

Final Report

Emergency Medical Services System Study Rockbridge County, Virginia February, 2008

Prepared for:
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Office of Minority Health and Public Health Policy

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I. Executive Summary

The Virginia Department of Health, Office of Emergency Medical Services (hereinafter mentioned as “OEMS”) was engaged by the Virginia Department of Health, Office of Minority Health and Public Health Policy (hereinafter mentioned as “OHMPHP”) to provide a comprehensive assessment of the EMS system surrounding the Critical Access Hospital, Carilion Stonewall Jackson Memorial Hospital (hereinafter mentioned as “CSJMH”), located in Lexington, Rockbridge County, Virginia, which is one of seven hospitals in Virginia that has been designated as a CAH facility. This assessment is part of a larger study, evaluating EMS systems in the counties surrounding the Critical Access Hospitals (hereinafter mentioned as “CAH”) in the Commonwealth of Virginia. CAH Designation criteria are defined as follows:

- Physical location in a state that has an established Medicare Rural Hospital Flexibility Program (Flex Program)
- Be located in a rural area
- Provide 24 hour emergency care services, using on site or on call staff
- Provide no more than 25 inpatient beds
- Have an average length of stay of 96 hours or less; and
- Be either 35 miles from another hospital or another CAH, or 15 miles in areas with mountainous terrain or only secondary roads.

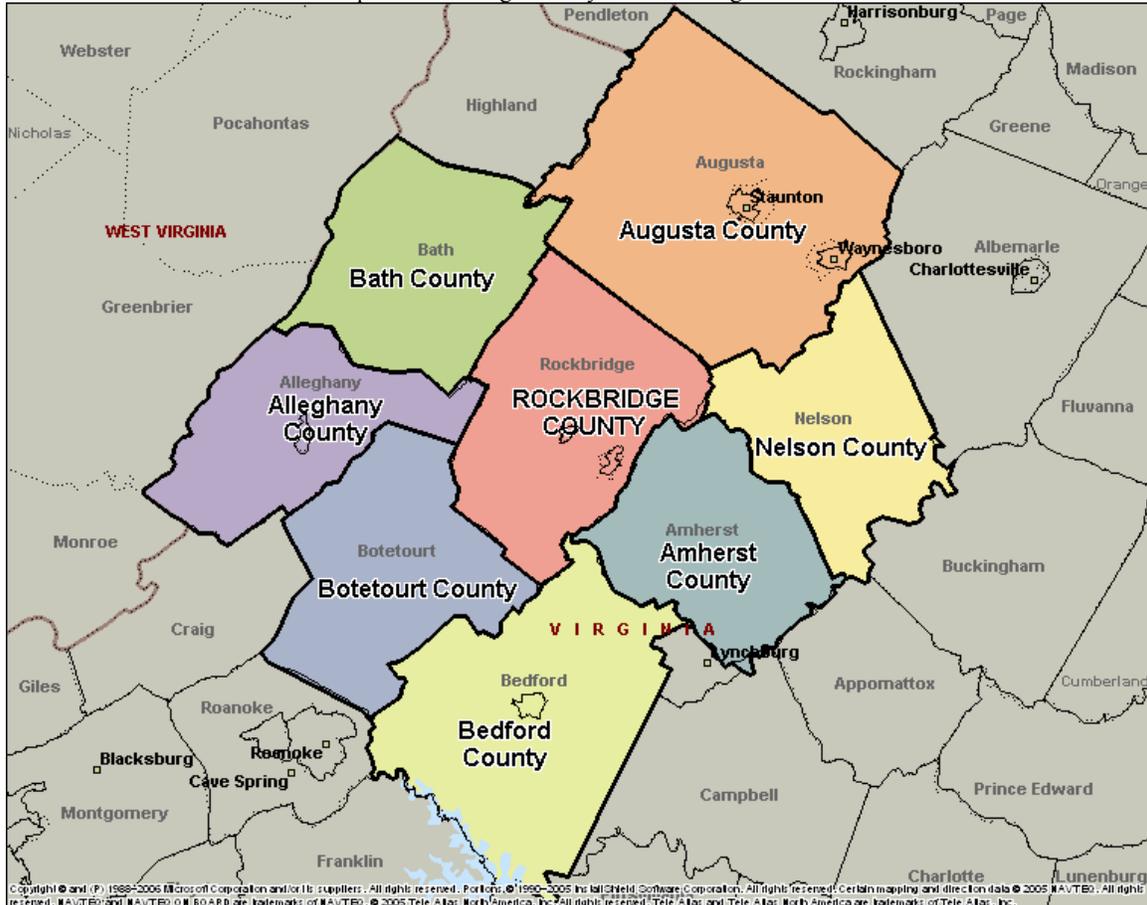
During the latter half of 2007, staff from OEMS, with assistance from subcontractor agencies, performed the assessment of both the hospital itself, and the agencies that serve the county the hospital is located in. This assessment included development and distribution of surveys, interviews with system stakeholders, and review of pertinent documents.

Several recommendations, based on key findings in several different study areas appear at the end of this report. The Office of EMS believes that each one of the recommendations will have a positive impact on the EMS system in Rockbridge County, and remains ready to assist the agencies in Rockbridge County to implement each of the recommendations, and provide technical assistance as needed.

II. Introduction

Rockbridge County, Virginia is a predominantly rural county located in the southwest portion of the Commonwealth of Virginia. It is bordered by Alleghany, Amherst, Augusta, Bath, Bedford, Botetourt, and Nelson Counties. (See Map 1).

Map 1 – Rockbridge County and Bordering Counties



According to the 2000 Census, the population of Rockbridge County is 20,808 people. The county size is 601 square miles, with a population density of 35 people per square mile.

The age distribution among the residents of Rockbridge County is as follows:

- 22.2% are under the age of 18.
- 7.9% are in the 18 to 24 age group.
- 27.2% are in the 25 to 44 age group.
- 27.1% are in the 45 to 64 age group.
- 15.7% are 65 or older.

The median age is 40 years old.

Additionally, the gender distribution is 100 women to 100.4 men; and 100 women to 98 men over 18 years of age.

Race distribution is as follows:

95.4% White

3% African American

Less than 1% of the following groups, respectively:

Native American, Asian, Hispanic/Latino, and “other”.

The county seat is Lexington which is the site of the CAH, three EMS agencies, the Sheriff’s office, the Police Department, and county administration offices.

CSJMH is a not for profit hospital owned and operated by Carilion Health Systems, and has had designation as a CAH facility since 2004. During their designation process, no deficiencies were noted, no recommendations for specific needs or initiatives related to the EMS system were made during the designation process, and no changes in any policy or procedure have taken place as a result of designation, other than management of the inpatient census as per CAH guidelines. CSJMH has also been accredited by the Joint Commission on Accreditation of Healthcare Organizations (JCAHO). CSJMH has a capacity of 25 beds in the entire facility. The CSJMH Emergency Department (ED) is open and staffed 24 hours a day/7 days a week.

There are 13 Emergency Medical Services (EMS) agencies that serve the county including Carilion Patient Transport Services (CPTS), which is based out of the CAH facility, the remaining agencies are: Buena Vista Rescue Squad, Effinger Volunteer Fire Department, Fairfield Volunteer Rescue Squad, Glasgow Life Saving Crew, Goshen First Aid Crew, Lexington Life Saving and First Aid Crew, all of which are licensed at the ALS level, and Kerr’s Creek Volunteer Fire Department, Natural Bridge Volunteer Fire Department, Raphine Volunteer Fire Department, Rockbridge Baths Volunteer Fire Department, South River District Volunteer Fire Department, and Walkers Creek Volunteer Fire Department, which are licensed as non-transport BLS agencies. Of these agencies, surveys were completed for CPTS, Fairfield Volunteer Rescue Squad, and Glasgow Life Saving Crew. The Central Shenandoah Emergency Medical Services Council (hereinafter mentioned as “CSEMS”), provided a summary for the remaining agencies in the County.

III. Purpose and Methods of the EMS System Study

As outlined in the scope of services within the Memorandum of Agreement between the OHMPHP and OEMS, the following areas are to be addressed in the pages to follow:

1. Examination of Network Agreements for CAH Certification
2. Study Survey
 - 2a. Questions for EMS Personnel for assessing EMS capabilities in agencies in areas served by the CAH.
 - 2b. Develop questions for CAH personnel for the purpose of assessing the overall function of the local EMS system
3. Study Components
 - 3a. Demographics of the CAH area
 - 3b. Staffing of the local EMS System
 - 3c. Placement of units on basis of call volume and population density
 - 3d. Training Initiatives
 - 3e. Communications
 - 3f. Resource Management
 - 3g. Fiscal Support
 - 3h. Medical Direction
 - 3i. Quality Assurance
 - 3j. Mass Casualty Preparedness
 - 3k. System Partnerships
 - 3l. Hospital Capabilities
4. Recommendations

To accomplish this task, the Virginia Office of EMS:

1. Partnered with the Western Virginia EMS Council (hereinafter mentioned as “WVEMS”) to assist OEMS in addressing some of the items listed in the scope of services above. A report from WVEMS was received by OEMS in August of 2007, and is “Appendix 1” of this report. Information from the WVEMS report is included in various different sections of this report.
2. Formal interviews were conducted with various stakeholders of the EMS System in Rockbridge County, including the Rockbridge County Administrator, the Rockbridge County Sheriff, and the Rockbridge County 911 Coordinator. Additionally, formal interviews were conducted with staff from CSJMH, including the Chief Executive Officer, the Director of Nursing for the Emergency Department, as well as the Carilion Patient Transport Services (hereinafter mentioned as “CPTS”) Coordinator. These interviews were held to gather information regarding the relationship between the CAH and the EMS System,

- and vice versa, as well as to determine the capabilities of both the CAH, and the EMS System in Rockbridge.
3. Out of the agencies in Rockbridge, surveys were completed for CPTS, Fairfield Volunteer Rescue Squad, and Glasgow Life Saving Crew. CSEMS provided a summary for the remaining agencies in the County. All participated in a survey to gather some additional information about the EMS system capability, as well as the relationship with the CAH. A copy of the survey, as well as the responses from the services themselves is attached to this report, as Appendix "2".
 4. Several documents were reviewed in preparation for the study report, including:
 - All documents related to the CAH designation by CSJMH.
 - EMS network agreements for CSJMH, as required in the original CAH certification application.
 - OEMS licensure database information to determine resource management information for each of the agencies operating within Rockbridge County.
 - OEMS PPCR database information for all EMS calls within Rockbridge County for calendar years 2005 and 2006.
 - OEMS Training database information for all certified EMS providers within Rockbridge County.
 - Mutual Aid agreements existing between agencies in Rockbridge County.
 - Return to Locality reports of expenditures submitted by Rockbridge County Administration for Fiscal Years 2006 and 2007.
 - Rescue Squad Assistance Fund (RSAF) information for all EMS agencies within Rockbridge County for 1997-2006 grant cycles, including items awarded and denied.

IV. Study Results

Demographics:

Demographic information for Rockbridge County was mentioned in the Introduction section of this report, and seems to be relatively similar to other rural counties and areas within the Commonwealth of Virginia, and other counties that were examined as part of the CAH Study.

CSJMH is the only hospital within the geographic boundaries of Rockbridge County. There are three long term care facilities within a 20 mile radius of CSJMH, having a bed capacity ranging between 60 and 93 beds.

Staffing:

There are 134 Certified EMS Providers in Rockbridge County. The distribution of providers by level is below:

Table 1 – Distribution of Certified Providers in Rockbridge County

Certification Level	Number of Certified Providers
Certified First Responder	22 (16 male, 6 female – 16% of total number of providers in county)
Emergency Medical Technician (EMT)	96 (44 female, 52 male– 72%)
EMT – Paramedic (EMT-P)	2 (1 male, 1 female – 1%)
EMT – Enhanced (EMT-E)	10 (4 female, 6 male – 7%)
EMT – Intermediate (EMT-I)	3 (1 female, 2 male – 2%)
EMT – Shock Trauma Technician (EMT-ST)	1 (1 male – less than 1%)
Total	134 (78 male, 56 female)

Source: Virginia OEMS Division of Educational Development Provider Database

Staffing of local EMS agencies within Rockbridge County is predominantly volunteer. As mentioned previously, 13 EMS agencies are currently licensed in Rockbridge County; Carilion Patient Transport Services (CPTS), which is based out of the CAH facility is the only career agency, the remaining agencies are entirely volunteer.

On average, the volunteer agencies in Rockbridge provide 12 hours of on call coverage daily, and none of the agencies reported dedicated in house staffing. EMS providers in the county range in age from 16 to 80 years of age. The majority of providers for all agencies are Caucasian. Recruitment initiatives for these agencies include mailings and community awareness programs.

CPTS is the only career agency in Rockbridge. CPTS provides 12 hours of dedicated 911 coverage during daytime hours (6 am to 6 pm) through a contract with the City of Lexington, and are based at the Lexington Life Saving and First Aid Crew quarters during on-call hours. CPTS has 18 paid staff members, between 21 and 62 years

of age. All are Caucasian, and the majority is male. Reported recruitment and retention initiatives include employment benefits through Carilion Health System, which includes paid education and training, and opportunities to provide standby EMS coverage at mass gathering events, such as NASCAR races in Virginia.

Placement of Units

One of the struggles in reviewing data related to call volume in Rockbridge County is that CPTS is one division under a greater agency license, which incorporates divisions of the agency that include EMS response territories outside of Rockbridge County.

In review of PPCR data reported by the agencies in Rockbridge County for calendar years 2005 and 2006; average response times vary for each agency, but were 9 minutes and 8.4 minutes, respectively, for 2005 and 2006. For the purposes of this study, average response time is defined as time from receipt of call by the agency, until the agency reports enroute.

CPTS reported during interviews that their estimated average response time was 8 minutes in the past year. Based on an evaluation of volume, locations, and response times, Glasgow Life Saving Crew has placed a unit in a substation in their primary response territory which has helped reduce response times. No other agency reported any unit placement changes.

EMS Training Initiatives

EMS training and continuing education (CE) opportunities in Rockbridge County includes the CE classes held in central locations of the county, most of which taking place in Lexington and Buena Vista. In the past few years initial certification classes (EMT – Basic and Enhanced) have been held in areas of need throughout the county.

CSEMS has begun rotating Super CE Saturdays between Augusta, Rockingham and Rockbridge Counties. These classes are one day a month and offer four two-hour classes for eight hours of ALS and BLS CE. The class rotates every third class to Rockbridge County. Providers are able to obtain training announcements and schedules via the CSEMS website, and through announcement by CSEMS.

Several initial certification courses have taken place in Rockbridge since 2005. A listing of those offered courses include:

- Spring 2005 – EMT Enhanced (Fairfield)
- Fall 2005 – EMT Basic (Buena Vista)
- Fall 2006 – EMT Enhanced (Lexington)
- Spring 2007 – EMT-Basic (Fairfield)

CSEMS has a new EMT-Instructor that lives in Rockbridge County and offers various CE classes at different locations in the County as well as a First Responder class.

CSJMH is quite involved in the training of EMS providers in the area, and offer the following classes annually:

- Advanced Cardiac Life Support (ACLS): 2 Full Provider and 3 Renewal
- Pediatric Advanced Life Support (PALS): 1 Full Provider and 3 Renewal
- CPR for the BLS Provider: 11 Classes
- Neonatal Resuscitation Program (NRP) classes: 2 each year

Additionally, the Virginia OEMS offers Emergency Medical Services Satellite Training (EMSAT), which is a monthly, one-hour interactive training and information program for Virginia EMS and Fire personnel. EMSAT broadcasts and DVDs offer required EMS topics at the ALS and BLS levels, and enrichment classes that may not be widely available throughout the state. Certified Virginia EMS providers may receive continuing education credit by viewing an EMSAT broadcast at a designated state site. Providers may also receive continuing education credit for viewing EMSAT DVDs.

Currently, none of the EMS agencies in Rockbridge County are designated EMSAT sites.

Communications

Enhanced 911 (E-911) is available throughout Rockbridge County. There is a Regional 911 office/Emergency Operations Center located in Buena Vista that dispatches for all fire, rescue, and EMS agencies, as well as the Lexington and Buena Vista police departments. The County Sheriff's department has their own independent dispatch office. County funds support the Regional 911 office primarily.

EMS Agencies primarily use radio and cellular communication to communicate with the CAH ED while on scene and during transport. Several agencies have the ability to send telemetry transmissions to the ED. Challenges in communication due to the geography and mountainous terrain are frequently encountered in the field.

Resource Management

Based on a review of OEMS Agency inspection records for inspections conducted throughout 2007, there are 41 permitted EMS vehicles among 12 agencies in Rockbridge County. This includes 22 Ambulances, six BLS first response vehicles, six fire engines with EMS equipment, and five utility vehicles, including brush trucks. As of the last inspections of each agency in Rockbridge County conducted by OEMS field representatives throughout 2007, all vehicles were in good working condition, without any mechanical failures noted in inspection reports. The vehicles range in age from 1 to 36 years of age at the time of inspection. According to inspection reports, 24 out of 41 vehicles are equipped at the ALS level, or 58%. As was mentioned previously, seven agencies are licensed at the ALS level and six are licensed at the BLS level.

In terms of aeromedical service, Rockbridge County is primarily served by Carilion Lifeguard 10, which is connected to Carilion Roanoke Memorial Hospital, as well as Virginia State Police Medflight III, based in Lynchburg. Based on review of PPCR data from 2005 and 2006, Lifeguard responded to calls in Rockbridge County 13, and 10 times, respectively, and Medflight III responded 10 times and 18 times in that same time frame. CSJMH staff also reported use of the University of Virginia Pegasus Flight Operations for some patient transfers.

All EMS agencies in the county have mutual aid agreements that are in place and honored with the agencies both in Rockbridge County, as well as the surrounding counties.

Fiscal Support

For Fiscal Year 2006 and 2007, Rockbridge County received \$38,290.02 and \$22,269.55, respectively, in “Return to Locality” (RTL) funding from the Virginia Department of Health from the “Four for Life” revenues from passenger vehicle registration. The Code of Virginia states that the Department of Health shall return twenty-six percent (26%) of the registration fees collected to the locality wherein such vehicle is registered to provide funding for EMS Training of volunteer or salaried emergency medical service personnel of licensed, nonprofit emergency medical service agencies; or for the purchase of necessary equipment and supplies for licensed, nonprofit emergency medical service agencies. Rockbridge County uses these funds to assist in matching funds for purchases by the EMS agencies within Rockbridge County.

The information reflected in Table 3 below reflections the information in funding reports submitted to OEMS by Patrick County for RTL funds distributed in Fiscal Year 2006 and 2007, as well as the receiving agencies.

Table 2 - RTL Funding Distribution for Rockbridge County – Fiscal Year 2006 - 2007

Rockbridge County* – Return to Locality – Fiscal Year 2007				
Agency Receiving Funds	Summary of Use of Funds			
	Training	Equipment	Supplies	Total
Effinger VFD	\$1,664.40			
Fairfield VRS	\$1,664.40	\$14,706.16		
Glasgow Life Saving Crew	\$1,664.40			
Goshen First Aid Crew	\$1,664.40			
Lexington First Aid Crew	\$866.80	\$2,380.98		\$3,247.78
Unexpended Funds	\$9,517.16			

Rockbridge County* – Return to Locality – Fiscal Year 2006				
Agency Receiving Funds	Summary of Use of Funds			
	Training	Equipment	Supplies	Total
Effinger VFD	\$1,564.44			\$1,564.44
Fairfield VRS	\$1,564.44			\$1,564.44
Glasgow Life Saving Crew	\$1,564.44			\$1,564.44
Goshen First Aid Crew	\$1,564.44	\$8,000.00		\$9,564.44
Lexington First Aid Crew	\$1,180.89	\$2,193.08		\$3,373.97
Buena Vista Rescue Squad	\$4,160.72			\$4,160.72
Unexpended Funds	\$11,859.75			

*Includes reports from incorporated cities of Buena Vista and Lexington
Source: Virginia OEMS Return to Localities Funding Reports – Rockbridge County

These RTL funds were reported as used for training, equipment, and supplies, but reports are not required by OEMS to specify what needs these funds are used to satisfy.

Of all of the EMS agencies in Rockbridge, only CPTS and Lexington Life Saving and First Aid Crew have fee for service programs in place. The collection rates for both agencies have ranged between 26 and 50%.

Rescue Squad Assistance Fund – Recent History

Dating back to 1997, Rockbridge County agencies have actively participated in the RSAF grant processes.

In that time, Rockbridge County agencies have been awarded funds for equipment purchases at a total of \$425,578.40. CSJMH PTS is not eligible for RSAF awards, as they are affiliated with a for profit entity.

Items of note include the fact that the majority of agencies have had spotty participation in the RSAF application process, which is included in the table below. Lexington First Aid Crew only began applying for funds in 2006, and Rockbridge Baths and Walkers Creek Fire Departments have never applied for RSAF funds.

The table below outlines RSAF grant awards for agencies in Rockbridge County. This includes the cycle that the grant was awarded, the item that was requested, the amount of the award, and the percentage of matching funds by the agency for each awarded item.

Table 3 - RSAF Awards for Rockbridge County – December 1997 to June 2007

Buena Vista Rescue Squad (Last RSAF Application – 06/2004)			
Grant Cycle	Item	Amount	Percent of Fund Match By Agency
12/1999	Computer Equipment	\$850.00	50%
	Total Award Amounts	\$850.00	

Effinger Volunteer Fire Department (Last RSAF Application – 12/2004)			
Grant Cycle	Item	Amount	Percent of Fund Match By Agency
12/2004	1 Ambulance	\$60,844.00	20%
	Total Award Amounts	\$60,844.00	

Fairfield Volunteer Rescue Squad (Last RSAF Application – 12/2006)			
Grant Cycle	Item	Amount	Percent of Fund Match By Agency
06/1997	Extrication Equipment	\$10,006.35	50%
12/1997	Radio Equipment	\$4,492.55	50%
12/2001	1 Defibrillator	\$6,432.50	50%
06/2002	1 EMS Vehicle	\$35,023.50	50%
12/2003	1 Computer	\$999.00	50%
06/2004	6 Radio Pagers	\$1,250.00	50%
12/2005	1 Ambulance	\$87,060.80	20%
12/2006	2 Defibrillators	\$22,684.00	20%
	Total Award Amounts	\$ 167,948.70	

Glasgow Life Saving Crew (Last RSAF Application – 06/2007)			
Grant Cycle	Item	Amount	Percent of Fund Match By Agency
06/1998	2 Defibrillators	\$8,852.00	20%
06/1998	Radio Equipment	\$4,399.00	50%
06/2000	1 Computer w/Printer	\$760.50	50%
06/2003	Extrication Equipment	\$6,395.00	50%
12/2004	12 Portable Radios	\$4,172.00	50%
06/2002	1 Crash Truck	\$42,500.00	50%
06/2004	2 Defibrillators	\$4,750.00	50%
12/2005	1 4x4 EMS Vehicle	\$14,450.00	50%
12/2006	2 Defibrillators	\$12,250.00	50%
	Total Award Amounts	\$98,528.50	

Goshen First Aid Crew (Last RSAF Application – 06/2000)			
Grant Cycle	Item	Amount	Percent of Fund Match By Agency
06/1997	1 Defibrillator	\$6,927.98	20%
06/1998	15 Radio Pagers	\$4,044.00	20%
06/2000	1 Computer System	\$625.00	50%
	Total Award Amounts	\$11,596.98	

Kerr's Creek Volunteer Fire Department (Last RSAF Application – 06/2005)			
Grant Cycle	Item	Amount	Percent of Fund Match By Agency
06/2005	Extrication Equipment	\$18,500.00	50%
	Total Award Amounts	\$18,500.00	

Natural Bridge Volunteer Fire Department (Last RSAF Application – 06/2006)			
Grant Cycle	Item	Amount	Percent of Fund Match By Agency
06/1997	1 EMS First Response Vehicle	\$21,059.00	20%
06/2000	1 Computer System	\$875.00	50%
06/2000	1 Defibrillator	\$1,583.50	50%
12/2000	1 Defibrillator	\$2,609.60	50%
06/2005	1 EMS Rescue Vehicle	\$8,800.00	20%
06/2006	3 Automatic Defibrillators	\$2,750.00	50%
Total Award Amounts		\$37,677.10	

Raphine Volunteer Fire Department (Last RSAF Application – 06/2007)			
Grant Cycle	Item	Amount	Percent of Fund Match By Agency
12/2004	1 Defibrillator	\$1,247.50	50%
06/2005	2 Defibrillators	\$3,007.00	50%
06/2005	10 Radio Pagers	\$2,146.00	50%
06/2005	Rescue Equipment	\$13,400.00	50%
12/2005	1 Suction Unit	\$246.50	50%
06/2007	30 Traffic Vests	\$720.00	50%
06/2007	5 Radio Pagers	\$1,234.90	50%
06/2007	1 Defibrillator	\$1,116.22	50%
Total Award Amounts		\$23,118.12	

South River District Volunteer Fire Department (Last RSAF Application – 12/2006)			
Grant Cycle	Item	Amount	Percent of Fund Match By Agency
06/2000	1 Defibrillator	\$1,500.00	50%
12/2003	11 Radio Pagers	\$2,220.00	50%
12/2003	2 Defibrillators	\$2,995.00	50%
Total Award Amounts		\$6,695.00	

Source: OEMS RSAF Award Database

Medical Direction

There is only one Operational Medical Director (OMD) for all of the agencies in Rockbridge County, Dr. John Sheridan. He participates in the CSEMS Regional Medical Control Review Committee (MCRC). This Committee reviews regional policies, updates regional protocol and approves regional preceptors/ALS coordinators. Dr. Sheridan is also an ED Physician at CSJMH.

All Rockbridge County EMS agencies and providers follow CSEMS Regional Treatment and Transport Protocols. These protocols are a comprehensive, evolving set of protocols that require minimal on-line direction for providers at all levels of training.

Quality Assurance

In calendar years 2005 and 2006, a total of 1,518 and 2,097 PPCR reports were submitted to OEMS by agencies in Rockbridge County. This number is based on EMS responses based in Rockbridge County only. As the CPTS division that is based out of CSJMH is part of one large agency with many different sub-stations, it is difficult to ascertain exactly how many responses the CSJMH division of CPTS responded to, other than to determine the number of EMS calls that originated within Rockbridge County. OEMS believes that this was the best way of gathering call volume data. Out of the total number of EMS calls for 2005, 11.2% of those calls were ALS, and 6.1% of the calls in 2006 were ALS.

In terms of Trauma versus Medical, all EMS responses with an incident disposition of either “transported” or “treated/transferred care” were considered in the evaluation. Additionally, “trauma” was determined to be any PPCR report with a clinical assessment equal to “traumatic injury”, and call type not equal to “medical emergency”. For “medical”, PPCR reports had a clinical assessment not including “traumatic injury”, and a call type of “medical emergency”. Based on those criteria, 12% of the calls in Rockbridge County in 2005, and 13% of the calls in 2006 were classified as “Trauma”.

Based on PPCR data, CSJMH received 91% and 93% of patients transported by Rockbridge County agencies in 2005 and 2006, respectively. Of note is the fact that Fairfield VRS transports roughly 62% of its patients to CSJMH, with the remainder of their patients going to Augusta Medical Center. This figure seems relatively consistent compared to other agencies in counties served by CAH hospitals whose primary response areas are on the edge of that county, and are closer to other hospitals. The remaining agencies in Rockbridge transport between 93 to 99% of their patients to CSJMH, this represents the overwhelming majority of the EMS patient volume that is received by CSJMH.

In terms of response data, agencies in Rockbridge County have varied response times, and transport times from scenes to hospitals. As was previously mentioned in this report, and based on data from 2005 and 2006, agencies in Rockbridge average 8.7 minutes from the time the call is received to the time a unit is enroute. The time from unit enroute to arrival at scene averages 13.4 minutes and time from the scene to the hospital averages to be about 12.2 minutes.

For transfers from CSJMH to other hospitals, a variety of factors come into play each of which affect the amount of time it takes to transfer a patient to another facility. Transfers are typically dependent on patient diagnosis, available beds at receiving hospitals, and patient preference.

During interviews, CSJMH staff did admit that there were “one or two times” that they were unable to admit patients due to peak census in the facility. However, none of the EMS agencies were redirected to other facilities as a result. 231 patients were transferred from CSJMH to other facilities in reviewing data submitted by CSJMH for

the time period from January 1 to June 30, 2007, 309 were transferred during the same time period in 2006.

Additionally, CSJMH does have CT services, a Labor and Delivery unit, and an orthopedic surgeon on staff, which does have some effect on the number of patients that are transported to other facilities. The majority of their patients are transferred to the following facilities:

- Carilion Roanoke Memorial Hospital, Roanoke, Virginia
- University of Virginia Medical Center, Charlottesville, Virginia
- Augusta Regional Medical Center, Fishersville, Virginia
- Lynchburg General Hospital, Lynchburg, Virginia
- Virginia Baptist Hospital, Lynchburg, Virginia

CSJMH does not collect data in terms of numbers of patients coming to their facility via EMS, or any related information.

CSJMH evaluates its services and performance improvement standards through JCAHO Acute Care Standards which have stricter guidelines to follow than the CAH Standards related to performance improvement.

To evaluate CSJMH's role as a Critical Access Hospital, the Director of Nursing continually reviews the patient length of stay and swing bed program. None of the volunteer EMS agencies reported participating in quality assurance activities with CSJMH, and reporting in general was spotty. Carilion Patient Transport Services participates in the hospitals quality assurance activities including analysis of documentation, timelines, skills provided, types of service, and availability of services.

In terms of EMS agency Quality Assurance activities, not much information was reported to reviewers. However, upon review of agency inspection reports, based on agency inspections conducted by OEMS Field Representatives in 2007, four of the thirteen agencies in Rockbridge were found to have a lack of documentation of regular reviews of PPCR reports by agency PI committees. This may or may not be indicative of a lack of regular reviews, but rather a lack of proper documentation of such. Additionally, Lexington Lifesaving and First Aid Crew was found to be in need of a PI program that was more tailored to that agency and its policies than that of CPTS. These are correctable action items, and did not negatively affect the agency's inspection.

Mass Casualty Preparedness

In the event of a mass casualty, or other disaster event, CSJMH has the surge capacity for 30 additional beds in addition to the 12 Emergency Department beds and 25 normally staffed beds in the hospital.

CSJMH has participated in emergency/disaster training provided by Northwest Region Hospital Preparedness that encompasses drills and exercises for management of mass casualties, isolation and quarantine, and hospital management systems.

System Partnerships

As was stated previously in this report, all of the EMS agencies within Rockbridge County have mutual aid agreements in place, both with each other, and with agencies in counties that adjoin Rockbridge. There is also a strong working relationship that exists between the county EMS agencies, and the county administration. All of the agencies in the county are members of the Rockbridge Emergency Rescue Group or the Rockbridge County Fire Association.

Based on interviews conducted and review of survey information, the majority of those in the EMS System in Rockbridge are not aware that CSJMH is a Critical Access Hospital. Although the hospital is the only hospital in the County, it does not advertise its CAH designation to the general public.

Hospital Capabilities

CSJMH has one physician on staff in the ED 24 hours a day, 7 days a week. A physician assistant is available six days a week (excluding Wednesdays), and provides non-emergent care. Two registered nurses (RN) and one licensed practical nurse (LPN) are on staff 24 hours a day, with a third nurse on staff from 11am to 11pm daily. CSJMH does employ EMS providers to staff the ED. The jobs they perform are dependent on their level of certification and scope of practice; however these EMT positions are being phased out, in favor of LPNs, who have a greater scope of practice.

CSJMH does not track information about the number of hospital users that “walk in” to the ED versus arrival via EMS transport or specific agency, nor do they track those patients that arrive via EMS for specific information, such as arrival by ALS versus BLS, or their disposition.

As mentioned previously in this report, CSJMH totaled 231 patient transfers from January 1 to June 30, 2007, a little over 1 transfer per day, and 309 were transferred during the same time period in 2006, which is a little over 1.5 per day. CSJMH staff that was interviewed stated that the patients that are transferred out of their facility were primarily cardiac patients, though all stroke patients receiving Tissue Plasminogen (tPA) therapies were transported directly to UVA Medical Center in Charlottesville.

CSJMH has approximately six patients per month that are transferred out of their facility by air medical transport. Carilion LifeGuard and UVA Pegasus are the primary services used, and are usually based on patient destination. Transports by air to both facilities usually average 25 to 30 minutes flight time.

Network agreements exist, and are honored with partner facilities in the Carilion Health System. Transfer agreements exist with other hospitals in the area, which have been listed previously.

V. Key Findings and Recommendations

For each area evaluated in the information in Section IV of this report, key findings, as well as some recommendations for future feasibilities will be made.

Staffing/Placement of EMS Units:

Key Findings:

In Rockbridge County, there are 96 certified EMTs for the population size of 20,808 people, or 1 EMT for every 217 people in the county. This is comparable to the total number of EMTs versus people in the Commonwealth of 1 to 204.

The number of volunteer versus career providers also seems to be comparable to most rural counties in Virginia, with a majority of providers being affiliated with volunteer agencies. None of the agencies that participated in interviews mentioned the recruitment or retention of EMS providers as issues that their respective agencies are currently facing. The age, gender, and race of EMS providers in Rockbridge seem to be relatively consistent with the demographic information of the county as a whole.

In terms of hours of EMS coverage in the county, as response times, the mere fact that CPTS provides some dedicated staffing certainly aids in keeping response times down. However, one of the struggles of the evaluation was determining how many emergencies CPTS responded to in the other agencies primary response territories, as well as how many emergencies they responded to while another vehicle was already on another emergency. Based on the fact that the Rockbridge division of CPTS is only one division of a larger agency made up of divisions in several territories, it is impossible to differentiate between them. It is worth noting that none of the agencies outside of CPTS reported having any dedicated in house staffing.

Recruitment and retention initiatives are varied, but sparse, from the free/discounted training opportunities to the benefit packages that CPTS personnel receive as employees of Carilion Health System. Again, it is worth mentioning that CPTS reported to having little turnover, and none of the other agencies mentioned any issues related to recruitment and/or retention.

Recommendations:

OEMS recommends that volunteer agencies in Rockbridge County utilize the “Keeping the Best” series of recruitment and retention workbooks offered to all EMS agencies by OEMS, in order to maintain, and increase their agency rosters. While it may be that they may not be facing urgent staffing issues, it is also appropriate to continue to strive to maintain and increase current provider numbers.

Additionally, agencies in Rockbridge should evaluate some type of dedicated staffing, as well as consideration of strategic placement of vehicles in their respective response territories.

EMS Training Initiatives

Key findings:

It seems that educational opportunities for providers in Rockbridge are relatively robust, with educational opportunities for individuals who wish to become certified as EMTs and EMT - Enhanced, as well as continuing education hours, and specialty courses, such as ITLS and PEPP. The addition of a new EMT instructor to Rockbridge County should help bring more educational opportunities to that area.

CSEMS is doing an acceptable job of making those courses available to those providers within the county, and the “Super Saturday” program seems to be effective. It is also worth noting that the CAH itself offers several training programs and clinical opportunities to EMS providers, and especially those not affiliated with CPTS.

Also, it is worth noting that none of the agencies in Rockbridge are designated as EMSAT sites with the Virginia OEMS.

Recommendations:

EMS System stakeholders, including CSJMH, CSEMS, and the individual agencies themselves, should continue to work collaboratively to ensure that opportunities for providers to obtain or maintain EMS certification. Additionally, EMS agencies in Rockbridge County, especially those in central locations within the county, should be seeking EMSAT site designation.

Communications

Key Findings:

Like many other rural areas, Rockbridge struggles with the ability to have reliable radio and cellular coverage over 100% of the county.

It was reported that agencies only provide patient reports to the CAH between 50 and 75% of the time. Also, there was no information received that would indicate that any agencies were transmitting 12 Lead EKG information from the field.

Recommendations:

Rockbridge County governmental administration should work collaboratively with internal and external entities and resources to upgrade communications abilities in

Rockbridge County. Additionally, CGMH should work collaboratively with transport agencies to promote the use of transmission of 12 Lead EKG information from the field. EMS Agencies in Rockbridge should be purchasing EMS equipment with that capability, and should strive to provide patient reports to the CAH during transports on a more frequent basis.

Fiscal Support

Key findings:

During the evaluation process, none of the agencies that participated stated that finances were an issue, though both agencies that bill for service stated that they have collections rates ranging from 26 to 50%. Return to Locality funding has been available to agencies for training, equipment, and supplies.

Additionally, it is a significant concern that there has been spotty participation in the Rescue Squad Assistance Fund grant program by agencies in Rockbridge, though over \$425,000.00 has been awarded to agencies in Rockbridge since 1997.

Recommendations:

Eligible agencies in Rockbridge County should be applying for RSAF grant funding on a consistent basis, in order to obtain updated vehicles and equipment.

Additionally, agencies that are billing for service should strive to improve their collection rates for additional revenue. OEMS does have guidance documents to assist those agencies who bill for service, or wish to bill for service, which may be helpful to these agencies.

Medical Direction

Key findings:

The agencies of Rockbridge are fortunate to have involvement by Dr. Sheridan. The fact that he is also affiliated with the CAH facility lends to maintain strong positive working relationships between the CAH and the EMS system in the county.

Dr. Sheridan has had a major effect on system and protocol development, and in provision of online and offline medical direction. It seems that Dr. Sheridan does have some role in the performance improvement programs for those agencies, though reports from OEMS Field Representatives indicate some holes in those programs, that may benefit from increased physician involvement/oversight.

Recommendation:

Dr. Sheridan, as Medical Director, should continue to be involved the system and protocol development in the region. Additionally, Dr. Sheridan should encourage, foster, as well as provide mentoring opportunities as other doctors have interest in the OMD process, or involvement in the EMS system in Rockbridge County. Finally, involvement of Dr. Asher Brand, who serves as the Regional Medical Director, and the participation of interested physicians in the OMD training course may also provide useful in furthering the EMS system in Rockbridge County as a whole.

Quality Assurance**Key Findings:**

As has been stated previously, the fact that CPTS-Rockbridge is part of one larger agency license made it difficult for reviewers to cull specific data regarding emergencies that CPTS-Rockbridge responded to. That affects all the factors to be taken into consideration under the Quality Assurance evaluation. Aside from that, it seems as though the majority of EMS responses in Rockbridge are medical in nature. CSJMH does receive the large majority (over 90%) of patients transported by agencies in Rockbridge County, though there are agencies that transport high percentages of their patients to other facilities, as they are geographically closer to those facilities.

Additionally, though all agencies have some type of call review/Performance Improvement program in place, several of them have been found to have deficiencies in documentation of PI activities. Finally, review of data did bring to light some data submission issues, but it does appear that those issues have been rectified.

In terms of CAH interfacility transports, CSJMH seems to be relatively comparable to other CAH facilities and rural hospitals in terms of the number of transfers, and the reasons for those transports. It is obvious and acceptable that CSJMH not have the means to provide specialty service for every type of medical condition, otherwise they would not have received CAH designation, but it is a good indication of strong collaboration that the CAH has agreements in place for transports of patients to other facilities. Reviewers understand the issues that may arise in those processes, which may delay transport.

Recommendations:

The agencies in Rockbridge County need to take a serious look at the methods and means that their agency performance improvement programs are structured, and those related tasks are accomplished. CSEMS has PI templates and other guidance documents that should be able to assist these agencies to fulfill their *Code of Virginia* mandated requirements related to performance improvement. In terms of transports from the CAH to other facilities, it is recommended that CGMH continues to work

collaboratively with its partner facilities to maintain network agreements, and provide an effective interfacility transport system.

Mass Casualty Preparedness/System Partnerships

Key Findings:

CSJMH has preparedness policies in place to address mass casualty/surge events. Also, several training opportunities are offered to CAH and EMS staff for Mass Casualty events by hospital preparedness agencies.

It seems that network agreements between the CAH and partner facilities, as well as mutual aid agreements between EMS agencies in Rockbridge County, and areas outside of Rockbridge, are in place, and being honored.

Recommendation:

EMS system stakeholders should continue to place emphasis on preparedness for mass casualty events, with participation and cooperation from the CAH. Additionally, EMS agencies in Rockbridge should review, revise, and update mutual aid agreements on an annual basis.

Hospital Capabilities

Key Findings

One of the items that stood out in evaluating the capabilities of the CAH is the information that the CAH does not track. It would be very helpful, for this evaluation, or for future similar evaluations, that CSJMH create a database to better determine their patient volume, especially in terms of walk in versus transport by EMS agency, as well as categorize by specific EMS agency, chief complaint, and differential diagnosis. It seems that staffing levels are appropriate for patient volume. Additionally, as has been stated previously, transport numbers and patterns seem consistent with other CAH facilities.

Recommendations:

CGMH should strive to collect additional patient data information, if for no other reason than to enhance quality of care. This will lend to better patient information between the CAH and EMS agencies. Additionally, CSJMH should review and update their network agreements on a regular basis.

Conclusion:

The Virginia OEMS believes that between existing and continuing efforts to improve the EMS System in Rockbridge, coupled with the recommendations that have been made in this report, that the EMS system in Rockbridge County will be better than ever as it moves into the future. The Virginia OEMS remains committed to provide whatever materials are necessary to meet that goal.

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Donald Austin
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Central Shenandoah EMS Council

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Appendices:

Appendix 1 - Western Virginia EMS Council Report to OEMS

Appendix 2 – Responses to survey questions by study participants.