.

Across the State, several versions of the blended rescue squad model have been implemented. Larger localities such as Virginia Beach and Hanover have established management structures, but retained existing volunteer providers. For example:

> Hanover County has 473 square miles with a population of 95,000. For many years the Hanover EMS relied on volunteers. Recently volunteers have been supplemented with paid professionals. The county has approximately 200 volunteer EMS employees divided into 12 squads, with an additional 102 paid professionals (including administrative support) that supplement the Fire and EMS operations. Of the 102 paid professionals, 51 are EMS employees.

> Each year Hanover EMS responds to approximately 12,000 calls and transports approximately 9,000 patients.
>
> The professional staff are primarily divided into two crews located at eight fire stations that work 12 hour shifts during the weekdays. Volunteer squads are responsible for staffing night and weekends in addition to covering some daytime shifts. Based on workloads, the paid staff provides approximately 35 percent of the county's coverage, so the volunteers provide most services.
>
> * * *
>
> The City of Virginia Beach Department of Emergency Medical Services consists of a career agency that provides administrative support and oversight of ten volunteer rescue squads. The city has 248 square miles with a population of 430,000, and responds to approximately 34,000 calls for emergency medical services every year. There are over 700 volunteer providers affiliated with these ten squads, and they are augmented by 33 career paramedics and 20 administrative support and training personnel. The city provides fuel, insurance, and training for the volunteer squads. Seven squads are located within city-owned career fire department buildings.

Spotsylvania and Stafford counties have implemented a commission-based approach to the provision of EMS that use both career and volunteer squads within a management structure with unified medical direction. Loudoun and Augusta counties were also cited as having well-integrated volunteer and career systems. Roanoke County has a requirement that the local government organization must approve those individuals that affiliate with volunteer agencies in its jurisdiction.

Contracting for EMS Services. Many Virginia localities contract with commercial entities for either full or part-time provision of emergency medical services. There are at least two means of contracting for EMS services based on the level of service provided. For full-time contractual coverage, the public utility model may be used for establishing a contract between a local government and a commercial agency. When only a few providers or shifts are needed to augment existing volunteer providers, agencies may prefer to contract directly with an existing commercial provider for those services alone.

The public utility model can be used for the full-time provision of EMS directly between a locality and a commercial provider, and is designed to provide a predetermined level of care at a predetermined cost. This establishes a functional separation of responsibilities for EMS service delivery from administrative responsibilities and contract management. These agencies are still required to have external medical oversight from an operational medical director. In addition, the contractual relationship between the local government and the commercial provider allows for the establishment of enforceable response times. For example:

The Richmond Ambulance Authority (RAA) is based on the public utility model. RAA contracts EMS operations to American Medical Response, so the majority of the 200 total EMTs, paramedics, and dispatchers are employees of the contractor. RAA owns the physical infrastructure and 26 ambulances. The contractor is required to put up a $1 million performance bond, and a $500,000 letter of credit, which can be cashed by the RAA in the event of a major breach of contract.

Strict response time requirements are spelled out in the contract, and there are financial penalties for not meeting the response times. For life-threatening emergency calls (priority 1), the ambulances must respond within eight minutes and 59 seconds 90 percent of the time, for non-threatening life emergencies (priority 2), response time is 12 minutes 59 seconds; for urgent emergencies (priority 3) response time is 29 minutes 59 seconds; and for non-emergencies, response time is 59 minutes 59 seconds.

RAA fines the contractor $15 for every minute an ambulance is over the established response time. They can also fine the contractor when response time compliance to all areas of the city for priority 1 response falls below 90 percent for any month. The fine is $20,000 per month if the contractor is between 85 and 89 percent compliant, and up to $100,000 if the contractor drops below 85 percent.

While the public utility model is one contractual approach for ensuring accountability of the system, this model may not be appropriate when a locality or agency needs only to augment existing staffing levels or provide coverage for a specific shift. In these instances, a performance-based contract can be established between a locality or an agency and a commercial provider for part-time coverage. In most cases, these providers use the agency's equipment, wear the agency's uniform, and operate directly from the agency's building. For example, Lifeline Ambulance Inc. provides contract emergency medical response for evening shifts in Goochland County, and Medical Transport, Inc. provides emergency medical response for daytime shifts in Surry County.

To deal with the lack of volunteers during the day, many volunteer agencies have hired paid staff; 39 percent of the 153 volunteer agencies who responded to the survey said that their agency is supplemented with paid staff. This solution appears to have been used successfully in the Tidewater area. The Tidewater regional council's *Regional Emergency Medical Services Plan 2003-2006* states that "pockets of manpower deficiency, which existed in previous years, have largely disappeared due to county provision of daytime responders in rural areas." Other localities are dealing with the lack of daytime providers in a similar manner:

Westmoreland County recently drew media attention when government leaders called an emergency due to the lack of EMS providers. This lack of providers was causing longer response times. According to news reports, many residents in this rural area of the North-

> *ern Neck cannot get the immediate help they need, especially during daytime hours, because there is hardly anyone to respond. Volunteers either work outside the county or are simply unable to respond to a call that would take them away from their jobs for a minimum of two hours per call.*
>
> *To deal with this emergency situation, Westmoreland County hired a private ambulance company as an interim solution. Permanent solutions being examined by the county include supplementing the volunteer program with full-time employees or contracting with private companies as is being done now on an emergency basis.*

Some local volunteer squads have also started to pay existing volunteers to cover the harder-to-staff shifts. Localities such as Abingdon have reported that the volunteer providers who run calls during the day are paid on a per-run basis. Similarly, the Clintwood Rescue Squad recently hired four personnel to cover all seven daytime shifts and augment some evening volunteer shifts. According to the captain of the Clintwood Rescue Squad:

> At first volunteers were resistant to blended rescue squads, but they are becoming increasingly reliant on the coverage they provide.

Emergency Medical Dispatch. Several agencies have also started to use emergency medical dispatch to improve the way in which a response is provided. With emergency medical dispatch (EMD), the dispatcher, who has specialized training, provides a set of pre-arrival instructions to the caller as well as dispatching the appropriate responders. This enables the caller to begin providing care to the patient based on the over-the-phone instructions from the dispatcher. The dispatcher elicits information about the incident from the caller and then follows a set of medical protocols based on their over-the-phone assessment of the situation. The dispatcher is also able to prepare EMS personnel with information about the situation and aid in locating the patient. While EMD training courses are based on the NHTSA EMD national standard curriculum, the local protocols will be determined by local medical directors (OMDs).

OEMS has stated that "pre-arrival medical dispatch services (should) be provided to all citizens of the Commonwealth" and is currently in the process of approving EMD accreditation guidelines for 911 public safety answering points (PSAPs). This would not be a requirement for PSAPs, merely an optional certification. Rescue Squad Assistance Fund grants could be used to fund EMD implementation, but it is not currently an expressed objective of the fund. In addition, OEMS has also provided training to a number of EMD instructors through a federal highway safety grant.

Tiered Response Systems. Some agencies are employing a tiered response system that allows for the dispatch of both fire trucks and ambulances in response to a call for service, based on a prioritization of the calls for emergency medical care. Using emergency medical dispatch techniques, calls are prioritized

based on the severity of the incident: Tier I – ALS high priority (trauma or heavy bleeding), Tier II – ALS low priority (chest pains), Tier III – BLS low priority (broken bones). By establishing tiered response systems, these agencies have been able to establish response time metrics, and by using both non-transport and transport vehicles, they are able to decrease the time required to make initial patient contact and stabilize a patient for transport. For example, Hanover County response time goals are to get to 80 percent of Tier I calls within eight minutes, 80 percent of Tier II calls within 12 minutes, and 80 percent of Tier III calls within 15 minutes.

Zone Dispatch. Another approach to improving the response time from a call for assistance to initial patient contact is through the use of zone vehicles. The city of Virginia Beach has deployed zone vehicles which allow BLS providers to be initially dispatched to a call and provide initial patient contact within an acceptable time frame. The zone vehicles use ALS providers that operate within a specific area and can provide an increased level of emergency medical care upon request. The Virginia Beach Department of EMS recently hired 24 career paramedics to provide zone coverage throughout the city. In order to maximize the coverage areas, six paramedics are placed on four shifts daily. In addition, these providers can also be used to augment a volunteer shift should the need arise.

Temporal Demand Modeling. Temporal modeling for agency staffing levels and vehicle location is based on analysis of historical call volumes to determine where the greatest need will be throughout the day or week. The use of temporal staffing models allows agencies to analyze those times of day which experience higher call volumes in order to appropriately staff for those periods. In response to the JLARC staff survey of certified EMS agencies, 20 percent of respondents indicated that their agencies had implemented such modeling. These agencies are both career and volunteer and are located across all areas of the State.

Through the use of peak-demand vehicle location models, the Richmond Ambulance Authority (RAA) avoids the need for EMS stations throughout the city from which ambulances are dispatched. The RAA uses computer algorithms to determine where the greatest need is most likely to occur throughout the day, and stations ambulances on street corners and parking lots near those areas.

Hanover County has four base stations for fire dispatch; however, during daytime peak hours a unit dispatch rotation is used, based on the past five years of historic emergency call data, which is used to forecast where accidents are likely to occur. This process allows for hourly staging of EMS vehicles in areas where there is an 80 percent probability of incident. This model was established by the Richmond Ambulance Authority and facilitates emergency services in meeting established response time goals. In order to appropriately staff the necessary emergency vehicles, Hanover EMS attempts to maintain 80 percent of peak time staffing needs on a 24-hour basis.

Recommendation (4). **The Office of Emergency Medical Services, in conjunction with the regional EMS councils, should identify and make available information on best practices for managing emergency medical response times.**

INSUFFICIENT DATA ARE AVAILABLE FOR ASSESSING THE QUALITY OF EMERGENCY MEDICAL SERVICES

One final way of assessing the effectiveness of Virginia's EMS system is by analyzing the quality of patient care provided once the responding agency is on-scene. Despite numerous anecdotal accounts of 911 calls that went without the arrival of an EMS responder, and of regional variations in patient survival rates based on the distribution and availability of EMS personnel, there is insufficient data at the State level to perform any systematic review of patient outcomes resulting from the level of emergency medical care provided statewide or locally. Without patient care data there is no way to determine the appropriateness of the level of care provided and it is not possible for local governments to make decisions on the effectiveness of their own or volunteer organizations, or to determine the appropriate level of local investment in the provision of emergency medical services.

The OEMS patient pre-hospital care reporting (PPCR) system has insufficient data for analyzing response times or patient outcomes at the local level, as previously noted, and the State does not have any formal mechanism for tracking unanswered calls for assistance. While there are informal feedback mechanisms through which an agency's operational medical director (OMD) is able to monitor the quality of patient care provided for their specific agency, there is no unified data system that allows for analysis of this information at the State level.

The *Code of Virginia,* in section 32.1-111.3, explicitly directs the Board of Health to increase accessibility of high quality emergency medical services to all citizens of Virginia. The 1999 *Statewide Emergency Medical Services Plan* establishes a goal for OEMS of providing public access to emergency medical services through the 911 emergency dispatch system to at least 90 percent of the population and 70 percent of Virginia's land area. In addition, OEMS has established a goal of ensuring that at least 70 percent of EMS pre-hospital resources are dispatched from a consolidated communications center.

Despite these goals, there is very limited documentation of the performance of the EMS system across the State, and no unified data system capable of analyzing EMS resources, equipment, response times, and outcomes. Since 1987, OEMS has been required by §32.1-116.1 of the *Code of Virginia* to ensure that local EMS agencies appropriately submit pre-hospital patient care report data. After initially requiring agencies to submit this data, OEMS suspended the requirement from 1994 through 2000, at which point in time collection of this data was re-initiated.

It appears that only about 70 percent of squads submitted reports in the years 2001, 2002, and 2003. Moreover, while 85 percent of agencies responding to the JLARC staff survey indicated that they were submitting this data either online or with a computer CD or diskette, JLARC staff were able to identify 200 active agencies that did not have any automated PPCR data for 2003, and an additional 15 agencies that reported only one incident response. Although the noncompliant agencies have been identified, OEMS has chosen not to enforce PPCR data collection. During the course of this review, several OEMS staff and regional council di-

rectors indicated that the office has recently started to advise squads that not submitting PPCR is a violation of State regulations.

Two reasons why EMS agencies have not submitted data to the PPCR system were cited by a variety of EMS personnel. First, local data collection instruments and databases are better than the State's PPCR data system, according to many EMS personnel. The local systems provide more useful detail about each EMS response, and are not necessarily compatible with the State data requirements, according to these individuals. The second reason is that OEMS has not provided any results or summary findings from the data that has been collected through the PPCR system, so it has been of no benefit to local squads to collect and submit the information to the State. Only in 2004 has OEMS assigned a staff member to analyze the PPCR data.

The overall lack of data available for analyzing the quality of patient care provided is not unique to Virginia. Throughout the country, restrictions placed on the release of patient outcome data under the Health Insurance Portability and Accountability Act of 1996 have been cited as an impediment to analyzing the quality of care provided in the pre-hospital environment. The United States Government Accountability Office recognized this problem nationally in its October 2001 report to Congress: *Emergency Medical Services – Reported Needs Are Wide-Ranging, With A Growing Focus on Lack of Data.* In response to many of the concerns that have been expressed across the country, in October 2003 the National Highway Traffic Safety Administration proposed new baselines for the collection of pre-hospital emergency medical care data in its uniform pre-hospital dataset (version 2.0). Virginia is a participant in the national EMS system information project. Instead of insisting on full compliance in submitting data to the current PPCR system, OEMS should begin development of an improved system.

Recommendation (5). **The Office of Emergency Medical Services (OEMS) should initiate planning for the development of a unified emergency medical services patient care information system, as envisioned within §32.1-116.1 of *Code of Virginia*. This system should, at a minimum, include data already contained within the existing Licensure and Compliance, and Patient Pre-hospital Care Report datasets. In addition, planning for this system should focus on the proposed data collection points established by the National Highway Traffic Safety Administration's Uniform Pre-Hospital Dataset (version 2.0). OEMS should use the data to help it identify local EMS operations in which the availability, timeliness, or quality of services appears to be problematic. OEMS should work with local agencies to develop strategies to address such problems.**

III. Recruitment, Retention, and Training of EMS Providers

With the variations in how Virginia's extensive network of volunteer and career providers are distributed (as illustrated in Chapter II), recruiting, retaining, and training these individuals is critical to the success of the system. Adequate numbers of skilled personnel throughout the State are essential to the long-term provision of emergency care. Urban and suburban areas tend to have a reasonable supply of such personnel, although competitive salary pressures create a constant demand for staff to replace those who have moved to higher paid positions. Many rural areas, which are more dependent upon volunteers to provide EMS, are struggling to retain qualified people.

The need for EMS personnel will continue to increase along with growth in the general population, the number of elderly, and traffic volumes. Other factors are also driving the need for EMS staff, such as the increasing call volume and the increasing time per call (the time it takes for a crew to complete the release of the patient to the hospital, clean and re-stock the ambulance, and return to service).

A variety of factors makes it difficult for agencies to recruit, train, and retain EMS providers. Providers indicate that it is difficult to obtain the training necessary to maintain their certification, there are concerns about weak management in some volunteer agencies, and the time commitment required to be a volunteer provider are important issues that are affecting volunteer agencies. Maintaining competitive salaries is a concern for career agencies. In addition, approximately 26 percent of the State's certified providers are not currently working for an EMS agency.

The difficulty in retaining and recruiting EMS providers is a key issue in many areas, particularly for volunteer agencies. This is also a critical issue for the State system as a whole because approximately 70 percent of the EMS agencies are volunteer agencies (excluding wheelchair and air transportation agencies). JLARC staff estimate that volunteers provided at least 3.6 million hours of EMS service to the citizens of Virginia in 2003, the equivalent of approximately 2,100 full-time employees. Without these volunteers, a substantial number of communities throughout the State would not have access to pre-hospital emergency care.

As discussed in Chapter II, the problem of recruiting and retaining volunteer providers is contributing to increased response times. To deal with this, many volunteer agencies have had to hire paid staff to respond to calls during the day, and others may have to consider it in the near future; 39 percent of the 153 volunteer agencies responding to the agency survey reported that they have hired supplemental staff.

To address the recruitment and retention issue, many local EMS agencies offer incentives to providers such as providing free training or free local motor vehicle stickers, and develop promotional materials. OEMS also has several initiatives

to assist local agencies in recruiting and retaining providers, such as offering grant money and maintaining an online recruiting database. It is currently unclear how effective these initiatives are in recruiting and retaining providers.

The cost of training has recently increased, and the availability of training, especially advanced life support (ALS) training, has decreased, due to recent changes in EMS regulations. Among other things, these changes increased training requirements and mandated that ALS training be provided only at accredited sites. Virginia is now in a transition period during which the supply of ALS training has decreased significantly, and it may be two years or more before enough accredited sites are available to meet the need for ALS training.

While it is important for Virginia's EMS providers to keep up with changes in medical practices, it is also important to ensure that there are enough providers to maintain service levels around the State. There are a number of actions that can and are being taken to help address problems with recruitment, retention, and training, as discussed in the following section.

RECRUITMENT AND RETENTION OF EMS PROVIDERS ARE MAJOR PROBLEMS FOR EMS AGENCIES

EMS agencies throughout the State believe that the recruitment and retention of EMS providers is a major problem. Of the agencies responding to the JLARC survey of EMS agencies, 74 percent reported that the recruitment and retention of EMS providers is one of the top three most crucial issues their agency is facing. Approximately 85 percent of volunteer agencies and 58 percent of career agencies cited this as one of their top issues.

Many certified EMS providers have either left their agency in the past year or are considering leaving their agency, and one fourth of the State's certified providers are not affiliated with an agency. This is having a major adverse effect on the ability of many EMS agencies, particularly volunteer agencies, to provide emergency medical services.

Agencies Responding to the Survey Lost 1,607 Providers in 2003

Agencies responding to the JLARC survey of EMS agencies lost 1,607 providers in 2003. Of these providers, 1,068 left their agencies and 539 became inactive. Approximately 64 percent of the total providers lost were from volunteer agencies (1,032 providers), 18 percent were from career agencies (293 providers), and 18 percent were from other types of agencies (282 providers). One large volunteer agency reported that 260 providers left or became inactive in 2003, which is 50 percent of its total staff.

As shown in Table 12, agencies responding to the survey reported that the most common reasons that these providers left or became inactive were personal reasons and not being able to devote enough time to the agency. Volunteer agencies

Table 12

Reasons EMS Agencies Reported that Providers Left Their Agency or Became Inactive in 2003

Reasons	Percent
Personal reasons (got married, had a baby, etc.)	60
Couldn't devote enough time to the agency	55
Re-certification training was too burdensome	40
Other	29
Low pay	19
Didn't like the work	14
Employer would not accommodate their volunteer schedule	11
Lack of access to re-certification training	9
Health reasons	9
Couldn't afford re-certification training	5

Note: The total does not equal 100% because respondents could select more than one reason.
Source: JLARC Survey of EMS Agencies.

responding to the survey were more likely than career agencies to report that providers left for these reasons. Lack of access to training and not being able to afford training were not major reasons for leaving, although many agencies felt that providers left because re-certification training was too burdensome. According to the agencies, the providers who left typically transferred to another EMS agency or left the EMS field altogether.

Many Providers Reported They Are Considering Leaving Their Agencies

Of the providers who responded to the provider questionnaire, 40 percent indicated that they have considered leaving their EMS agency in the past year. As shown in Table 13, 53 percent of providers responding to the provider questionnaire said they have considered leaving their agency because of "poor leadership/management at my agency." Low pay was the second leading reason cited by providers.

Poor Leadership and Lack of Management Training Appear to Affect Retention in Volunteer Agencies. As noted above, 53 percent of respondents to the provider questionnaire have considered leaving their agency because of poor leadership and management. This was also cited by OEMS staff and others as a key reason for the retention problem in volunteer agencies.

Several providers commented on the leadership and management issue on the provider questionnaire:

> My greatest concerns for Virginia's EMS systems lie in the areas of leadership and recruitment and retention. EMS agencies in

Table 13

Reasons EMS Providers Responding to Provider Questionnaire Have Considered Leaving Their Agency

Reasons	Percent
Poor leadership/management at my agency	53
Low pay	27
Personal reasons (change in family situation, etc.)	18
Cannot devote enough time to the agency	16
Re-certification training is too burdensome	15
Lack of access to re-certification training	13
Agency will not allow me to work a flexible schedule	7
Health reasons	5
Cannot afford re-certification training	4
My employer won't accommodate my volunteer schedule	4
Don't like the work	2

N=346
Note: The total does not equal 100% because respondents could select more than one reason.
Source: JLARC Questionnaire for EMS Providers.

Virginia have a great fear of change and aversion to taking risk and their leaders are often leaders solely due to time in position, not due to training or skill in leadership or management. This causes a great divide when it comes to the skills necessary to take these agencies, whether they are career or volunteer, into the next decades, and to garner the ability to recruit and retain members. With the agenda for the future quickly coming down the road and new education requirements for EMS providers looming on the horizon, there will be more and more issues that EMS leaders will be faced with.

* * *

More focus needs to be placed on leadership training. Good leadership can motivate and attract more volunteers. We need to target developing good, sound leaders to lead our volunteer rescue squads. I believe this is true across the state.

* * *

The most serious issues point to a fundamental lack of leadership, management and accountability in many volunteer agencies. It is a shame, because there are tremendous opportunities for some well trained providers who find themselves in the midst of political agendas in many of these agencies and in many cases have lost

> sight of why they even got involved in EMS. The volunteer component of EMS is going to be history if significant changes are not made because people today do not want to associate with organizations or causes whose reputations and business practices are questionable.
>
> * * *
>
> Those in leadership positions are not qualified to be there. There needs to be minimum qualifications for leadership just as a provider has minimum standards. I see lots of good people leaving because of leadership problems.

Squad captains in volunteer agencies are generally EMS providers who are voted into their positions by the agency membership. Management credentials are apparently not always the determining factor in selection, according to many people interviewed during the course of this review. Squad captains are not required to have experience with routine management functions that are important for EMS agencies, such as financial management and budgeting, personnel management, and strategic planning.

One result of this lack of management experience and training is that not all local agencies' organizational structures and management processes have kept pace with changing conditions over the years, which may be driving volunteers away. More families today have two working parents, which necessitates greater scheduling flexibility for volunteers. However, many local agencies may not be accommodating the needs of their volunteers, such as allowing them to work flexible schedules, because it may not have been needed in the past. For example:

> *One provider (and former OEMS employee) stated that he does not volunteer for the rescue squad in his locality because the squad will not allow him to work a flexible schedule. He told the squad the days of the month he was available, and the squad would not accommodate that schedule.*

Only 33 percent of volunteer agencies responding to the agency survey reported that they allow flexible work schedules. In addition, poor leadership can lead to conflicts within the agency, which can make it difficult to retain staff.

Currently, there are no State regulations pertaining to the organization and management of the local EMS agencies, and there are no specific qualifications that a squad captain must possess. OEMS does offer agency leadership and management training; for example, at the 2004 EMS Symposium, 31 different management and leadership courses are being offered, including:

- Building an Effective EMS Team
- Effectively Managing the Nonprofit Organization
- Developing New Leaders in EMS

- Strategic Planning for EMS Agencies
- Leading the Volunteer EMS Organization in the 21st Century

However, OEMS does not mandate that agency leaders take this training, and according to OEMS, many of the people who would benefit from these classes do not take them.

Low Pay Is Reported to Be a Key Problem Affecting Recruitment and Retention in Career Agencies. As shown in Table 13, 27 percent of providers who have considered leaving their agency cited low pay as the reason. Low pay was also cited frequently at the JLARC group meetings as a key reason for the recruitment and retention problem. The consensus among EMS agency representatives in the JLARC group meetings was that in urban areas of the state, such as Tidewater and Northern Virginia, EMS providers often move from agency to agency in order to increase their salaries. In addition, agency representatives at the JLARC group meetings reported that they are losing ALS providers to other health care entities because they offer better pay, in addition to more normal working hours and a better working environment.

Recommendation (6). **The *Virginia Emergency Medical Services Regulations* should be revised to require squad captains to complete management and leadership training within six months of becoming captain. The Office of Emergency Medical Services and the regional councils should ensure that adequate management training opportunities are available.**

About One-Fourth of the State's Certified EMS Providers Are Not Affiliated with an EMS Agency

Approximately 26 percent (8,679) of the State's certified EMS providers were not affiliated with an EMS agency as of May 2004. Approximately 82 percent (7,138) of these unaffiliated providers were emergency medical technicians (EMTs). The percentage of unaffiliated providers ranged from four percent in Highland County and Manassas Park to 64 percent in the City of Falls Church. This is a concern because these providers are choosing not to work for an EMS agency, even though they have taken the time to obtain and maintain their certification.

There are many reasons why certified EMS providers may not be affiliated with an EMS agency. As stated before, career providers may be working for another health care entity. Volunteer providers may not be able to devote enough time to their agency, or may have been alienated by the poor management of their agency.

OEMS has tried to survey these unaffiliated providers to determine the reasons they are not working for an agency, but the response rate for the survey was low. Of those that did respond, reasons given for not being affiliated with an agency included family commitments and poor agency leadership and management. A 1999 survey of EMS volunteers in the Old Dominion EMS Alliance region of central Virginia found that the primary reason volunteer providers stopped volunteering was

due to family demands. This was followed closely by conflict within the volunteer organization and burnout.

LOCAL, REGIONAL, AND STATE INITIATIVES TO ADDRESS RECRUITMENT AND RETENTION

Local EMS agencies, the State, and the regional councils to a lesser extent all have initiatives to improve the recruitment and retention of EMS personnel. At the local level, some agencies offer incentives such as free motor vehicle licenses and conduct local advertising campaigns. At the State level, OEMS provides funding to local agencies for recruitment and retention, conducts statewide campaigns, and offers an online recruitment database. The regional councils also have some recruitment and retention initiatives to assist local agencies. These initiatives and others are described in more detail below.

Agencies Have a Variety of Recruitment and Retention Initiatives, but More Could Be Done

Local EMS agencies spend money on a variety of recruitment and retention activities. Among agencies responding to the JLARC survey, 50 percent reported spending a total of $658,975 on recruitment and retention activities in 2003. Fifty percent of agencies reported that they did not spend money on recruitment and retention in 2003. Spending by individual agencies ranged from $150 to $100,000.

Agencies reported that the most typical activities funded with this money were promotional flyers/brochures (66 percent) and special events (65 percent), such as open houses. Fewer agencies spent money on high school- and/or community college-based recruitment functions (35 percent) and television or radio ads (16 percent). About 38 percent of agencies reported spending money on other recruitment activities, such as training classes, newspaper advertisements, and billboards.

Incentives Authorized by the Code of Virginia. Agencies also offer a variety of incentives to help recruit and retain EMS providers, some of which are explicitly authorized by the *Code of Virginia*. For example, the *Code of Virginia* specifically states that localities may establish tuition reimbursement programs for eligible volunteer firefighters or EMS personnel for the purposes of recruitment and retention (§15.2-954.1). The *Code of Virginia* also provides that localities may issue local licenses for motor vehicles, trailers, and semitrailers free of charge to active members of volunteer rescue squads (§46.2-752).

In 1999, the General Assembly also created the Volunteer Firefighters' and Rescue Squad Workers' Service Award Fund (§51.1-1200), which became effective January 1, 2001. This fund was established to provide service awards to eligible volunteer firefighters and rescue squad workers who elect to become members of the fund. The Volunteer Firefighters' and Rescue Squad Workers' Service Award Fund Board manages the fund, and the Virginia Retirement System assists in maintaining and investing the fund.

Members of the fund may voluntarily contribute to it and these contributions may be supplemented by State general funds, if there is an appropriation to do so; however, no supplemental general funds have been contributed to date. Additional contributions to the fund may also be made by individual fire departments or rescue squads, local governments, or other sources. Members contribute $30 per quarter. Members may also purchase prior service. Any member who is 60 years of age and who has at least ten years of creditable service is entitled to a distribution from the fund equivalent to the contributions he has made, the appropriate matching contributions made on his behalf, and any investment gains on such contributions less losses. Other distributions for eligible volunteers who are 60 years of age and have at least five but less than ten years of service shall be made in accordance with the *Code of Virginia* §51.1-1206.

The fund does not appear to be well utilized by EMS providers. For example, the fund was not mentioned by any of the providers, regional council staff, OEMS staff, or others interviewed during this study. As of June 30, 2003, there were 942 accounts in the fund, which is less than three percent of the total EMS providers. The fund balance in FY 2004 was $574,000, an average of $609 per account in the fund. Since FY 2003, approximately $328,000 in general funds have been appropriated to pay the costs associated with administering the fund (such as legal fees, actuarial consulting services, and record keeping) but, as stated above, no general funds have been contributed to the fund itself.

Other Incentives Offered by Local Agencies. In addition to the incentives specifically authorized in the *Code of Virginia*, EMS agencies can offer other incentives to providers. The most common incentives used by the agencies responding to the survey were free training, free uniforms and pagers, travel reimbursement, and social functions (Table 14). The incentives that were used least have the potential to be more effective, but also require more money to implement, such as providing on-call pay to volunteers, car tax exemptions, college tuition assistance/reimbursement, and relocation assistance. (Some agencies noted that car-tax relief was an important incentive in the past, but it is not as effective now that a significant portion is already paid by the State as part of the car tax reduction program.) Other incentives cited by agencies responding to the survey include child care assistance, meal stipends, accident and disability insurance, and performance bonuses.

There were differences in the incentives offered by the career and volunteer agencies responding to the survey. Career agencies were much more likely to offer the more expensive incentives, such as retirement plans, health benefits, and tuition reimbursement. As noted by one agency respondent, "the best incentive is a higher salary." Volunteer agencies were more likely to offer the car tax exemption, free motor vehicles licenses, and social functions.

Additional Incentives Suggested by Providers. Providers who attended the group interview sessions also suggested several incentives that they thought might help to recruit and retain new volunteer providers, including:

Table 14

Incentives Offered by Professional and Volunteer Agencies Responding to the EMS Agency Survey

Incentives	Percentage of Agencies Offering
Offer free training	81
Provide free uniforms and pagers	77
Provide travel reimbursements (for conferences, etc.)	55
Hold social functions such as dinners and picnics	55
Conduct recognition programs	52
Offer a retirement plan	34
Allow flexible work schedules	33
Provide health care benefits	30
Issue local motor vehicle licenses free of charge	29
Provide college tuition assistance/reimbursement	27
Provide personal property tax (car tax) exemption	23
Provide on-call pay	7
Provide relocation assistance	3

The total does not equal 100% because respondents could select more than one reason.
Source: JLARC Survey of EMS Agencies.

- income tax or real estate tax breaks,
- participation in a retirement system, such as the Virginia Retirement System (VRS) or the Law Enforcement Officers Retirement System (LEOS),
- bonuses, on-call pay, nominal payments per call responded to, and
- participation in the "heart-lung presumption" benefit, which currently entitles certain public safety personnel to workers' compensation benefits if they die or become impaired due to certain diseases (EMS personnel are specifically excluded from this benefit by §65.2-402G of the *Code of Virginia).*

There are advantages and disadvantages to implementing these incentives. The major advantage of all of these incentives would be to provide a financial incentive for individuals that would encourage them to become EMS providers, or to encourage inactive EMS providers to become active. The main disadvantage is lack of funding. Given the high cost of providing these incentives (particularly the tax breaks and retirement system options), it is unlikely that most volunteer agencies would be able fund these on their own, and would need to find other sources of funds.

It appears that changes would need to be made to the *Code* to allow EMS providers to participate in VRS or LEOS. *Code of Virginia* section 51.1-138.B states that only local law enforcement officers, full-time salaried fire fighters, and regional

jail officers may participate in LEOS. VRS membership is restricted to full-time, salaried employees, so this option is not currently available to volunteer providers.

Recommendation (7). **The Office of Emergency Medical Services should develop and distribute to EMS providers descriptive information about the Volunteer Firefighters' and Rescue Squad Workers' Service Award Fund in order to better publicize the fund.**

OEMS Offers Various Recruitment and Retention Services to Agencies, But Agencies Appear to Be Making Limited Use of These Services

OEMS provides some specific recruitment assistance to local EMS agencies. For example, the public information office can help agencies develop promotional materials such as brochures, flyers, and posters. In addition, OEMS sometimes conducts statewide recruitment campaigns, which may include television and radio ads. OEMS also has a toll-free hotline for anyone who wants information on EMS agencies across the State. Recently, OEMS implemented an online recruitment directory, which allows potential recruits to search a database on the OEMS web site and obtain information on every licensed EMS agency in the State, including information on whether the agency is hiring. (OEMS contracted with the Western Virginia EMS Council to maintain the online recruitment directory, including hosting the database, providing technical support services to users, providing all hardware and software, and providing OEMS with quarterly reports on the usage of the database). However, relatively few agencies appear to be maintaining current hiring information on the site.

In addition, OEMS has also contracted with a consulting firm (through the Western Virginia EMS Council) for $30,000 to provide retention materials for EMS agencies and personnel. The main objective of the project is to develop a "tool kit" that will have "structured, interactive learning experiences designed to optimize the productivity and retention of EMS personnel through their life cycle of service." Four "tools" are to be developed and produced by June 1, 2005.

OEMS also has several initiatives aimed at helping providers maintain their certification (which in theory should improve retention), including a re-entry program to assist providers in retaining their lapsed certification, and a policy to allow operational medical directors in the local agencies to waive recertification testing. OEMS and regional councils also arrange for stress management debriefings to providers after critical incidents.

The effectiveness of these initiatives is unclear. Of the agencies responding to the survey, 43 percent said they do not use the personnel recruitment services offered by OEMS; of those that did use these services, 20 percent rated them excellent or good, and 37 percent rated them fair or poor. In addition, only 15 percent of agencies responding to the survey said that they use OEMS's online recruitment directory. OEMS staff indicated that 15 to 20 percent of agencies statewide are using this online recruitment tool. One agency responding to the survey indicated that

they did not even know this directory existed. In addition, one OEMS staffer questioned the effectiveness of the statewide recruitment campaigns, and noted that few people make use of the recruiting hotline.

State Funding for Recruitment and Retention. In FY 2004, OEMS provided $1.9 million in State funding to assist EMS agencies with training, recruitment, and retention. This amount increased to $2.9 million in FY 2005. These amounts consist of 13.5 percent of the "$4-for-Life" fund specified in the *Code of Virginia* that is to be used for EMS training, recruitment, and retention programs (including public awareness campaigns, technical assistance programs, and similar activities) and 2.5 percent of the "$4-for-Life" fund that is dedicated to the Virginia Association of Volunteer Rescue Squads solely for the purpose of volunteer recruitment, retention, and training activities. It is currently unclear how much of this funding goes to training and how much goes to recruitment and retention activities.

The only required spending on recruitment and retention is found in the Appropriation Act. The Act has for several years required $100,000 to be "provided from special funds to provide technical assistance for local government officials and a public awareness campaign on volunteerism for the emergency medical services program." It appears that OEMS exceeds this required spending level.

For several years, OEMS had a separate recruitment and retention grant program. A little more than $200,000 was budgeted for this grant program in FY 2003, down from $300,000 in 2001. In FY 2004, this grant program was merged with the Rescue Squads Assistance Fund (RSAF), and it is currently unclear how much grant funding has been provided for recruitment and retention purposes. According to RSAF records, it appears that only $4,000 was awarded to one agency for recruitment and retention activities in FY 2004 (out of a total $1.86 million in grant funds awarded to 90 EMS agencies).

OEMS has also allocated other funds for recruitment and retention. For example, in FY 2004, $17,000 was provided to the regional councils for recruitment and retention, $4,000 of which was to maintain the OEMS recruitment database. OEMS also funds leadership and management training courses at the EMS symposium, which can have a positive effect on retention.

Recommendation (8). **The Office of Emergency Medical Services should consider allocating some of the "$4-for-Life" funding to help agencies fund recruitment and retention incentives. Local governments should also consider providing funds to agencies to help fund these incentives, or pay for volunteer bonuses or on-call pay. Agencies should be encouraged to apply for Rescue Squads Assistance Fund grants to help fund these initiatives.**

The Regional Councils Appear to Have a Minimal Role in Agency-level Recruitment and Retention Activities

OEMS could make more effective use of the regional councils in assisting with recruitment and retention. Almost half the EMS agencies responding to the JLARC survey indicated they did not use these regional council-provided services.

Only two regional councils were contracted to perform specific recruitment activities in their region in FY 2004:

- The Blue Ridge EMS Council was contracted to develop EMS recruitment brochures and recruitment information materials geared toward high school students, and to provide recruitment information at four school career days during the year.

- The Peninsulas EMS Council was contracted to increase the number of counties participating in the EMT-B High School Curriculum from one to three.

In addition, in 2004 all of the regional councils (except for Northern Virginia) were contracted to establish and maintain a critical incident stress management team, which can improve retention by helping to alleviate the stress on providers who have responded to emotionally difficult situations.

Other regional councils may perform recruitment and retention activities, even though not required by their contracts. For example, the Tidewater EMS Council:

> supports recruitment and retention of personnel in career and volunteer agencies. The Council office directs inquiries about prospective career or volunteer opportunities to the appropriate agencies. Volunteers and staff are available to provide career information to agencies, schools and other institutions, or refer such requests to local jurisdictions. A volunteer recruitment booklet describes available opportunities. A career flyer lists all agencies in the region that provide full or part-time EMS employment. Career opportunities are also publicized on the Council's web site. Recruitment booths have been provided for several years during the Virginia EMS Symposium and during EMS Week at local malls.

Of the agencies responding to the agency survey, 49 percent reported that they did not make use of the personnel recruitment services offered by the regional councils. In some cases, this may be due to the fact that the regional council does not provide these services.

The regional EMS councils appear to be in a prime position to assist agencies with recruitment and retention. They should be familiar with the general economic conditions and populations in their region, they have contacts throughout the region, and they can assess their region's recruitment and retention problem from a

region-wide perspective. For all of these reasons, it appears that the regional councils could be doing more to help agencies recruit and retain providers.

Recommendation (9). **The Office of Emergency Medical Services and the regional councils should work together to define a larger role for the regional councils in assisting agencies with recruitment and retention. For example, OEMS and the regional councils could work with the Department of Education and local school divisions to develop EMT-B high school curricula (as the Peninsulas council is currently contracted to do), sponsor region-wide EMS job fairs, and provide more leadership and management training.**

CONCERNS WITH THE AVAILABILITY AND COST OF TRAINING

The care of a patient begins in the pre-hospital setting, and emergency medical services are essentially an extension of the hospital emergency room and have a direct impact on a patient's outcome. Because EMS providers are afforded a wide breadth of control over patient assessment and initial treatment, extensive training is required to ensure that their judgments and practices, often made under adverse field conditions, are sound and correct. As noted in Chapter I, EMS providers must take a minimum of 110 hours of training and pass competency tests to begin work as an EMT. Higher level providers must take additional training. All providers are required to meet continuing education requirements to keep up with medical advances and new techniques.

A key concern is the availability and cost of ALS training. Sixty percent (490) of EMS agencies are identified as ALS ground transport, which means they need ALS providers on an ongoing basis. Since new regulations took effect in January 2003, ALS training may now only be provided at accredited ALS training sites. Accreditation ensures that the program has the facilities and policies needed to run the program and ensures the educational component of the training is met. Accreditation was also a key issue in the National Highway Transportation Safety Agency's (NHTSA) 1997 document, *EMS Agenda for the Future*.

OEMS uses a process of site accreditation in which the course curriculum, the site coordinator, and the physical site all must meet accreditation requirements. A voluntary accreditation process had been in place since 1995. Before site accreditation, the only requirement for an ALS class was that it be endorsed by an operational medical director. As of January 15, 2003, programs were required to contract for a physician course director (a doctor who oversees the site) and a site coordinator who deals with the administrative aspects of setting up classes. OEMS must also approve the course curriculum. According to several people who have successfully obtained accreditation "from scratch," the process takes at least a year.

Programs accredited at the paramedic level may also offer instruction at the lower levels and provide continuing education and auxiliary courses. ALS sites

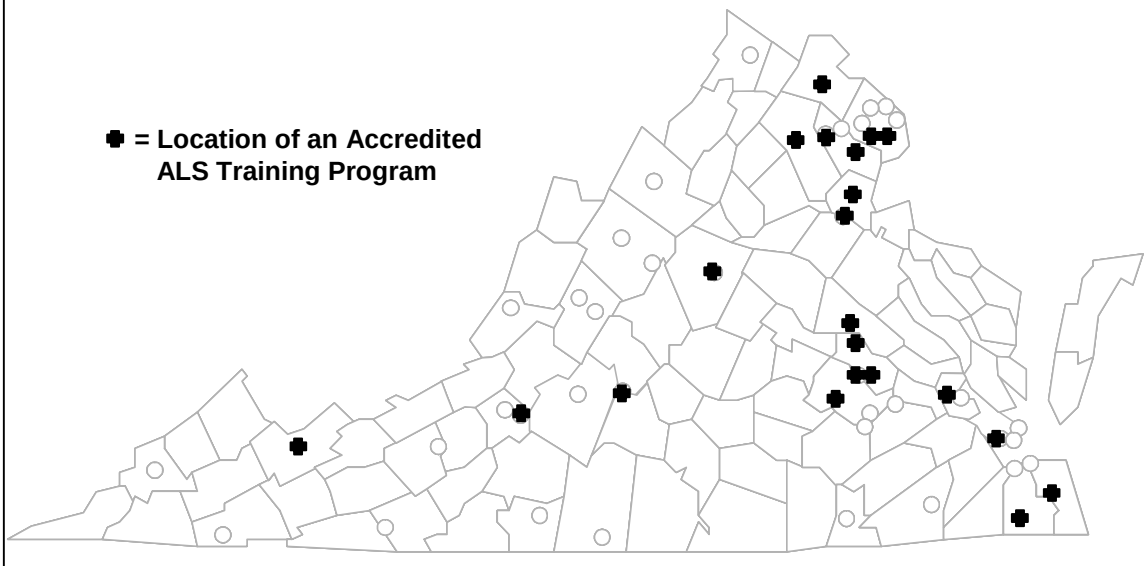
can also be accredited at the Intermediate level which certifies them to teach all the EMT skills and knowledge except for those associated with paramedic. There are currently three accredited Intermediate sites, and three more are in the process of being accredited.

ALS Training Sites Are Concentrated in a Few Areas. There are currently 19 accredited paramedic training sites in the State, 11 of which are located in community colleges or the State's teaching hospitals. Of the remaining eight paramedic programs, five are associated with large municipal providers and three are run by private individuals or corporations. There are currently three sites actively seeking accreditation as paramedic programs.

Most of the accredited training programs are centered around the large metropolitan areas of Richmond, Tidewater, and Northern Virginia, with very few sites located in the less densely populated areas of the State (Figure 8). As a practical matter, most individuals not affiliated with the large municipal EMS agencies must now acquire their training through the community college system. This has significantly increased the cost to most individuals of becoming an ALS provider, because they must pay tuition. While the cost has increased, individuals can receive some limited reimbursement from OEMS, once a student successfully completes a course and becomes certified as an ALS provider.

Figure 8

Distribution of ALS Training Programs



Source: JLARC staff analysis of OEMS data.

OEMS has attempted to encourage more ALS accredited sites by offering $15,500 to establish an accredited site. This money is meant to cover a portion of the cost. Site coordinators are expected to find alternative sources to fund the remaining costs of running a site.

Several regional council staff have indicated that the State funds provided for coordination of an accredited site does not provide an incentive to set up such sites. Two councils who have set up intermediate accredited sites estimate the set-up costs for an accredited site to be at least $25,000 to $40,000. Costs will vary greatly depending on the lease cost of space and what aspects of accreditation can be acquired as in-kind donations, such as textbooks, equipment, and course medical direction.

Virginia's teaching hospitals and community colleges, which already have accredited ALS training sites, may be well-situated to help increase the amount of ALS training available in the State. Staff at the University of Virginia Medical System, for example, indicated willingness to work with OEMS to expand the number of paramedic training slots available. Statewide coordination and increased tuition reimbursement focused on increasing the supply of paramedics could be very helpful.

Recommendation (10). **The Office of Emergency Medical Services should expand the availability of Advanced Life Support training. For example, the Office of Emergency Medical Services should work with the Virginia Community College System and the community colleges to increase the availability of accredited Advanced Life Support training programs or become satellite campuses for already-accredited sites. OEMS should also work with the teaching hospitals to provide additional paramedic training opportunities.**

BLS Course Availability Varies Throughout the State. BLS courses, like BLS personnel, are widely available, yet their availability varies significantly throughout the State (Figure 9). Over one-quarter (36) of the 135 localities had no EMT-Basic (EMT-B) courses taught in 2003. Of the 332 EMT-B classes that were taught, more than one-quarter (88) took place in only six localities (Chesterfield, Henrico, Fairfax, Loudoun, Prince William, and Virginia Beach.) Although these counties make up 34 percent of the State's population, the result of this concentration of classes around urban centers is to create a significant barrier of travel time for potential students in more rural areas. As EMT-B is the basis for all other EMT certifications, this could have the long-term effect of limiting the supply of EMS providers in these areas. Because EMT-B course reimbursement is given out on a first-come, first-served basis, and courses are provided by independent contractors who chose the locations of their classes, there is little coordination of BLS instruction at the State level.

Distance Learning. OEMS uses the Emergency Medical Services satellite training (EMSAT) program to help address training availability statewide. This system broadcasts televised training classes to multiple sites around the State. For

Figure 9

EMT-B Courses Initiated in 2003

Source: JLARC staff analysis of OEMS data.

example, sites have been established at the regional council offices, community colleges, and elsewhere. Individuals watch a live or taped broadcast of a course and then take a quiz. It is primarily used for continuing education classes.

Many providers in the field as well as OEMS staff have indicated the need for more distance learning opportunities, particularly those that are internet-based. OEMS Training Division representatives cite the need for another employee in the EMSAT program in order to facilitate the expansion of EMSAT to internet-based training. In addition, NHTSA's *EMS Agenda for the Future* specifically endorses distance learning and advanced technology as solutions to the travel and time constraints of EMS education. OEMS should evaluate whether on-line training may be used for some classes.

IV. Funding of Emergency Medical Services in Virginia

Emergency medical services provided by volunteer and governmental agencies in Virginia cost an estimated $356 million to $598 million in 2003, based on a JLARC staff estimate (Table 15). This amount includes funding from all sources: State and local government spending (including an estimate of the share of local government fire department budgets which combine fire and emergency medical services), federal spending as a part of Medicare and Medicaid reimbursements to some EMS agencies, charitable contributions, revenue recovery activities (fees for services), grants, and an estimate of the value of hours volunteered for EMS statewide, as reported in the JLARC EMS agency survey. Details of the estimate are included in Appendix D.

Table 15

Estimated Annual Fiscal Support for EMS in Virginia Governmental & Volunteer Agencies, 2003

Source of Support	Funding / Value of Support
Estimated statewide total budgets, volunteer agencies	$135 million
Estimated value of 3.6 million volunteer hours, statewide	$61-87 million
Estimated EMS spending by localities, FY 2003	$144-360 million
State OEMS budget	$ 14 million
Regional EMS budgets	$ 2 million
Total	$356-$598 million

Note: OEMS budget is for FY 2004. Excludes commercial and for-profit EMS agencies.
Source: JLARC staff analysis.

All EMS agencies require funds to operate. Even agencies that are staffed completely with volunteers still require costly items such as vehicles, fuel, station houses, utilities, medical supplies, and training. During the course of this review, $25,000 to $30,000 was the minimum range identified by volunteer agencies for annual operating expenses.

EMS agencies receive funding and support from many sources. Limited information is available about agency budgets, although data submitted by 214 EMS agencies to OEMS in FY 2004 indicated that, on average:

- 27 percent of these EMS agencies' operating budgets derived from fund raising and contributions,
- 25 percent came from charging fees, and
- 25 percent was contributed by local governments.

These percentages varied from as much as 100 percent of an agency's budget coming from fund raising and contributions, to agencies with 100 percent of the funding supplied by the local government. The State's role in providing funds for EMS is important, but it is a small proportion -- less than five percent -- of the total fiscal support for EMS in Virginia.

It is questionable whether agencies will be able to rely on increases in such support to ensure the continued provision of emergency medical services over the long term. As more EMS agencies begin to operate with paid staff, and as salaries continue to rise in the competitive health care environment, the need for stable and reliable operating revenue is becoming more crucial to the continued provision of EMS.

Patients' health insurance policies represent a key funding source that should be tapped as EMS agencies' costs increase. Only about 15 percent of EMS agencies in Virginia currently bill patients' health insurance providers for services, and as a result, patients' insurance represents a largely untapped revenue source for EMS agencies. Medicaid and Medicare also will pay for emergency medical transport services. However, rates of payment from Virginia's Medicaid program are lower than those provided by the Medicare program, and several EMS agencies indicate that Medicare rates are below the actual cost of providing services.

Finally, the recent doubling of the EMS fee – from $2.00 to $4.00 – attached to each motor vehicle registration represents a significant increase in the State's financial support. Total revenue from the $4.00-for-Life fee was about $26 million in FY 2004. However, the entire $4.00 fee is not allocated to EMS programs and services.

REVENUE RECOVERY AND LOCAL FUNDING OF EMERGENCY MEDICAL SERVICES

There are several sources of non-State funding currently used in Virginia. These include revenue recovery and billing for services, annual fund raising activities initiated by most EMS agencies, financial support from local governments, and assistance from regional EMS councils. These funding sources vary greatly from one EMS agency to the next.

The Importance of Revenue Recovery

One of the most significant issues related to EMS funding is the reimbursement of the costs of services by patients' health insurance. While emergency response costs are generally eligible for reimbursement, EMS agencies in Virginia often do not seek recovery from insurance companies. The U.S. Census Bureau recently estimated that 87 percent of all Virginians have health insurance coverage. Consultant reports also suggest that in some areas of the State (for example, Chesterfield County), more than 90 percent of the local population is covered by health insurance that may pay (if billed) for emergency medical transport, as long as the insurance provider agrees the incident required emergency transport.

At least 107 governmental and volunteer agencies either currently bill for services or are actively considering it, according to the JLARC survey and data from OEMS. This includes 49 volunteer and 19 governmental agencies which are now billing for services, or seeking "revenue recovery." Thirty-nine other agencies, including 25 volunteer and 14 governmental agencies, indicated in the JLARC survey that they are actively considering billing. The *Code of Virginia* (§32.1-111.14) authorizes localities to charge for the provision of emergency medical services.

Several large governmental EMS agencies, such as those operated in Richmond, Roanoke, Norfolk, and Chesterfield County, currently bill for services. Fairfax and Hanover counties will begin billing within the coming months. A number of much smaller agencies also recover revenue for providing services. Some of these smaller agencies are located in relatively rural areas, such as Amherst, Clintwood, Chilhowie, Saltville, Melfa, Dinwiddie, and Bloxom.

Charging a fee for emergency medical services could provide a significant source of financial support for EMS agencies statewide. Some agencies report recovering as much as 80 percent of their operating costs from billing for services.

Some EMS Agencies Refuse to Consider Billing

While the trend is for more agencies to begin billing, it is a recent trend, and is resisted by some EMS agencies in Virginia. For example, 35 percent of the volunteer agencies and 23 percent of the career agencies responding to the JLARC survey said they "would never consider billing for services." OEMS staff indicate they have taken no position with regard to agencies recovering revenue from patients' insurance providers.

In interviews, EMS providers expressed several concerns about billing for their services. Some expressed a reluctance to charge for a core public service, similar to law enforcement or firefighting. Providers also pointed out that not all patients have insurance or are able to pay, and that federal Medicare regulations require that all patients be billed. Providers are concerned that as a result some patients may be reluctant to contact 911 even though they need emergency medical care. There are also concerns that billing for services may lead to reduced financial support and contributions, and that it would discourage people from volunteering.

The concern that EMS should be a free public service reflects the current policy of many EMS agencies. It must be noted that in many instances, this approach leaves health insurance benefits unclaimed. Most health insurance includes coverage for EMS and emergency transportation, and as noted earlier, 87 percent of Virginians are covered by health insurance, according to the U.S. Census Bureau. Some EMS agencies which do not bill for their services nevertheless receive funding from their local governments (in other words, from tax revenues), which requires residents who have already paid for EMS coverage through their health insurance to, in effect, pay twice for EMS when they use the service.

Many Virginians may be unable to pay for EMS. The U.S. Census Bureau estimates that as many as 13 percent or 962,000 Virginians lacked health insurance in 2003. In cases where ability to pay is an issue, an approach used by several EMS agencies is to offer a subscription service to all residents. For example, several agencies offer an annual subscription fee in the $50 to $80 range, which allows the payer to access EMS during the period. Staff at these agencies indicated that they work out payment plans for residents who are unable to pay the subscription amount in a lump sum.

Enforcing revenue recovery actions can be somewhat problematic. For governmental EMS agencies, an unpaid EMS bill may constitute a debt to the locality, and a range of remedies is available to help the locality collect the debt. Some agencies and localities utilize the traditional methods of debt collection. Other EMS agencies contacted during this study that bill for their services indicated to JLARC staff that only a limited effort is made to collect, and that typically they would not seek to collect payments through court-ordered or other debt collection efforts. Generally, their practice is to send several notices seeking payment, and then write off the debt.

EMS agencies which participate in revenue recovery/billing for services are unlikely to recover 100 percent of their costs, and therefore will most likely continue to require funding from other sources such as tax revenue or contributions. This is partly because some patients do not have health insurance and are unable to pay, because of subscription pricing, and because Medicaid, Medicare, and private insurers do not pay the full cost of services. Instead, these payors reimburse health care providers predetermined amounts that do not necessarily reflect either the amount charged or the actual cost of providing the service.

Several agencies which have started revenue recovery programs stated that the volume of 911 calls continued to increase after the revenue program was started. In other words, they observed no deterrent effect due to charging for the service, although they indicated that it could be true in some individual cases.

As for whether voluntary contributions may decrease as a result of billing for services, the results appear mixed. Some EMS agency staff indicated that contributions did drop in the first year or two after starting to bill. Other agencies, however, indicated there was no significant change.

Some EMS agencies have expressed concerns about increased paperwork and administrative overhead due to billing for services. A solution adopted by many agencies has been to contract with a third-party vendor to handle billing and collections. These vendors manage the reimbursement process and simplify the administrative burden on EMS agencies. They also generally seek to maximize reimbursements from health insurers, Medicare and Medicaid.

Several EMS agencies that recently began billing for services also undertook extensive public education campaigns to explain why billing had become necessary, the benefits that would be gained from recovering this revenue, and what would be expected of patients. Amherst County, for example, developed newspaper ads and a seven-minute video emphasizing that EMS revenue recovery would work like billing for other health care services and that no one would be denied services based on ability to pay.

EMS agencies' needs for stable and reliable revenue are increasing. Some volunteer agencies are hiring staff to ensure 24-hour coverage, and career agencies are dealing with competitive salary pressures. Billing for services can help address these needs.

Recommendation (11). **Emergency medical services agencies should actively consider billing patients' health insurance policies for the services and transportation provided. The Office of Emergency Medical Services should help develop materials that agencies can use to help educate the public about the reasons and benefits for billing, as well as to dispel misconceptions.**

Financial Support for EMS from Local Governments

Eighty-four localities provide emergency medical services through a variety of methods, including directly with local employees, as noted in Chapter II. These and other localities provide buildings, land, fuel, vehicle maintenance, and other goods and services in support of EMS. However, there are some localities that appear to contribute little or no financial support towards the provision of EMS. For example, 18 localities (13 counties, three cities and two towns) were reported as having provided little or no financial support by volunteer EMS agencies operating within their jurisdictions, in grant applications filed with OEMS in FY 2004. Twelve of the 181 volunteer EMS agencies reported receiving no funding from their local governments. These 12 agencies were located in 10 localities. Another 18 agencies, located in 13 localities, reported receiving less than $10,000 from their local government during the year.

These localities appear dependent on volunteers to provide EMS in their areas, yet provide little or no financial support for the service. As volunteer squads move toward hiring personnel to ensure coverage, the financial pressure on these localities will become stronger. Billing for EMS provides a means for EMS agencies to receive additional revenues.

Regional Councils Generate Non-State Revenue

In FY 2004, the regional councils were awarded approximately $2.6 million through regional contracts. This is a 40 percent increase over the FY 2003 contract amount (which was $1.8 million) and a 127 percent increase over the FY 2002 contract amount (which was $1.1 million). In FY 2005, the councils are to receive $3.2 million, which is a 23 percent increase over FY 2004.

The regional councils receive money from other sources as well. The *Code of Virginia* requires the councils to match State funds with local funds obtained from private or public sources in the proportion specified in the regulations of the Board. This percentage is currently set at 25 percent. As shown in Table 16, although non-state funds comprise 44 percent of total funding, the percentages for each council vary, and at least two councils (Peninsulas and Southwest Virginia) appear not to have met the 25 percent match requirement in FY 2004.

Table 16

Total Regional Council Revenues
FY2004

Region	Total	Non-State Revenue as % of Total
Tidewater	$992,031	70%
Lord Fairfax	216,512	55%
Central Shenandoah	234,411	54%
Rappahannock	380,866	52%
Thomas Jefferson	243,091	51%
Old Dominion	549,516	48%
Western Virginia	656,515	43%
Northern Virginia	317,530	34%
Blue Ridge	280,326	34%
Southwest Virginia	404,257	24%
Peninsulas	318,484	11%
Statewide Total	$4,350,088	44%

Source: Data from regional council directors.

STATE FUNDING OF EMS

EMS funding in Virginia from State and federal sources consists of revenue from the "$4-for-Life" fee on motor vehicle registrations, and Medicaid and Medicare reimbursements to EMS agencies. Medicaid is a combination of State and federal funds. Medicare is funded primarily from federal sources.

Total appropriations to OEMS increased 70 percent between FY 2003 and FY 2005, largely as a result of the General Assembly's decision in 2002 to increase the motor vehicle registration fee from "$2-for-Life" to "$4-for-Life" (Table 17). While this is a substantial increase in the special fee for EMS, all of the additional fee revenue has not yet been provided; in fact, $3.45 million of the revenue is appropriated to the State's General Fund in FY 2005. This in turn has had the effect of preventing new legislation changing the distribution formula for the $4-for-Life funding from taking effect. Statutes limit the "$4-for-Life" fund primarily to expenditures for training and equipment.

Table 17

OEMS Appropriations

FY	Total Appropriation*
2003	$11,787,908
2004	13,910,067
2005	20,080,024

*Amounts shown exclude funding for poison control centers.
Source: Appropriation Acts.

Revised "$4-for-Life" Formula Has Yet to Take Effect

Virginia's "$4-for-Life" program is the principal source of State funds for EMS, generated by a fee of $4.00 added to each motor vehicle registration or renewal. The fee was doubled by the 2002 General Assembly from $2.00 to $4.00 per registration, effective July 1, 2002. However, the additional $2.00 per vehicle was appropriated to the State general fund in FY 2003 and FY 2004, and did not directly benefit EMS.

Although appropriations have increased substantially, as shown in Table 17, the full $4.00 per vehicle registration is still not appropriated to EMS. The 2004-2006 Appropriation Act (in Item 3-6.02) transfers $3.45 million of the revenue raised by the $4.00 fee to the general fund, and directs (in Item 307F) that an additional $1 million be transferred to the Department of State Police's (DSP) Med-Flight operation. The DSP operation had previously been funded completely from State general funds. This earmark of "$4-for-Life" funding continues in the 2004-2006 Appropriation Act.

The 2004 General Assembly adopted a new formula to govern the distribution of the "$4-for-Life" funds to OEMS. One statutory provision of the formula is that it will take effect only "upon the allocation of all revenues from the increase in the additional registration fee from $2 to $4" to emergency medical services. Therefore, the revised formula will not take effect in FY 2005 or FY 2006 because of the $3.45 million appropriated to the general fund instead of to OEMS. Table 18 shows

Table 18

Statutory Distribution and Appropriations for "$2/$4-for-Life" Funds

	"$2-for-Life" Formula Through FY 2005	FY 2004	FY 2005	HB 1002 Formula
Rescue Squads Assistance Fund	31.75%	$3,841,750	$6,352,126	32.0%
Office of Emergency Medical Services, Virginia Department of Health	27.25%	$3,297,250	$4,902,383	10.0%
Returned to Localities for Emergency Medical Services Assistance	25.00%	$3,025,000	$4,497,599	26.0%
VDH for Basic Life & Advanced Life Support Training, Volunteer Recruitment/Retention	13.50%	$1,633,500	$2,428,703	30.0%
Virginia Association of Volunteer Rescue Squads	2.50%	$302,500	$449,760	2.0%
Total	100.00%	$12,100,000	$18,630,570	100.0%

Sources: *Code of Virginia* §46.2-694; Chapter 194 (HB 1002), *2004 Acts of Assembly;* OEMS.

both old and new distribution formulas and the actual FY 2004 and FY 2005 distributions.

This "freezing" of the old formula is a significant problem. The key concern is that it prevents OEMS from adjusting funding priorities over time. EMS agencies as well as OEMS staff indicate that funding needs are changing, and the new formula would accommodate these changing needs. For example, statutory language setting out the new formula specifies that funding can be used for:

- EMS system development, initiatives, and priorities identified by the State EMS Advisory Board,
- local, regional, and statewide performance contracts for EMS,
- technology and radio communication enhancements, and

- improved emergency preparedness and response.

The old formula makes no mention of these potential uses of the funds.

Recommendation (12). **The Governor may wish to submit an amendment to the "$4-for-Life" funding formula to permit implementation prior to full funding from the fee, or to delete the transfer of $3.45 million to the State general fund, which will have the effect of implementing the statutory distribution formula.**

Rescue Squads Assistance Fund

The largest percentage of the "$4-for-Life" funds is earmarked for the rescue squads assistance fund (RSAF). In FY 2005, $6.35 million is available for this fund. This is a 65 percent increase over the FY 2004 total of $3.84 million. The *Code of Virginia* specifies that any emergency medical provider operating as a not-for-profit agency is eligible to apply for financial assistance from the RSAF. The money is restricted to training and equipment, according to *Code of Virginia* §32.1-111.12. As noted in Chapter III, little of this funding is spent on training.

Eligible EMS agencies apply for grants from the fund, which are reviewed and approved by a financial assistance and review committee appointed by the State EMS Advisory Board. With the exception of grants for new vehicles, most awards are for less than $10,000. Recipient agencies are typically required to provide a local match of 20 to 50 percent of the total cost of the purchased items. Grants awarded for FY 2005 cover a wide variety of equipment, including:

- ambulances
- extrication equipment
- manual and automated external defibrillators
- crash trucks
- communication equipment such as radios and pagers
- training equipment such as airway management and CPR mannequins.

RSAF grants are awarded on an individual EMS agency basis, with agencies making individual requests for the equipment they need. This can be problematic in the case of communications equipment. Agencies in close proximity to each other may be approved separately for equipment that is incompatible, resulting in their inability to communicate with each other. RSAF funds should promote the ability of agencies to communicate.

The RSAF has enabled many EMS agencies to acquire equipment without having to raise 100 percent of the funds locally. This funding approach may also have led to the relatively high number of ambulances in Virginia, as noted in Chapter II. The financial assistance and review committee should develop guidelines to discourage excessive vehicle purchases.

Recommendation (13). **The financial assistance review committee of the State EMS Advisory Board should establish guidelines for the rescue squads assistance fund which encourage the most effective use of available funds. For vehicles, the guidelines should take into consideration factors such as the annual number of responses to emergency medical incidents, the annual mileage per emergency vehicle, and the age of existing vehicles.**

Medicaid Payments for EMS Are Low

For many Virginians, health care coverage, including EMS, is provided by the Medicaid program. Medicaid provides a relatively small amount of EMS funding in Virginia, although unlike Medicare, Medicaid rates are set by the State. Current rates were set in 1997, and appear to be well below the cost of providing the service. Before that, rates were last changed in 1981.

The Department of Medical Assistance Services (DMAS) indicates that 121 Virginia-based EMS agencies are eligible to receive Medicaid payments. These 121 agencies received a total of $1.5 million from Medicaid through the first ten months of FY 2004; 19 of the 121 agencies received no Medicaid payments during that period. Only two agencies received more than $100,000 during that period. As noted, Medicaid funding consists of federal and State funds.

In Virginia, Medicaid payments appear to be well below the actual costs of providing the service, and do not acknowledge the different costs of providing different levels of service. For example, Medicaid pays the same rates regardless of level of service (basic or advanced) or medical procedures administered. Medicaid rates are:

- $75 for an emergency transport up to five miles,
- $150 for an emergency transport of six to ten miles, and
- $150 + $2.50 per mile for longer emergency transports.

If an ambulance responds to a 911 call but subsequently does not transport the patient, no Medicaid payment is made. If a transport is subsequently determined by DMAS' review panel to have not been an emergency, no payment will be made.

Medicaid rates for EMS transport have changed just once since 1981. The current Medicaid rates were set by a 1997 "interim" court settlement. Since that time, inflation in medical care services has increased 28 percent, according to the Bureau of Labor Statistics of the U.S. Department of Labor.

Several EMS agencies indicated that the Medicaid rates are significantly below costs actually incurred by Virginia EMS agencies.

> *A 2000 consultant report found that the Chesterfield County EMS system cost per response (excluding fire first response) was $338 and the cost per transport was $503.*

* * *

> *The Richmond Ambulance Authority (RAA) indicated that their actual cost just to have an ALS ambulance available is a minimum of $250.*

Another aspect of the "interim" 1997 court settlement was an agreement by DMAS to conduct a study of Medicaid reimbursement levels, to be completed by November 1997. The study concluded that the "aggregate level of Virginia's reimbursement effort for ambulance services is reasonable," even though it also noted that neither reliable provider cost information nor information about private insurance reimbursement practices were available. The Virginia Ambulance Association has noted:

> The currently published transportation policy used by DMAS is essentially 30+ years old, with a few amendments that were a result of the interim settlement that we entered into in 1997. The DMAS policy does not resemble the work we do. It is ambiguous and lacking in modern day terminology and coverage guidelines.

These weaknesses in DMAS reimbursement policy should be addressed.

Recommendation (14). **The Department of Medical Assistance Services should re-evaluate reimbursement rates paid for emergency medical transports. The rates should have a reasonable relationship to the costs typically incurred by EMS agencies in Virginia.**

Effect of OEMS Regulations on Medicare Reimbursement

Staff from several EMS agencies raised a concern about their continued receipt of federally-funded Medicare reimbursements. Medicare patients represent a much larger proportion of the EMS caseload than Medicaid patients – as much as 80 percent in the case of some volunteer squads.

Medicare rates are higher than those paid by Medicaid, although several Virginia EMS agencies told JLARC staff that Medicare pays much less than actual costs, and Medicare pays lower rates to Virginia providers than to providers in some other states. In 2003, Medicare paid $170 to $272 for the basic level of service, and $204 to $469 for the advanced level, along with mileage payments ranging from $5.53 to $8.30 per mile a patient is actually transported.

OEMS regulations adopted in 2003 appear to have omitted language that some providers believe is required by the Medicare program in order for agencies to continue to qualify for Medicare reimbursement. In the prior OEMS regulations, language defined several terms that are key to seeking Medicare reimbursement. Basically, Medicare requires that, to qualify for reimbursement, certain types of transports and the qualifications of staff involved with such transports must meet

State certification requirements. The 2003 revisions to the OEMS regulations omitted this terminology due to an oversight, according to the OEMS director:

> *Specialized life support is frequently used for transporting patients who must use a ventilator or who have certain other serious conditions. Under previous OEMS regulations, the vehicles used for such purposes were classified as "class D specialized vehicles," and would typically be staffed with a paramedic qualified to furnish the necessary specialty medical care to the critically ill or injured patient.*
>
> *The definition of this class of vehicle was omitted in the OEMS regulations that took effect in January 2003 in favor of giving providers more flexibility in responding to patients with specialized needs. Because the federal Medicare program requires that the provider comply with State regulations to qualify for reimbursement, Virginia providers were no longer able to show compliance because there were no longer any such State regulations, even though the same vehicles and staff continued to be used.*

While the agencies reported that they are still providing the service and still receiving Medicare reimbursements, they also point out that they may be at risk for not being in compliance with federal regulations.

HB 627, adopted by the 2004 General Assembly, states: "The Commissioner of Health shall issue permits or licenses for emergency medical services agencies and vehicles as needed to ensure compliance with federal regulations relating to reimbursement of ambulance services pursuant to Medicare and Medicaid." OEMS staff indicates no action was necessary in response to this bill. As discussed in Chapter V, OEMS has begun reviewing the 2003 regulations.

Recommendation (15). **The Office of Emergency Medical Services should seek the opinion of the federal Centers for Medicare and Medicaid Services as to whether the Virginia EMS regulations comply with federal requirements, and implement any changes to regulatory language needed to ensure compliance.**

V. Organization and Management Improvements Could Strengthen the EMS System

Virginia's system of emergency medical services is locally provided and State regulated. A complex organizational structure has evolved to assist the local agencies that directly provide EMS to patients. The State's overall role, as set out in statute, is to provide for a comprehensive, coordinated EMS system in the Commonwealth. The principal methods available to OEMS are planning, regulation, and funding.

The *Code of Virginia* assigns to the State Board of Health responsibility for developing an emergency medical care system in the Commonwealth, as well as preparing a statewide emergency medical services plan and prescribing regulations for EMS personnel and vehicles. The 25-member State EMS Advisory Board is directed by statute to review the statewide system and make recommendations to the Board of Health for improvements. OEMS's role includes inspecting local agencies for compliance with State regulations, certifying all EMS providers and instructors, and making available State funds appropriated for EMS.

Regional emergency medical services councils are also established in the *Code* (§32.1-111.11) and charged with developing and implementing efficient and effective regional emergency medical services delivery systems. The 11 regional councils are organized as 501(c)(3) nonprofit organizations, and operate under contract with OEMS.

Several aspects of this complex structure for supporting EMS need to be strengthened, including State planning, coordination, and regulation. The mandate for this study directs staff to consider the benefits of a separate State EMS agency. These benefits do not appear to be substantial, although many providers are upset with the recent relocation of the OEMS office.

VDH PLANNING AND COORDINATION SHOULD BE STRENGTHENED

A key role assigned by statute to the Board of Health is to develop a comprehensive and coordinated emergency medical system in the Commonwealth. Important elements of this effort, prescribed in statute, include the Board's role in preparing a statewide plan and in working with the State EMS Advisory Board to improve emergency medical services to all citizens of Virginia. This plan was last updated in 1999.

The Statewide EMS Plan Has Not Been Updated in Five Years

As part of Virginia's emergency medical care system, an updated statewide emergency medical services plan is required of the Board of Health. Section 32.1-111.3 of the *Code of Virginia* states:

> The Board of Health shall develop a comprehensive, coordinated, emergency medical care system in the Commonwealth and prepare a statewide emergency medical services plan which shall incorporate, but not be limited to, the plans prepared by the regional emergency medical services councils. The Board shall review the plan triennially and make such revisions as may be necessary.

VDH has a history of not revising the plan in a timely manner. The original plan was drafted by OEMS staff in 1983, and was next revised in 1999. It was required to be revised in 2002, but was not. This failure of VDH to update the plan on a triennial basis was previously identified in the 1999 JLARC *Review of Air Medevac Services in Virginia*. Initial steps in revising the statewide plan have been taken by the EMS Advisory Board, which recently embarked on a review and evaluation of the plan.

The 1999 revision to the statewide EMS plan was intended to provide vision and direction for the continued development and implementation of Virginia's EMS system. The document presents a listing of more than 50 goals for OEMS and the system as a whole. While the plan does not include specific objectives, strategies, guidelines, or procedures for the implementation of these goals, it is these goals that serve as the basis for the programmatic, budgetary, and performance decisions made by OEMS.

In 1997, OEMS developed a staff-level "five-year plan" for practical implementation of the statewide EMS plan. This document guided staff activities and outlined specific goals in areas such as communications, medical direction, coordination, and funding.

A Revised Plan Should Address Emerging Issues

Revisions to the statewide EMS plan should address several emerging issues. Some of the issues identified in this report that should be addressed in a revised plan include:

- lengthy response times in some areas,
- the shortage of advanced life support providers in some areas of the State,
- increased competition for EMS providers (especially paramedics),
- the impact of the aging EMS workforce on service provision around the State,
- the appropriateness of revenue recovery/billing for services,
- the needs of the increasing elderly population for EMS services,

- the impact of increased traffic congestion on the need for and quality of EMS,
- the need for improved interagency communications, and
- the role of EMS in preparedness.

In addition to identifying these and other problems, the State plan should recommend actions that should be taken by OEMS, the Board of Health, the General Assembly, and others.

Recommendation (16). **The Board of Health should review and revise the comprehensive emergency medical services plan, as required by section 32.1-111.3 of the *Code of Virginia*. The plan should identify emerging issues and recommend appropriate strategies to address these issues.**

Role of State EMS Advisory Board

The *Code of Virginia* assigns the State EMS Advisory Board a role in advising the Board of Health on issues concerning the administration of the statewide emergency medical services plan and system. Over the years, the Advisory Board has functioned to identify and help resolve a variety of issues. For example, in 2001-2002, the board was very active in publicizing and seeking comments on proposed revisions to the State EMS regulations.

The State EMS Advisory Board provides for extensive involvement in EMS. The Advisory Board itself is comprised of 25 members appointed by the Governor for a term of three years. The *Code of Virginia* prescribes that membership on the board include representatives from across the emergency medical services system, as well as representatives of local government and a consumer representative (Exhibit 6). Staffed by personnel from OEMS, the advisory board is required by law to meet at least four times annually. The advisory board has established an extensive committee structure, with more than 15 standing committees that address all aspects of emergency medical care.

One concern about advisory board membership is that the *Code of Virginia* §32.1-111.10 requires a representative from "each of the eight regional emergency medical services councils." The problem is that the regional councils have reorganized over the years, and the number of councils has increased to 11. Currently, the Central Shenandoah, Lord Fairfax, and Thomas Jefferson regional councils are not represented on the advisory board. The rationale for excluding these three regions is unclear.

The statute should be changed by deleting the numerical reference. This would authorize a member from each regional EMS council to serve on the advisory board, and would expand board membership to 28. A housekeeping amendment

Exhibit 6

Composition of the State EMS Advisory Board

One representative from each of the following organizations:

- Virginia Hospital and Healthcare Association
- Each of 8 regional emergency medical services councils
- Medical Society of Virginia
- Virginia Chapter of the American College of Emergency Physicians
- Virginia Chapter of the American College of Surgeons
- Virginia Chapter of the American Academy of Pediatrics
- Emergency Nurses Association or the Virginia Nurses' Association
- Virginia State Firefighters Association
- Virginia Fire Chiefs Association
- Virginia Municipal League
- Virginia Association of Counties
- Virginia Ambulance Association
- Virginia Association of Governmental Emergency Medical Services Administrators
- Virginia Association of Public Safety Communications Officials

Two representatives from:

- Virginia Association of Volunteer Rescue Squads

Other members:

- A Virginia professional firefighter
- One consumer who is not involved in or affiliated with emergency medical services in any capacity

Source: Code of Virginia, § 32.1-111.10.

should also be considered in the same *Code* section, as there is a reference in §32.1-111.3 to the automated external defibrillator registry, which was eliminated by the 2003 General Assembly.

Recommendation (17). **The General Assembly may wish to amend the *Code of Virginia §32.1-111.10* to authorize a member from each regional EMS council to serve on the State EMS Advisory Board, and to delete obsolete references to the defibrillator registry.**

REGIONAL COUNCILS PROVIDE NECESSARY SUPPORT

The 11 regional EMS councils are an important aspect of the State's overall effort to support and assist EMS development and coordination. The regional councils were formalized under §32.1-111.11 of the *Code of Virginia* to assess, identify, coordinate, plan, and implement efficient and effective regional delivery systems in partnership with OEMS and the State EMS Advisory Board. The councils are or-

ganized as 501(c)(3) nonprofit corporations, and operated under contract with OEMS. The *Code* requires councils to match State funds with local funds obtained from private or public sources in the proportion specified in the regulations of the Board (§ 32.1-111.11). Typically, the councils provide training, testing, grant writing assistance, critical incident stress management team coordination, and EMS communication systems coordination.

The size of each region covered by a council varies widely, as shown in Table 19. The Old Dominion council is the largest, encompassing 27 localities and more than 6,000 providers. The Lord Fairfax council is the smallest, with six localities and slightly more than 1,000 providers.

Table 19

Regional Council Characteristics, 2004

Council	Total Providers	Total Localities	Total Agencies
Old Dominion	6,343	27	133
Northern Virginia	5,371	9	53
Tidewater	4,540	10	75
Western Virginia	3,448	18	112
Peninsulas	2,278	16	51
Rappahannock	2,273	10	75
Southwest Virginia	2,188	16	103
Central Shenandoah	1,768	10	67
Blue Ridge	1,428	6	45
Thomas Jefferson	1,374	6	39
Lord Fairfax	1,018	6	47

Source: OEMS Licensure and Compliance Database.

Each regional council has a slightly different focus, depending on the needs of the agencies in the region. Several councils are very involved in training, for example, while some councils, such as the Northern Virginia and Tidewater councils, directly offer little training.

In some ways, the regional councils appear to operate as extensions of OEMS, yet they are not staffed by OEMS employees. Given the important responsibilities of the regional councils outlined in statute, their autonomous status has been questioned by some providers. For example, one agency that responded to the JLARC survey commented:

> The State needs to eliminate the EMS Councils which are no longer needed and establish State Offices in each region similar to Department of Emergency Management, Department of Forestry,

> and Department of Fire Programs. Why does the State contract with a non-state entity to provide services over which the State has little control

In part to address this issue of accountability in these nonprofit organizations, OEMS implemented the current contracting process for the regional councils in 2003. Under this process, the councils receive State funding in exchange for specific deliverables outlined in the contract. This is a major improvement over the prior process, in which State funding was provided to the councils specifying a scope of services, but without ties to specific deliverables.

Regional council staff and others outlined several advantages that result from the regional councils being outside of State government:

- Regional councils can receive funding from non-state sources that might not be available to State offices.
- Councils tend to have more local support in terms of manpower and funding.
- Many people are involved in the councils' committee structures, some of whom would reportedly be less interested in participating if the councils were State entities.
- The State's role is seen as regulatory and enforcement oriented, while the perception of the councils is more support and training oriented.

A 1998 study of the regional EMS councils by the EMSSTAR Group L.L.C., considered the idea of converting regional staff to State employees, but did not recommend this approach. The consultant's report stated that converting regional staff to State employees

> ...has the potential downside of making regional staff less responsive to locally perceived needs and priorities. It also creates a potential conflict between the functions of advocacy and regulation. Retaining a staff resource to address local issues is an important precedent that the state should be cautious not to disrupt. While the EMSSTAR team believes that it would be possible to provide direct local services with state employed regional staff, [it] does not recommend it as it sees no particular advantage to this approach.

Given the advantages of the regional councils' nonprofit status stated above, it does not appear appropriate to change the structure of the regional council system at this time.

CURRENT EMS REGULATIONS EXCLUDE SEVERAL CRITICAL AREAS

To carry out the roles assigned to it by the Board of Health, the Office of Emergency Medical Services has developed the *Virginia Emergency Medical Services Regulations* (12 VAC 5-31). As illustrated throughout this report, the regulations cover a variety of areas, including agency licensure, vehicle classifications, EMS personnel requirements, EMS education and certification, EMS physician regulations, and interfacility wheelchair transport. For example, the regulations:

- specify the equipment to be carried in each EMS vehicle;
- specify the requirements for basic and advanced life support training;
- allow OEMS to suspend or revoke a license, permit, certificate, or endorsement;
- require designated emergency response agencies to maintain written mutual aid agreements with adjacent designated emergency response agencies in another location with which it shares a common border; and
- require each EMS agency to have an operational medical director who is a licensed physician holding endorsement as an EMS physician from OEMS.

The most recent revisions to the regulations were intended to take effect January 1, 2003. The development process was more extensive than required by the Administrative Processes Act; nonetheless implementation was postponed the day before these regulations were to go into effect. Upon final enactment, on January 15, 2003, several of the proposed regulations had been eliminated.

In the 20 months since these regulations have been in effect, multiple concerns have been raised by both OEMS staff and local providers concerning the sections of the regulations that were removed, as well as the State EMS regulations as approved. Recognizing these concerns, OEMS and the State EMS Advisory Board's regulation and policy committee have initiated the process to revise the regulations.

Regulations Developed in Accordance with APA Requirements

Regulations governing the conduct of Virginia's system of emergency medical services are promulgated by the State Board of Health, with advice from the State EMS Advisory Board. Development of regulations requires a lengthy process with multiple opportunities for public involvement. The State's Administrative Process Act (§2.2-4000 of the *Code of Virginia)* establishes three phases of regulatory development, each requiring a minimum of either a 30- or 60-day public review period. This is intended to ensure sufficient opportunity for the impacted public to participate in the rulemaking process and to ensure that all perspectives are considered in the development of final regulations.

The most recent revisions to the *Virginia EMS Regulations* were developed over a period of several years, with OEMS and the State EMS Advisory Board holding seven public hearings across the State. In addition, drafts of the proposed regulations were posted on the OEMS Internet website for two years to provide an opportunity for system-wide review and comment, prior to the proposed enactment date of January 1, 2003. In the JLARC staff survey of Virginia's EMS agencies, 71 percent of respondents described the OEMS decision making process as open and participatory. Of the 278 agencies responding, 72 percent stated that they felt they were given an adequate opportunity to comment on the proposed revisions to the 2003 regulations.

Despite Extensive Process, Several Regulatory Sections Removed

Despite the lengthy development process, on December 31, 2002, the director of OEMS received notification from the Governor's Office that the implementation of the final regulations, scheduled for January 1, 2003, would be postponed because of late objections to certain sections. Implementation of the regulations was delayed for two weeks to consider these objections. During that period, several specific sections were removed from the proposed regulations prior to implementation. The sections of the proposed EMS regulations withdrawn prior to their final implementation are shown in Exhibit 7.

According to the chair of the State EMS Advisory Board and the OEMS director, the proposed regulations had gone through an extensive development process and had wide support of the State's EMS community. They also indicated that implementation was postponed due to the comments of a small number of individuals.

Responses to the JLARC staff survey of Virginia's EMS agencies illustrate general agreement with this point of view. Of the 69 EMS agencies that indicated they were not given adequate opportunity to comment on the proposed regulations, 62 percent reported being adequately informed about the proposed changes "months" before they were to go into effect, 19 agencies (28 percent) indicated that they had not been adequately informed about the proposed changes until after they went into effect, and seven agencies learned of the regulations "days" before the regulation were to go into effect.

Two of the withdrawn sections of regulations concerning scope of practice and designated emergency response agency standards apparently drew extensive last-minute concern. The designated emergency response agency standards required each agency to establish a goal for response times, and meet it 90 percent of the time. The regulations did not specify what the response time should be, or whether response time should start from the time a call is received or the time equipment leaves the squad house. In fact, the OEMS director indicated that agencies were informally advised to set their response time goal equal to the longest response time from the prior year, since they could pretty confidently meet it 90 percent of the time.

Exhibit 7

Sections of EMS Regulations Withdrawn Prior to Implementation

12 VAC 5-31-970. Weapon possession.

EMS personnel may not carry or possess on an EMS vehicle any firearm, weapon, explosive or incendiary device, except those weapons carried by sworn law-enforcement officers authorized to carry concealed weapons pursuant to § 18.2-308 of the Code of Virginia.

12 VAC 5-31-1050. Scope of practice.

EMS personnel shall only perform those procedures, treatments or techniques for which he is currently licensed or certified, provided that he is acting in accordance with local medical control protocols and medical direction provided by the OMD of the EMS agency with which he is affiliated and as authorized in the Emergency Medical Services Procedure and Medication Schedule.

12 VAC 5-31-620. Designated emergency response agency staffing capability.

A. A designated emergency response agency shall have a minimum of eight EMS personnel qualified to function as attendants-in-charge.

B. A designated emergency response agency with less than 12 EMS certified personnel shall submit to the Office of EMS for approval a written plan to provide 24-hour coverage of the agency's primary service area with the available personnel.

C. A designated emergency response agency shall maintain a sufficient number of qualified EMS personnel to meet the staffing requirements for all permitted vehicles operated by the EMS agency.

12 VAC 5-31-730. EMS vehicle operational readiness.

A. Required equipment and supplies shall be carried on an EMS vehicle except when the vehicle is unavailable to respond due to maintenance, repairs or as otherwise provided for in these regulations.

B. Equipment and supplies shall be stored, maintained and operational at all times in accordance with the standards established by the manufacturer, the Virginia Board of Pharmacy and the U.S. Food and Drug Administration (FDA).

12 VAC 5-31-940. Drugs and substance use.

A. EMS personnel may not be under the influence of any drugs or intoxicating substances that impairs his ability to provide patient care or operate a motor vehicle while on duty or when responding or assisting in the care of a patient.
B. EMS personnel shall submit to testing for drugs or intoxicating substances upon request by the Office of EMS.

(Exhibit continues, next page)

Exhibit 7 (continued)

Sections of EMS Regulations Withdrawn Prior to Implementation

12 VAC 5-31-610. Designated emergency response agency standards.

A. A designated emergency response agency shall develop or participate in a written local EMS response plan that addresses the following items:

1. The designated emergency response agency or another designated emergency response agency through mutual aid shall respond to all calls for emergency medical services.

2. A designated emergency response agency shall conform to the local unit mobilization interval standard, or in the absence of a local standard, the EMS agency shall develop a standard in conjunction with OMD and local government, in the best interests of the patient and the community.

a. If the designated emergency response agency finds it is unable to respond within the established unit mobilization interval standard, the call shall be referred to the closest available mutual aid EMS agency.

b. If the designated emergency response agency finds it is able to respond to the patient location sooner than the mutual aid EMS agency, the EMS agency shall notify the PSAP of its availability to respond.

c. If the designated emergency response agency is unable to respond (e.g., lack of operational response vehicle or available personnel), the EMS agency shall notify the PSAP.
d. If a designated emergency response agency determines in advance that it will be unable to respond for emergency service for a specified period of time, it shall notify its PSAP.

3. A designated emergency response agency shall conform to the local responding interval standard, or in the absence of a local standard, the EMS agency shall develop a standard in conjunction with the OMD and local government in the best interests of the patient and the community. The EMS agency shall use the responding interval standard to establish a time frame that the EMS agency complies with on a 90% basis within its primary service area (i.e., a time frame in which the EMS agency can arrive at the scene of a medical emergency in 90% or greater of all calls).

B. A designated emergency response agency shall have available for review, a copy of the local EMS response plan that shall include the established EMS Responding Interval standards.

C. A designated emergency response agency shall document its compliance with the established EMS response capability, unit mobilization interval and responding interval standards.

D. A designated emergency response agency shall document an annual review of exceptions to established EMS response capability and time interval standards. The results of this review shall be provided to the agency's operational medical director. Copies shall be provided to the local governing body and/or the Office of EMS upon request.

Source: Office of Emergency Medical Services Proposed EMS Regulations.

An extensive letter-writing campaign was conducted objecting to the regulation prohibiting firearms in the back of an ambulance, except for law enforcement officers. Some squads routinely carry firearms when going into certain areas, according to OEMS staff. Other EMS agencies have explicit policies prohibiting the practice.

Concerns with the Current EMS Regulations

Since the regulations took effect in January 2003, additional concerns have been raised regarding the eliminated sections. For example, OEMS staff noted that without the defined scope of practice (12-VAC-5-31-1050), enforcement of violations against individual providers for performing services or procedures they are not authorized to perform has been very difficult. Similarly, without the designated emergency response standards (12-VAC-5-31-610), enforcement of mutual aid requirements has been challenging. Finally, providers and OEMS staff expressed concern that the current regulations prohibit an individual from operating EMS equipment for five years after conviction of a DUI offense, but the requirement that EMS personnel submit to drug testing upon request of OEMS (12-VAC-5-31-940) was eliminated from the revised regulations.

In addition to concerns with the regulatory sections that were removed from the proposed regulations, concerns have been raised regarding some contradictory and confusing language, as well as certain omissions from the current regulations. OEMS and the State EMS Advisory Board have recognized these concerns and the board's regulation and compliance committee is currently examining several sections of the regulations.

Current Regulations Contain Problems with Wording. Throughout the course of this review, several EMS providers and State staff illustrated areas in which there appears to be language in the regulations and the *Code of Virginia* that seems contradictory, and other language in statute and the regulations that is vague. These wording problems have led to some difficulty and confusion in providing certain types of emergency care and in enforcing existing regulations.

One example of confusing language between the Virginia EMS Regulations and the *Code of Virginia* concerns the authority of OEMS to provide variance and exemptions from an approved regulation for a specific agency or individual. Part I, Article 3 of the regulations authorizes OEMS to extend variances and exemptions to any applicant, licensee, or permit or certificate holder for a temporary exemption to a specified regulation. However §32.1-111.9 of the *Code of Virginia* only allows variances to be provided for volunteer rescue squads, so any variance that has been granted for an individual or agency that is not a volunteer rescue squad may not be applicable. The regulations appear to authorize OEMS to exempt individuals and agencies from certain testing and training requirements, and to grant exemptions for certain vehicle specifications and agency coverage requirements. The regulations should be changed to resolve the conflicting language.

Another example of confusing language within the *State EMS Regulations* relates to the provision of neonatal life support. Neonatal life support provides specialized out-of-hospital and interfacility emergency and stabilizing care that includes basic and advanced life support functions for the newborn or infant patient, as defined in 12 VAC 5-31-10. Specific sections of the regulations addressing the provision of this care, however, appear contradictory. For example, one section of the regulations (12 VAC 5-21-1270) allows for an equipped ground ambulance to provide these services, but the definition included in another section (12 VAC 5-21-830) appears to prohibit the use of a ground ambulance for these services.

Another example of language in the old regulations that was dropped in the current regulations required EMS personnel "to provide consistently high quality emergency medical care to all patients." Program representatives note that this language provided needed flexibility and its absence has led to difficulties in enforcement.

Current Regulations Do Not Include Regional Council Roles and Responsibilities. The EMS regulations define a regional EMS council as:

> …an organization designated by the Board of Health that is authorized to receive and disburse public funds in compliance with established performance standards and whose function is to plan, develop, maintain, expand, and improve regional emergency medical services systems within a designated geographical area pursuant to §32.1-111.11 of the *Code of Virginia.*

Current regulations do not specifically address the roles and responsibilities of the regional EMS councils.

Proposed regulations outlining the roles and responsibilities of the regional EMS councils have been an expressed goal of OEMS since the development of the "five-year plan" in 1997, but have only been under development since approval of the State EMS regulations in January 2003. The proposed regional council regulations are intended to formalize many of the current contract deliverables as well as several regional planning requirements set forth within §32.1-111.3 and §32.1-111.11 of the *Code of Virginia*. For example, the regulations require the establishment of regional medical protocols and regional EMS, trauma, training, and mass casualty incident plans. The draft regulations also require that a regional EMS council have the endorsement of all localities represented by the council and that local government matching funds be monetary and not in-kind.

The draft regional EMS council regulations also contain a process for the issuance of variances to the regional councils and extend to OEMS the authority to approve such agreements. Given the concern about the authority of OEMS to issue variances to an entity that is not a volunteer rescue squad, the language within the *Code of Virginia* should be addressed prior to this section being enacted.

Recommendation (18). **The Office of Emergency Medical Services should initiate revisions to the current Virginia EMS Regulations (12 VAC 5-31). The concerns referenced in this report should be addressed.**

OEMS MONITORING AND ENFORCEMENT OF REGULATIONS

The *Code of Virginia* directs OEMS to certify emergency medical services personnel, issue licenses to EMS agencies, and issue permits for EMS vehicles. Ensuring compliance with the State regulations is the responsibility of eight program representatives who inspect local EMS agencies on a biennial basis and generally enforce the EMS regulations. The eight representatives are responsible for inspecting 815 agencies, more than 4,000 emergency vehicles, and more than 460 non-emergency wheelchair transport vans.

Program representatives have a range of sanctions available to assist in the enforcement of the State regulations (Exhibit 8). For example, OEMS issued 153

Exhibit 8

Sanctions Authorized by Virginia EMS Regulations

Warning: An oral notification of an action or situation potentially in violation of the regulations.

Notice of Violation: Generally used for minor infractions. Allows the individual or agency to remediate the concern and continue providing services.

Citation: A written notification for violations of the regulations. A more serious sanction issued to a provider or agency when a violation may affect patient care. Posted on the OEMS website indefinitely, even if corrective action is taken.

Suspension: A written notification of the deactivation and removal of authorization issued under a license, permit, certification, endorsement or designation. Suspensions may occur without a hearing. Posted on the OEMS website indefinitely

Revocation: A license, permit, certificate, endorsement or designation may be revoked after notice and a hearing. Posted on the OEMS website indefinitely.

Action of the Commissioner: The Commissioner may command a person operating in violation of regulations or State law to halt such operation or to come into compliance.

Criminal Enforcement: The Commissioner may elect to enforce the regulations by seeking misdemeanor criminal sanctions.

Source: 12 VAC 5-31-210 et seq.

citations in the two-year licensing cycle ending June, 2004. OEMS program representatives may also suspend, without a hearing, an EMS license, permit, certificate, endorsement, or designation for any individual or agency, providing reasonable cause for suspension exists. License revocations must go through the Administrative Process Act, which ensures the licensee has an opportunity to contest the claim.

OEMS has no clear criteria to determine whether a notification or a citation should be issued for a given violation. OEMS appears to have taken little action to enforce some violations, such as the failure of 200 EMS agencies to submit prehospital patient care reports, which are required by law and would include response time data.

OEMS program representatives concurred independently that the most important factors in making the decision to issue a notification or citation are the violation's potential to affect patient care and the likelihood that it would be corrected in a timely manner.

Some EMS agencies are concerned about the stigma of receiving a citation, and will work hard to avoid one. Other agencies, according to OEMS program representatives, see a citation only as a "piece of paper," which constitutes no effective penalty. To compel these agencies to come into compliance, program representatives indicate that suspension of the license is their only remaining sanction. This could mean eliminating the emergency medical response in the area, a drastic solution that could penalize local residents more than the EMS agency. In one case:

> *During a biennial certification inspection, one EMS agency was cited for failing to have a mutual aid agreement with a neighboring agency, in direct violation of the OEMS regulations. The program representative felt unable to take the next step of license revocation because doing so would have left a large municipality with no emergency ambulance service. With no threat of being shut down, and no benefit from correcting the problem (as the citation would remain on OEMS' website), the squad refused for two years to broker a mutual aid agreement.*

The program representative thought that the authority to issue a weekly or monthly fine for non-compliance would have brought the agency into compliance sooner.

In cases in which individuals or agencies are sanctioned directly by a program representative, the first step is an informal hearing. Although there is no standard for the informal hearing, the panel usually includes the compliance manager, the program representative supervisor, and the program representative who investigated the violation. This appears to meet the requirements of the federal Administrative Process Act for an informal hearing. An appeal from the hearing may be with an administrative law judge, although this has occurred very rarely.

While OEMS has some sanctioning authority and an inspection process to check on compliance, and a federal appeals process is occasionally used, each EMS agency's operational medical director (OMD) also has an important say in whether

an agency will continue to operate. The OMD is directed by the regulations to verify qualifications of personnel through training and testing, to review patient care and outcomes, and to ensure an effective quality management program and patient care improvement. The OMD may also suspend EMS personnel from medical care duties.

Because an EMS agency may provide medical services only under the license of a physician, withdrawal by an OMD can quickly mean the closure of the agency. In several recent cases, the withdrawal by an agency's OMD led to shutdown before OEMS could complete its investigations. This approach often can quickly resolve a problem, although it may also leave little or no official record of the event.

Recommendation (19). **The General Assembly may wish to authorize some intermediate sanctions for enforcement of emergency medical services regulations. For example, the Virginia Department of Health could be authorized to levy financial penalties for non-compliance.**

Monitoring of Training Programs Could Be Improved

In addition to regulation and compliance responsibilities, OEMS program representatives are responsible for monitoring the consolidated test sites (CTS) for compliance with the CTS examination policies, and for monitoring basic and advanced life support (BLS and ALS) training to ensure a consistent level of instruction. The inspection workload is such that little time is available to adequately monitor the quality and consistency of training, although this can best be done in the field. The program representatives accord these duties a somewhat lower priority than inspecting EMS agencies and vehicles.

Ensuring the quality and consistency of training is vital to service delivery. Because existing OEMS staff are unable to adequately manage this responsibility, OEMS should consider placing an OEMS employee in some of the regional offices to serve as a training field officer. In addition to monitoring training and testing, tasks often coordinated by the regional councils, this field officer would also give OEMS a regional presence and could act as a contact point for providers. An OEMS employee would be able to process training requirements as well as routine processes like address and name changes. As an extension of the training division, they could answer the numerous field questions about training requirements, as well as help plan, coordinate, and in some cases deliver direct educational and training services.

OEMS has recognized the need for such a position, but is currently not authorized to hire additional personnel. It is not clear that this is a funding issue, as OEMS has just recently provided $660,000 (in FY 2005) to the regional offices for field coordinator positions. These positions are apparently intended to play some role in training, but precise duties are yet to be determined. OEMS could hire one

individual per council on the same salary schedule as the current program representatives for approximately $500,000. As one senior OEMS official observed,

> Until OEMS is authorized to have a sufficient number of full-time employees to carry out our basic mandated services, the only way to get our jobs done is to contract through the regional EMS councils.

Regional OEMS staff could help ensure the quality of EMS training, and assist with recruitment of personnel.

Recommendation (20). **The Office of Emergency Medical Services should request additional staffing for the purpose of assigning quality control and monitoring responsibilities to a training field officer position. Some of the funding earmarked for field coordinators should instead be used for these positions, which should be co-located in the regional EMS councils.**

A SEPARATE EMS AGENCY IS NOT NEEDED

The study mandate requires an assessment of the need for a separate Department of Emergency Medical Services. On the basis of this review, JLARC staff conclude there is insufficient reason at the current time to create a separate State agency.

There Is No Support for a Separate Agency

OEMS is currently a division within the Virginia Department of Health. Statute assigns key responsibilities for emergency medical services to the Board of Health, such as developing a comprehensive, coordinated emergency medical care system in the Commonwealth, and preparing a statewide EMS plan. The Board of Health also has broad responsibilities in a variety of other areas, including public health, environmental health, and emergency preparedness. If a separate agency were to be established, the emergency medical responsibilities currently assigned to the Board of Health would need to be transferred either to a new policy board or to the new agency head.

In the JLARC surveys of EMS agencies and providers, few respondents suggested the need for a separate State EMS agency was of top concern. As noted earlier, responses were received from 278 EMS agencies and 892 individual providers.

Among persons interviewed during the course of this review there was a clear consensus that the EMS function should continue to be linked to health and medical responsibilities of State government, as opposed to public safety, law enforcement, emergency management, or fire protection. The key role played by physicians in the operation of EMS agencies and the primacy of the medical response

mission argue for continued affiliation with the State's Health and Human Resources secretariat.

Establishing a separate State agency would also generate costs without necessarily adding any benefits. A separate agency could require separate administrative support, adding personnel to the overall agency or requiring the purchase of support services from the State's service bureaus. The agency head would become a gubernatorial appointee, creating the likelihood of turnover every four years. On balance, it would appear the costs outweigh the benefits of establishing a separate State agency for EMS.

Office Relocation

According to the chairman of the State EMS Advisory Board, the recent relocation of OEMS from suburban Richmond to the Madison Building in downtown Richmond

> …is probably the single issue that has immediate and long-range implications for every provider in the Commonwealth. It is only through a consistent, often times face-to face 'meeting of the minds' that a comprehensive plan to address (EMS) issues can come to fruition.

According to the Chairman and many others interviewed during the course of this study, the current downtown location hinders frequent and easy interaction between OEMS staff and EMS agency personnel.

According to staff with the Virginia Department of Health, however, several objectives were served by the relocation, such as consolidating agency operations, improving management oversight, and generating savings by moving out of leased space into State-owned office space. The relocation of the office does not limit interaction and need not reduce input from providers across the State. This report recommends the placement of some State staff at regional EMS council offices, which should improve OEMS' interaction with providers.

Appendixes

The body of this report makes reference to several appendixes as sources of additional detailed information regarding emergency medical services. They include the following:

Appendix A: Study Mandate

Appendix B: Local Distribution of EMS Providers and Equipment

Appendix C: Data Sources for Assessing Statewide Availability of Emergency Medical Services

Appendix D: Methods for Assessing Annual EMS Funding

Appendix E: Response from the Department of Health

Appendix A

Study Mandate

HOUSE JOINT RESOLUTION NO. 133
2004 Session

Directing the Joint Legislative Audit and Review Commission to study pre-hospital emergency medical services in Virginia. Report.

Patron—O'Bannon

WHEREAS, the sudden onset of trauma, physical distress, or severe psychological distress due to illness, injury, or catastrophe may result in disability or death without immediate emergency medical care; and

WHEREAS, the few minutes after an injury occurs or at the onset of a medical crisis are frequently the most important to avoid serious impairment and complications, and Virginia's citizens depend upon the prompt response of emergency medical services personnel and their expert pre-hospital emergency care; and

WHEREAS, the Commonwealth's emergency medical services (EMS) system has received national recognition for excellence; and

WHEREAS, the quality of effective and comprehensive pre-hospital emergency medical services depends upon well-trained and competent emergency medical services personnel, adequate staffing levels, emergency medical vehicles, and sufficient funding, which over the years have been important issues to the viability of the system; and

WHEREAS, high morale, good communications, reasonable compromise, and strong cooperation are vital ingredients for the maintenance of the quality and efficiency of Virginia's emergency medical services system, and

WHEREAS, although certain densely populated areas have switched to paid or municipally operated emergency medical services, the majority of rural areas and many urban areas are still served primarily by volunteer squads, and

WHEREAS, volunteer rescue squads and fire departments, especially those in sparsely populated areas, have more difficulty attracting and retaining sufficient numbers of volunteers who have the skills required to meet the needs of their communities; and

WHEREAS, fire departments or "first responders," that also provide emergency medical services perform vital services to ensure the health, safety and welfare of Virginia's citizens, and such departments are subject to the regulations of the Department of Fire Programs and the Department of Health; and

WHEREAS, many volunteer rescue squads find that the majority of their calls are in response to traffic crashes on major highways, putting a drain on local resources to meet what are, in many respects, regional or even statewide needs; and

WHEREAS, adequate Medicaid and Medicare reimbursement rates would enable emergency medical services providers to continue to provide excellent emergency medical services that will facilitate the continued protection of the health and welfare of all Virginians; now, therefore, be it

RESOLVED by the House of Delegates, the Senate concurring, That the Joint Legislative Audit and Review Commission be directed to study pre-hospital emergency medical services in Virginia. In conducting its study, the Commission shall (i) conduct a comprehensive review and assessment of emergency care services in Virginia; (ii) ascertain the average Medicaid and Medicare reimbursement rates in the Commonwealth, and compare such rates to the national average; (iii) identify emerging issues and problems in pre-hospital emergency medical services in the Commonwealth and make recommendations to address them; (iv) review the findings and recommendations of previous legislative studies pertaining to emergency medical services to determine their relevance today; (v) evaluate the need for a Department of Emergency Medical Services; (vi) review relevant state and federal laws and regulations pertaining to emergency medical services, patient privacy, security and emergency preparedness; (vii) consider issues pertaining to medical liability insurance, health care insurance, health care costs, funding for emergency medical care, third-party reimbursement, and indigent care and their effect on a quality and efficient emergency medical care services system in the Commonwealth; and (viii) consider such other related issues as the Commission may deem appropriate and necessary.

Technical assistance shall be provided by the State Department of Health's Office of Emergency Medical Services and the State Emergency Medical Services Advisory Board. All agencies of the Commonwealth shall provide assistance to the Commission for this study, upon request.

The Joint Legislative Audit and Review Commission shall complete its meetings by November 30, 2004, and the Director shall submit to the Division of Legislative Automated Systems an executive summary of its findings and recommendations no later than the first day of the 2005 Regular Session of the General Assembly. The executive summary shall state whether the Commission intends to submit to the General Assembly and the Governor a report of its findings and recommendations for publication as a document. The executive summary and report shall be submitted as provided in the procedures of the Division of Legislative Automated Systems for the processing of legislative documents and reports and shall be posted on the General Assembly's website.

Appendix B

Local Distribution of EMS Providers and Equipment

Locality	2000 Population	Total EMS Providers	Population Per Provider	Total EMS Vehicles	Population Per Vehicle	Total Paramedics	Population Per Paramedic
ACCOMACK	38,305	295	130	45	851	23	1,665
ALBEMARLE	79,236	313	253	42	1,887	18	4,402
ALEXANDRIA	128,283	298	430	9	14,254	41	3,129
ALLEGHANY	17,215	128	134	14	1,229	3	5,738
AMELIA	11,400	77	148	16	713	3	3,800
AMHERST	31,894	247	129	41	778	13	2,453
APPOMATTOX	13,705	89	154	4	3,426	2	6,853
ARLINGTON	189,453	504	376	29	6,533	65	2,915
AUGUSTA	65,615	448	146	50	1,312	7	9,374
BATH	5,048	58	87	12	421	0	N/A
BEDFORD CITY	6,299	37	170	7	900	2	3,150
BEDFORD COUNTY	60,371	320	189	48	1,258	12	5,031
BLAND	6,871	38	181	4	1,718	2	3,436
BOTETOURT	30,496	133	229	25	1,220	7	4,357
BRISTOL	17,367	170	102	5	3,473	31	560
BRUNSWICK	18,419	75	246	8	2,302	0	N/A
BUCHANAN	26,978	90	300	13	2,075	4	6,745
BUCKINGHAM	15,623	77	203	10	1,562	1	15,623
BUENA VISTA	6,349	61	104	5	1,270	0	N/A
CAMPBELL	51,078	331	154	42	1,216	7	7,297
CAROLINE	22,121	204	108	30	737	24	922
CARROLL	29,245	192	152	38	770	12	2,437
CHARLES CITY	6,926	22	315	2	3,463	0	N/A
CHARLOTTE	12,472	62	201	5	2,494	0	N/A
CHARLOTTESVILLE	45,049	367	123	26	1,733	48	939
CHESAPEAKE	199,184	660	302	44	4,527	98	2,032
CHESTERFIELD	259,903	1,302	200	86	3,022	166	1,566
CLARKE	12,652	92	138	9	1,406	6	2,109
COLONIAL HEIGHTS	16,897	103	164	9	1,877	15	1,126
COVINGTON	6,303	66	96	8	788	0	N/A
CRAIG	5,091	28	182	5	1,018	1	5,091
CULPEPER	34,262	174	197	29	1,181	7	4,895
CUMBERLAND	9,017	50	180	6	1,503	0	N/A
DANVILLE	48,411	373	130	30	1,614	18	2,690
DICKENSON	16,395	114	144	12	1,366	3	5,465
DINWIDDIE	24,533	99	248	16	1,533	7	3,505
EMPORIA	5,665	53	107	9	629	3	1,888
ESSEX	9,989	44	227	8	1,249	0	N/A

Appendix B (Continued)

Local Distribution of EMS Providers and Equipment

Locality	2000 Population	Total EMS Providers	Population Per Provider	Total EMS Vehicles	Population Per Vehicle	Total Paramedics	Population Per Paramedic
FAIRFAX	21,498	152	141	22	977	47	457
FAIRFAX COUNTY	969,749	2,183	444	180	5,387	259	3,744
FALLS CHURCH	10,377	59	176	8	1,297	13	798
FAUQUIER	55,139	380	145	46	1,199	19	2,902
FLOYD	13,874	75	185	9	1,542	1	13,874
FLUVANNA	20,047	137	146	17	1,179	4	5,012
FRANKLIN CITY	8,346	50	167	11	759	1	8,346
FRANKLIN COUNTY	47,286	211	224	28	1,689	14	3,378
FREDERICK	59,209	346	171	45	1,316	25	2,368
FREDERICKSBURG	19,279	170	113	14	1,377	15	1,285
GALAX	6,837	24	285	5	1,367	3	2,279
GILES	16,657	85	196	10	1,666	6	2,776
GLOUCESTER	34,780	166	210	25	1,391	14	2,484
GOOCHLAND	16,863	162	104	13	1,297	4	4,216
GRAYSON	17,917	145	124	18	995	4	4,479
GREENE	15,244	76	201	9	1,694	6	2,541
GREENSVILLE	11,560	20	578	0	N/A	0	N/A
HALIFAX	37,355	219	171	40	934	13	2,873
HAMPTON	146,437	486	301	54	2,712	29	5,050
HANOVER	86,320	556	155	65	1,328	55	1,569
HARRISONBURG	40,468	225	180	24	1,686	7	5,781
HENRICO	262,300	1,161	226	77	3,406	132	1,987
HENRY	57,930	234	248	25	2,317	11	5,266
HIGHLAND	2,536	25	101	4	634	0	N/A
HOPEWELL	22,354	176	127	25	894	9	2,484
ISLE OF WIGHT	29,728	158	188	16	1,858	11	2,703
JAMES CITY COUNTY	48,102	186	259	16	3,006	38	1,266
KING AND QUEEN	6,630	47	141	6	1,105	1	6,630
KING GEORGE	16,803	126	133	20	840	11	1,528
KING WILLIAM	13,146	63	209	9	1,461	0	N/A
LANCASTER	11,567	39	297	5	2,313	1	11,567
LEE	23,589	68	347	10	2,359	1	23,589
LEXINGTON	6,867	58	118	7	981	4	1,717
LOUDOUN	169,599	917	185	109	1,556	71	2,389
LOUISA	25,627	239	107	28	915	10	2,563
LUNENBURG	13,146	109	121	9	1,461	3	4,382
LYNCHBURG	65,269	404	162	30	2,176	59	1,106
MADISON	12,520	82	153	7	1,789	10	1,252

Appendix B (Continued)

Local Distribution of EMS Providers and Equipment

Locality	2000 Population	Total EMS Providers	Population Per Provider	Total EMS Vehicles	Population Per Vehicle	Total Paramedics	Population Per Paramedic
MANASSAS	35,135	29	1,212	1	35,135	1	35,135
MANASSAS PARK	10,290	16	643	4	2,573	3	3,430
MARTINSVILLE	15,416	80	193	13	1,186	10	1,542
MATHEWS	9,207	53	174	5	1,841	2	4,604
MECKLENBURG	32,380	194	167	15	2,159	7	4,626
MIDDLESEX	9,932	61	163	8	1,242	3	3,311
MONTGOMERY	83,629	387	216	53	1,578	44	1,901
NELSON	14,445	160	90	25	578	13	1,111
NEW KENT	13,462	114	118	14	962	3	4,487
NEWPORT NEWS	180,150	566	318	46	3,916	88	2,047
NORFOLK	234,403	680	345	48	4,883	166	1,412
NORTHAMPTON	13,093	60	218	7	1,870	7	1,870
NORTHUMBERLAND	12,259	51	240	10	1,226	1	12,259
NORTON	3,904	29	135	8	488	5	781
NOTTOWAY	15,725	112	140	14	1,123	8	1,966
ORANGE	25,881	175	148	23	1,125	9	2,876
PAGE	23,177	97	239	17	1,363	1	23,177
PATRICK	19,407	119	163	17	1,142	7	2,772
PETERSBURG	33,740	146	231	16	2,109	6	5,623
PITTSYLVANIA	61,745	326	189	39	1,583	7	8,821
POQUOSON	11,566	80	145	4	2,892	14	826
PORTSMOUTH	100,565	639	157	69	1,457	76	1,323
POWHATAN	22,377	92	243	17	1,316	5	4,475
PRINCE EDWARD	19,720	101	195	13	1,517	11	1,793
PRINCE GEORGE	33,047	158	209	10	3,305	8	4,131
PRINCE WILLIAM	280,813	1,213	232	93	3,019	138	2,035
PULASKI	35,127	124	283	11	3,193	15	2,342
RADFORD	15,859	28	566	4	3,965	1	15,859
RAPPAHANNOCK	6,983	83	84	11	635	8	873
RICHMOND CITY	197,790	957	207	86	2,300	114	1,735
RICHMOND COUNTY	8,809	16	551	4	2,202	2	4,405
ROANOKE CITY	94,911	436	218	58	1,636	99	959
ROANOKE COUNTY	85,778	437	196	40	2,144	61	1,406
ROCKBRIDGE	20,808	161	129	28	743	2	10,404
ROCKINGHAM	67,725	429	158	57	1,188	10	6,773
RUSSELL	30,308	204	149	37	819	29	1,045
SALEM	24,747	178	139	13	1,904	16	1,547
SCOTT	23,403	98	239	17	1,377	5	4,681

Appendix B (Continued)

Local Distribution of EMS Providers and Equipment

Locality	2000 Population	Total EMS Providers	Population Per Provider	Total EMS Vehicles	Population Per Vehicle	Total Paramedics	Population Per Paramedic
SHENANDOAH	35,075	236	149	25	1,403	9	3,897
SMYTH	33,081	170	195	31	1,067	9	3,676
SOUTHAMPTON	17,482	71	246	16	1,093	3	5,827
SPOTSYLVANIA	90,395	428	211	57	1,586	34	2,659
STAFFORD	92,446	533	173	106	872	55	1,681
STAUNTON	23,853	161	148	15	1,590	2	11,927
SUFFOLK	63,677	399	160	34	1,873	43	1,481
SURRY	6,829	97	70	4	1,707	2	3,415
SUSSEX	12,504	49	255	8	1,563	0	N/A
TAZEWELL	44,598	252	177	28	1,593	7	6,371
VIRGINIA BEACH	425,257	1,528	278	139	3,059	177	2,403
WARREN	31,584	143	221	16	1,974	6	5,264
WASHINGTON	51,103	259	197	39	1,310	17	3,006
WAYNESBORO	19,520	142	137	14	1,394	5	3,904
WESTMORELAND	16,718	88	190	15	1,115	2	8,359
WILLIAMSBURG	11,998	101	119	9	1,333	8	1,500
WINCHESTER	23,585	104	227	25	943	11	2,144
WISE	40,123	204	197	34	1,180	7	5,732
WYTHE	27,599	131	211	26	1,062	6	4,600
YORK	56,297	231	244	33	1,706	51	1,104
Statewide Totals & Averages	**7,078,515**	**32,897**	**215**	**3,532**	**2,004**	**3,130**	**2,262**

Notes: Total EMS Vehicles are for ground ambulance and emergency non-transportation vehicles.
The N/A designation is used in cases where OEMS data indicated that a locality did not have either EMS providers or equipment.

Source: JLARC staff analysis of OEMS data between July 2002 and July 2004.
US Census Bureau Population Data for 2000.

Appendix C

Data Sources for Assessing Statewide Availability of Emergency Medical Services

In assessing the availability of emergency medical care across the State, JLARC staff analyzed data from a combination of sources maintained by the Office of Emergency Medical Services (OEMS). To assess the total number of agencies, equipment, and reported incident responses across the State, as well as their relative distribution, JLARC staff used data from the OEMS licensure and compliance data system. To analyze the total number of Virginia EMS providers, the skill levels of those individuals, and their relative distribution, JLARC staff used separate personnel data provided by OEMS. Finally, in assessing statewide response times, JLARC staff used the data available in the OEMS patient pre-hospital care reporting (PPCR) system. The analytical approach employed to perform the analysis included in Chapter II, as well as the strengths and limitations of each of these OEMS supplied data sets, is discussed in more detail below.

Licensure and Compliance Data

The licensure and compliance database has been in development for more than 10 years. The application platform is Lotus Notes, and OEMS contracts with an individual database administrator for ongoing development. Data included in this system is collected by the OEMS program representatives as part of their biennial agency inspection. Given concerns over the sensitivity of some data fields expressed by the Virginia Department of Health, JLARC staff were supplied a replica of the database with agency inspection information from July 2002 through July 2004.

The database is used to maintain all agency and vehicle inspections, record complaints, and track the workflow of OEMS program representatives. In addition, this data is used in developing grant applications, and does have some value in regional planning and direction. According to OEMS staff, the data has also been used to develop limited regional council profiles on providers, agencies, and equipment.

The licensure and compliance database can be used to query by locality the total number of resources (squads, providers, vehicles). In addition, there are folders that have a limited cache of agency data for the past five years. OEMS staff stated that some of the information may be incomplete, as obtaining accurate data from volunteers can be difficult. The main folders in the database are; licensure, compliance, and workflow.

Licensure Folder. The licensure folder contains information on new agency applications, the most current agency inspections, and all vehicle and equipment inspections. Data elements include: Agency executive and operational medical director, staffing and equipment, total number of EMS transport calls per year (as reported by the agency), designated emergency response agencies (primary 911 response agencies), and which agencies which agencies are providing pre-arrival emergency medical dispatch.

Compliance Folder. The compliance folder contains information related to complaints and enforcement actions. This data was used in assessing the total number of citations issued by OEMS program representatives from July 2002 to July 2004.

Given the sensitivity of ongoing investigations, VDH staff had some concern over allowing JLARC staff access to current compliance cases. As such, the duplicate database provided to JLARC staff did not contain any information on active investigations.

Workflow Folder. Workflow tracking for the program representatives is achieved through the Lotus database. Program reps use this data to identify which squads and vehicles are up for inspection. JLARC staff did not perform any analysis of data maintained in this folder.

Methods for Licensure and Compliance Data Analysis

To develop the analytical model for EMS accessibility, JLARC staff used the Office of Emergency Medical Services licensure and compliance database. There are several views of this database that list the total number of agencies in Virginia from the mid-700s to more than 1,000. Using the highest listing of agencies, 1,043 agencies located in the Agency x Status view, 228 were identified as no longer in business. From this view, 815 agencies were identified as current providers. These 815 agencies were also identified in the Agency x Locality, Agency x Category, and Agency x Program Representative views.

There were, however, 861 agencies listed in the Agency x Name view. For these agencies, JLARC staff were able to identify the agency's name and OEMS assigned identification number. Of these 861 agencies, 70 agencies contained duplicate agency numbers. From these 70 agencies, 43 were eliminated from further analysis because they did not contain any information, and were found to be a true duplicate entry or to be substations of larger entities, The remaining 24 agencies were included for further analysis and were also identified within the Locality, Category, and Program Representative views.

For these 815 agencies, JLARC staff were able to identify the agency's emergency response designation, locality, regional council, agency category, and OEMS authorized level of service, using the Agency x Locality view. Using the Program Representative view, JLARC staff were also able to identify the appropriate OEMS staff with State oversight responsibility. Finally, by using the Agency Trauma and PPCR report views, JLARC staff were able to analyze the total number of EMS vehicles and incident responses reported by each agency for the July 2002 to June 2004 inspection period.

When using the Agency Trauma Report view, 737 individual agencies were identified however 18 of these agencies were coded 0 and contained only limited descriptive information. These 18 agencies had duplicate agency identification numbers of agencies already listed in the Trauma Report, and while they did contain a total of 86 vehicles, they did not contain any total information for providers or calls for the specific agency. In all cases the vehicle totals were combined with the corresponding agency code. Therefore, of the 815 identified active, non-wheelchair, non-air ambulance provider, 719 agencies contained information on the numbers of vehicles, numbers of providers, and call volumes for each agency.

These 815 agencies are the basis of the JLARC staff analysis of the availability of Virginia's EMS system. Of the 815 agencies, 490 are classified as volunteer, 159 are classified as commercial, 94 are classified as governmental, 32 are classified as industrial, 20 are classified as non-profit, and 18 are classified as federal. Additionally, there were two agencies not categorized. These 815 agencies are operationally classified as rescue squad/EMS (275), fire department (221), fire and rescue (93), emergency

ambulance (81), hospital (22), first-response only (20), police (9), non-emergency wheelchair (89), nursing home (3), and unclassified (2).

An additional classification of these 815 EMS agencies that more narrowly defines the types of services provided was used to determine if an agency should be included in additional JLARC staff analysis. The Agency Type classification includes:

- ground ambulance – ALS (282)
- ground ambulance – BLS (27)
- non-transport first response – ALS (10)
- non-transport first response – BLS (30)
- wheelchair interfacility transport (56)
- air ambulance (8)
- fixed-wing transport – ALS (2)
- unclassified (1)
- emergency ground transportation – ALS (220)
- emergency ground transport – BLS (27)
- non-transport – ALS (18)
- non-transport – BLS (88)
- non-emergency wheelchair ground transport (40)
- rotary wing transport (5)
- specialized services (1)

The status of these 815 agencies is also identified in the licensure and compliance data. From this analysis, 798 agencies are currently active in Virginia, with nine agencies inactive, four agencies suspended, and four agencies pending. The 17 agencies with a status other than active were removed from additional staff analysis. Of the remaining 798 agencies, 93 were identified as active non-emergency wheelchair transportation providers and were also removed from further analysis. Of these 705 agencies, and additional 14 were identified as actively providing Air Ambulance or Fixed Wing transportation services and were removed. Therefore, as of July 31, 2004 there were 691 individual agencies actively providing ground response to calls for emergency medical services, these 691 agencies serve as the basis for the JLARC staff analysis of the statewide accessibility of EMS agencies.

Analysis of the 691 individual agencies actively providing ground-based EMS, 485 (70.2%) were identified as volunteer agencies, 84 (12.2%) were identified as governmental, 63 (9.1%) were identified as commercial, 32 (4.6%) were identified as industrial, 17 (2.5%) identified as federal, and the remaining ten (1.4%) identified as nonprofit agencies. For the 691 agencies, additional classification of EMS agencies that more narrowly define the types of services provided include Ground Ambulance – ALS (280), Emergency Ground Transportation – ALS (214), Ground Ambulance – BLS (26), Emergency Ground Transport – BLS (24), Non-Transport First Response – ALS (10), Non-Transport – ALS (18), Non-Transport First Response – BLS (30), Non-Transport – BLS (88), and Unclassified (1).

Methods for Analysis of Distribution of EMS Providers

For evaluating the distribution of certified EMS providers across the State, JLARC staff used OEMS data on the total number of providers that are either affiliated with an agency in each locality or are unaffiliated and reside in a given locality. OEMS maintains data on 32,897 individuals licensed to provide emergency medical care in Virginia. This includes 864 providers classified as “Out of State” and an additional four providers that were classified as “Unaffiliated.” Because these individuals are licensed by OEMS to provide emergency medical care in Virginia, they are included in JLARC staff calculations of statewide provider to population ratios. However, because these individuals are not categorized into a specific locality, these 868 individuals were not included in the JLARC staff analysis of local population to provider ratios. There are 32,029 providers living in Virginia. However, as discussed in Chapter 3 of the report,

approximately 26 percent (8,679) of the State's certified EMS providers were not affiliated with an EMS agency as of May 2004.

In all measures of the relative distribution of Virginia's EMS providers and vehicles, JLARC staff used the *US Census Bureau's* population totals for 2000. The 2000 U.S. Census total for Virginia indicated a total population of 7,078,515. This data, however, included a total of 4,289 individuals in Clifton Forge City. For this analysis, these 4,289 individuals were included as part of Alleghany County.

Methodology for Assessing Response Time Data

For calendar year 2003, OEMS provided automated patient pre-hospital care report (PPCR) data for 525 different agencies. Of these, 23 agencies did not have agency identification numbers corresponding with any of the 815 individual agencies identified in the JLARC staff analysis of the OEMS licensure and compliance database. Of the remaining 502 agencies an additional 11 were removed from further analysis because they were identified as air ambulance providers or non-emergency wheelchair transportation. Therefore, of the 691 active emergency response agencies operating in Virginia, this data is only available for 491, or 71 percent of the identified active agencies.

Issues with the Existing OEMS Data

There are several outstanding issues with the OEMS data as noted in the report. Additional concerns about the currency of the data and discrepancies between the sets provided are addressed below.

Data Currency. One area of concern with the existing OEMS licensure and compliance database is that the data reported for each agency is updated on a two-year cycle. Because agencies are only required by the *Code* to be inspected by OEMS once every two years, the currency of data for a specific agency may range from one to 23 months. Moreover, because this data is self-reported to OEMS by each agency, there is no means of verifying the accuracy of incident responses reported. Finally, because JLARC staff were denied remote access to the OEMS database, all licensure and compliance data included in this analysis is only current through July 2004.

PPCR Calls Not Accurately Identified. Another area of concern regarding both the OEMS licensure and compliance and PPCR data is the way in which incident responses are tracked. Under the current data structures, the location of incident response is recorded on the basis of the location of the responding agency. This may overstate the location of responses provided by large commercial providers, such as Medical Transport Inc. and Lifeline, which are located across several regions of the State. However, when call volume data for these agencies are reported they are only reported from the agency's central location. For example, all responses provided by MTI will be shown as located in Norfolk. Additionally, in some cases commercial providers serve as backup to DERA designated agencies by providing paid staffing to some squads or serving as a mutual-aid provider when the DERA designated agency is unable to respond. For example, Lifeline Ambulance staffs an evening shift at Goochland County EMS. In these cases the reported call volume in the PPCR database is attributed to Goochland County.

Appendix D

Methods for Assessing Annual EMS Funding

The table below displays the estimated annual fiscal support for governmental and volunteer EMS agencies in Virginia, and is included in Chapter IV. Several estimates are used in generating the statewide total. The total would be higher if revenues generated by commercial EMS providers were included; however, this data was unavailable. This appendix describes the estimation methods used to calculate the dollar figures in the table.

Determining Statewide EMS Annual Operating Expenditures

Different data sources were used to estimate the costs of operating volunteer and governmental agencies.

Volunteer Agencies. The best available source of financial data on volunteer agencies appears to be grant applications filed by the agencies with OEMS. These applications contain some summary financial information on each agency, such as totals received from donations, grants, local fund raising activities, and the portion of the 25% local share of the State $4-for-Life funding passed through by the locality to the particular EMS agency. The data is not necessarily audited, although the application is attested as accurate by both a representative of the EMS agency and the operational medical director (OMD).

In December 2003, 98 EMS agencies submitted grant applications to OEMS. In June 2004, 165 EMS agencies submitted applications. OEMS supplied JLARC staff with data from these applications. Of the 223 total applications (40 agencies applied both times; only the June application was used), 181 were submitted by volunteer agencies and the remaining 42 were operated by local governments.

Total reported spending for the 181 volunteer EMS agencies was $50.18 million. This includes the costs of operating vehicles, purchasing supplies and equipment, insurance, training, and the many other costs of operating an agency. The figure may

Estimated Annual Fiscal Support for EMS in Virginia
Governmental & Volunteer Agencies (2003)

Estimated statewide total budgets, volunteer agencies	$135 million
Estimated value of volunteer hours, statewide	$61-87 million
Estimated EMS spending by localities, FY 2003	$144-360 million
State OEMS budget	$ 14 million
Regional EMS budgets	$ 2 million
Total	$356-$598 million

Notes: OEMS budget if for FY 2004. Excludes commercial and for profit EMS agencies.
Source: JLARC staff analysis

not include the value of fuel, utilities, maintenance, and other support services that in many cases are provided by local governments. Volunteer agencies of course spend little on labor, although some agencies do pay volunteers a nominal amount -- $10 or $20 -- for each call that they run.

To estimate a statewide figure, JLARC staff multiplied the $50.18 million by the ratio of total 485 volunteer agencies statewide to the 181 applications, or 2.68, and generated an estimated total statewide volunteer agency budget of $134.5 million. This estimate assumes that the agencies that did not submit applications had budgets similar in size to those that did apply; this may not be the case, but was an assumption for the analysis.

Governmental agencies. The Auditor of Public Accounts' *Comparative Report of State and Local Government Expenditures* for FY 2003 (as revised August 3, 2004) indicates that total spending by local governments for fire and rescue services was $720.7 million. Many localities combine fire and EMS within one agency, many to the point where firefighters are also certified EMS personnel. Consequently, separating out only the EMS spending is not feasible statewide. Several local government officials who operate such combined programs indicated that between one-quarter and half of the budget could be reasonably attributed to EMS. A consultant report of Chesterfield county's fire and EMS operation concluded that 20 percent of the combined agency's budget (not including dispatch) could be attributed to EMS alone.

Based on these findings and suggestions, the 20 percent factor identified in the Chesterfield report generates a statewide figure that could be as low as $144 million. If it were as high as the 50 percent factor suggested by a city manager, then the statewide figure could be as high as $360 million.

Estimating the Value of Volunteer Hours

The survey of EMS agencies asked respondents to report the total number of volunteer hours in 2003. The 278 completed survey responses (39 percent of the 713 surveyed agencies) indicated that 1,409,225 hours were volunteered in the prior year. Assuming that the non-responding agencies had similar experiences in terms of the number of volunteer hours, then approximately 3,613,000 hours would have been volunteered statewide in 2003. This equates to about 2,125 full-time employees (assuming each employee would be on the job 1,700 hours per year, which allows for vacation, holidays, and other leave).

To estimate the value of these hours, starting pay of Firefighter-EMTS from relatively high- and relatively low-paying localities were used. Many localities and volunteer agencies combine fire fighting with EMS, and require that personnel be able to provide both services. The high figure was based on Fairfax county's starting salary for the full-time Firefighter-EMT position of $38,611, or $18.55 per hour. A factor of 30 percent was added for the cost of fringe benefits such as health insurance, retirement benefits, etc., yielding a payroll cost of $24.12. The low figure came from Petersburg's starting salary for an entry-level Firefighter/EMT position at $26,958, or $12.96 per hour. Adding a 30 percent fringe benefit factor yields a payroll cost of $16.85 per hour.

For comparison purposes, the average starting salary (according to the *Journal of Emergency Medical Services)* for an EMT-Basic in the southeastern U.S. was $27,966 in 2003, and for a Paramedic the average starting salary was $30,911.

Multiplying these estimates (3,613,000 hours times $16.85 and $24.12) yields a range of $60.9 million to $87.1 million as the estimated value of the hours volunteered at EMS agencies in 2003. If the agencies had hired full-time staff to provide these services, then statewide annual spending would likely have been in this range.

Regional EMS Council Revenues

In response to a request, the directors of the 11 regional EMS councils submitted revenue data to JLARC staff. This data indicated the regions' FY 2004 funding from State, local, federal, and other sources. Subtracting the $2.1 million in State funding generated the $2 million from all other sources, shown in the table in Chapter V.

Appendix E

Agency Responses

As a part of the extensive validation process, State agencies and other entities involved in a JLARC assessment effort are given the opportunity to comment on an exposure draft of the report. Appropriate technical corrections resulting from comments provided by these entities have been made in this version of the report.

This appendix contains the written responses of the Department of Health. Any page numbers referenced in the written comments refer to an earlier draft and may not correspond to the pages of this report.

COMMONWEALTH of VIRGINIA

Department of Health

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October 6, 2004

Mr. Philip A. Leone, Director
Joint Legislative Audit and Review Commission
Suite 1100, General Assembly Building
Richmond, VA 23219

Dear Mr. Leone:

Thank you for the opportunity to review and discuss the JLARC Exposure Draft on the Review of Emergency Medical Services in Virginia dated September 28, 2004. I understand VDH and JLARC staff met on Friday, October 1 and a number of technical and factual edits were discussed. I commend your staff for such a comprehensive and constructive review of pre-hospital emergency medical services in Virginia. I do not need to be placed on the Commission's agenda for the October 12th meeting. Mr. Gary Brown, Director of the VDH Office of Emergency Medical Services, will be present at the meeting should any questions arise that require a response from VDH.

Thank you again for the professionalism and courtesies that your staff extended to VDH throughout the course of the study. Please do not hesitate to contact me if you have additional questions, or if I can be of any further assistance.

Sincerely,

Robert B. Stroube, M.D., M.P.H.
State Health Commissioner

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