

Virginia Critical Access Hospitals Project
EMS and Local Government Components

For
Virginia Department of Health
Office of Emergency Medical Services

Prepared by
Western Virginia Emergency Medical Services
Council

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***Western Virginia Emergency Medical Services Council
Virginia Critical Access Hospitals Project***

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Virginia Critical Access Hospitals Project

*Prepared for: The Office of Emergency Medical Services
 The Virginia Department of Health*

*Prepared by: The Western Virginia Emergency Medical Services Council
 August 20, 2007*

The Western Virginia Emergency Medical Services Council (WVEMS) conducted an analysis of Critical Access Hospitals (CAH) and the Emergency Medical Services (EMS) agencies within their regional boundaries in the Virginia counties of Giles, Patrick, and Rockbridge. WVEMS examined three key areas in the study:

- Network Agreements for CAH Certification [in conjunction with the Office of Emergency Medical Services (OEMS)]
- Survey of key stakeholders including the CAH administration, EMS and First Responder providers, County leaders, law enforcement personnel, EMS coordinators, and communication coordinators. Surveys were developed in consultation with the OEMS specifically for the CAH, EMS/First Responder agencies, and County Administration/Law Enforcement. These surveys are included in this report. In addition, site visits to the CAH and county administration and/or law enforcement offices were conducted in each county studied.
- Factors affecting the CAH's and EMS agencies' capacity including:
 - EMS Training Initiatives
 - Communications
 - Medical Direction
 - Quality Assurance
 - Mass Casualty Preparedness
 - CAH's and EMS Agencies' Capabilities

These components will be presented for each county studied.

Giles County

The Critical Access Hospital (CAH) in Giles County is Carilion Giles Memorial Hospital, a not-for-profit hospital owned by Carilion Health Systems. There are three Emergency Medical Services (EMS) agencies that serve this hospital including Carilion Patient Transport Services, Giles Lifesaving and Rescue, and Newport Volunteer Rescue Squad. Law enforcement agencies in Giles County include the Sheriff's department and police departments in the towns of Glen Lyn, Narrows, Pearisburg, Pembroke, and Richcreek. The Virginia Department of Health has an Emergency Preparedness Planner for Giles County. The county seat is Pearisburg which is the site of the CAH, Giles Lifesaving and Rescue, Sheriff's department, and county administration offices.

Network Agreements:

Based on interviews with the Chief Executive Officer at Carilion Giles Memorial Hospital, no deficiencies or gaps in the hospital's CAH certification were identified for the hospital. No specific needs or EMS initiatives regarding the CAH designation were recommended. They

have network agreements with Carilion New River Valley Medical Center in Radford, Virginia and Carilion Roanoke Memorial Hospital in Roanoke, Virginia.

Site Visits:

County Administration/Law Enforcement/Communications

A meeting of the County Administrator, the Sheriff, and the 911 Coordinator was conducted to determine their relationship with the CAH and EMS providers in Giles County.

Giles County provides funds for Emergency Medical Services (EMS) and all volunteer agencies. They assist with grant applications and have a local matching program for equipment purchases by the volunteer agencies (\$25,000 maximum match). In addition, they subsidize Carilion Patient Transport Services (CPTS) for 911 responses (business operations expenses only). CPTS is the primary 911 responder and patient transport provider during the day in the County. They have an EMS provider on duty 24 hours, 5 days per week and during the daylight hours on the weekend. One to two of their trucks are designated for 911 calls only.

The Giles County Administrator is the EMS Coordinator for Giles County. There is a very strong working relationship with the County Administrator, the Sheriff's Office, the volunteer EMS agencies, Carilion Giles Memorial Hospital and police departments in Pearisburg, Glen Lyn, Narrows, Pembroke, and Rich Creek. The Giles County Board of Supervisors is very supportive of the volunteer EMS agencies and those present at the meeting stated that Giles County has great EMS volunteers. Most of the Giles County firefighters are currently cross-training to become Emergency Medical Technicians which will greatly enhance the EMS response.

The County Administrator was on the hospital Board of Directors until four months prior to this interview. He stepped down from the position to avoid conflict of interest issues with the construction of a new facility for Carilion Giles Memorial Hospital in Pearisburg. Giles County and the Industrial Development Authority are contributing ~\$3.5 million to the project. They are providing the site for the new facility as well as doing the site preparation and utilities. The current hospital and grounds will be used to house the Giles County Administration offices when construction is complete.

The County Administrator, Sheriff, and 911 Coordinator were all aware that Carilion Giles Memorial Hospital (CGMH) is a CAH. The hospital does not provide financial support directly to the volunteer EMS agencies however a Carilion representative attends quarterly meetings of the Emergency Services Oversight Committee conducted by the County. They open their facilities for EMS training. As part of a Near Southwest Preparedness Alliance emergency preparedness program, the hospital fitted officers in the Giles County Sheriff's Department with N-95 respirators in the event of an airborne pathogens outbreak.

Critical Access Hospital

A meeting of the Chief Executive Officer, the Emergency Department's Director of Nursing, and the Carilion Patient Transport Services (CPTS) Coordinator was conducted to determine what effects Critical Access Hospital (CAH) conversion has had on the Carilion Giles Memorial Hospital system.

Carilion Giles Memorial Hospital (CGMH) has had CAH designation for the past five years. They have established network agreements with supporting hospitals. No recent changes in their policies and/or procedures have occurred as a result of CAH designation. They are JCAHO (Joint Commission) and CAP (College of American Pathologists) accredited. JCAHO inspection in February 2006 revealed no deficiencies.

According to its Chief Executive Officer, CGMH is one of the busiest CAH's in the Commonwealth. Its success is due in large part to having CPTS in place at the hospital with a dedicated truck for 911 calls. CGMH has a strong working relationship with the County EMS Coordinator, law enforcement officials, volunteer fire and rescue agencies, and the Celanese Corporation. The hospital works with these agencies participating in disaster drills, N-95 mask fitting for the Sheriff's Department and other emergency management programs. They educate their staff and communicate changes in emergency management policies as they occur. CGMH is working hard to be a Champion of Health Care in Giles County.

***Factors Affecting the Critical Access Hospital and Emergency Medical Services Capacity:
Emergency Medical Services Training Initiatives***

The availability of Emergency Medical Services (EMS) training and continuing education opportunities in Giles County includes the following:

- Yearly offerings of initial Enhanced certification course and Advanced Life Saving (ALS) continuing education hours in Giles County by the Western Virginia Emergency Medical Services Council (WVEMS).
- Emergency Medical Technician (EMT) Basic course offered by EMT Instructor in Giles County each year.
- Active continuing education program offered throughout Giles County by Carilion Giles Memorial Hospital.

The WVEMS offers 48 hours of ALS continuing education hours each year to Giles County providers at locations in Giles County and throughout Planning District 4. An EMT-Enhanced certification course was offered in 2007. Three Giles County providers enrolled and became certified as an Enhanced provider in 2007. Adjunct certification programs such as ITLS, PEPP and AMLS are offered for personnel in Giles County.

Carilion Giles Memorial Hospital offers providers of Giles County adjunct certifications in ACLS, PALS and NRP. The nursing staff at the hospital provides supervision of students enrolled in WVEMS sponsored initial certification programs. RN's employed by Carilion-Giles Memorial Hospital and Carilion Patient Transport Services staff are actively teaching PALS, ACLS and NRP.

Communications

Giles County has been E-911 countywide since 1992. The dispatch office is part of the Giles County Sheriff's office. The dispatch office sends tones using a radio system. One EMS agency uses pagers. All three Emergency Medical Services (EMS) agencies use radio, and at times cell phones, to communicate with the Critical Access Hospital (CAH). These agencies have

provided patient reports to the Emergency Department 76 to 100 percent of the time within the past twelve months.

The rural, mountainous terrain of Giles County has dead pockets where radio and cell phone communication does not function however this is improving. Homeland Security funds are being used to upgrade communications by expanding to high frequency VHF band width which can link to low-band frequencies used in surrounding counties. The fire and rescue agencies in the County are on the same frequency. U.S. Cellular towers are being installed in Giles County. There is limited cell phone coverage and is available primarily along the Route 460 and 100 corridors. Upgrades in the cell phone coverage for Carilion Patient Transport Services (CPTS) and the CAH were provided by the Near Southwest Preparedness Alliance via Nextel. CPTS uses communication towers located in Monroe County which allows them to hear EMS agencies from Giles County to Roanoke.

Medical Direction

There are three Operational Medical Directors (OMD) in Giles County. Drs. Douglas Scott Hayes and Carol Gilbert are affiliated with Carilion Health Systems. Dr. Hayes is the OMD for Giles Lifesaving & Rescue Squad and Dr. Gilbert for CPTS. Dr. Julia Weiseman is the OMD for Newport Volunteer Rescue Squad.

Dr. Hayes is a member of the Medical Direction committee for the WVEMS. He participated in review and revision of the WVEMS protocols during a major revision in 2006. Dr. Hayes is an active member of Giles Rescue Squad and frequently answers EMS calls for the Giles County community. He provides field care and supervision of EMS providers, giving first hand experience and knowledge to their learning environment. Dr. Hayes is an Emergency Department Physician for Carilion Giles Memorial Hospital.

Through Dr. Hayes' involvement with the EMS community he provides direction and supervision not only through off-line participation but on-line, directing the EMS providers from the Emergency Department. Dr. Hayes responds to many EMS calls in the County, providing direct supervision of the EMS providers as well as rendering care.

Dr. Weiseman is a member of the Medical Direction committee for WVEMS. She participated in the review and revision of the WVEMS protocols in 2006 as well. She is an Emergency Department Physician for HCA Montgomery Regional Hospital in Christiansburg, Virginia.

Giles County EMS providers follow WVEMS Regional Protocol for the treatment, transfer, and transport of patients established in the WVEMS Regional Trauma Triage Plan. As an active member of the Giles Rescue Squad, Dr. Hayes does monthly Performance Improvement (PI)/Trauma Performance Improvement (TPI) review of EMS runs. An active PI/TPI program is in effect for Giles Lifesaving and Rescue. Dr. Weiseman participates in quarterly review of the Newport Volunteer Rescue Squad PI program. Carilion Patient Transport Services (CPTS) – Giles Division is under the supervision of Dr. Carol Gilbert. Dr. Gilbert has established guidelines and an effective PI/TPI program for all CPTS division. CPTS has monthly quality assurance meetings where they review transport standards and call types.

Quality Assurance

Carilion Giles Memorial Hospital (CGMH) evaluates its services and performance improvement standards through Joint Commission (JCAHO) and College of American Pathologists (CAP) surveys. CAP accreditation is for the laboratory and measures turn-around times for stat laboratory tests ordered by the Emergency Department. CGMH has a strong medical staff and a Director of Performance Improvement who ensure that the hospital adheres to survey requirements. CGMH's CEO stated that there is a lack of benchmark data for CAH's especially for small hospitals which makes it difficult for them to compare their services/progress as a Critical Access Hospital with similar facilities. Core measures at CGMH may be skewed because of low numbers as compared to larger facilities.

Mass Casualty Preparedness

In the event of a mass casualty, CGMH has the surge capacity for 20 additional beds in addition to the five ED beds and 25 normally staffed beds at the hospital. Plans for their new Emergency Department include eight beds, a triage room, an Ear Nose Throat (ENT) room, and a prisoner/psychiatric room.

The Near Southwest Preparedness Alliance has offered emergency/disaster training to CGMH including:

- Hazardous materials/ decontamination
- Trauma/burn management
- Basic/advanced disaster life support
- National Disaster management system
- Hospital Incident Management System
- Psychosocial / Behavioral Health aspects of Terror
- Personal protective equipment
- Management of mass casualties
- Isolation and quarantine
- Pandemic Flu
- Drills and exercises

Critical Access Hospital's Capabilities

1. **Emergency Department (ED) staff:** The number and qualifications of the ED staff at Carilion Giles Memorial Hospital (CGMH) include:
 - a. One physician staffs the ED 24 hours per day, 7 days per week. An additional physician is on staff from 2 p.m. to 10 p.m. on Saturday, Sunday, and Monday.
 - b. Two nurses on staff 24 hours per day, 7 days per week with a third nurse on staff from 11 a.m. to 11 p.m. each day.
 - c. They do not employ Emergency Medical Services (EMS) personnel in the ED. However, Emergency Medical Technicians (EMT's) from Carilion Patient Transport Services (CPTS) and the volunteer EMS agencies in Giles County will help out in the ED if needed especially on the night shift. EMT's will assist with care based on their certifications and qualifications. According to the CGMH CEO, "we are all family here".

2. **Demographics of Patient Transfers:** CGMH uses CPTS- Giles Department for patient transfers. CPTS has four trucks with one dedicated to 911 calls for Giles County. Rarely Giles Lifesaving and Rescue or Newport Volunteer Rescue Squads will do transfers. The hospital does not compensate these agencies for these transports. In addition, CGMH may call Lifeline Ambulance Service (Christiansburg) or Guardian Ambulance Service (Wytheville). The ambulance companies have a fee-for-service and can be very expensive.

In the past 12 months, CGMH has been unable to admit patients from the ED when at peak census. Data for October 2006 to April 2007 revealed that CGMH was at peak census one day in December and January and two days in October, November, and March.

Transfer is dependent on the patient's diagnosis, available beds at supporting hospitals, and patient's preference. For example, there are no orthopedic surgeons/services at CGMH so many patients requiring these services are transferred to Montgomery Regional Hospital in Christiansburg which has the nearest orthopedic staff. When agencies respond to a call for an isolated fracture, the providers will advise the patient that CGMH does not have orthopedic services and will give the patient the option to be directly transported to Montgomery Regional Hospital or Carilion New River Valley Medical Center in Radford. Some patients prefer to be transported to CGMH despite the lack of orthopedic services on-site.

All patients are transferred outside of the county to a supporting hospital for care.

- a. Number of transfers: Transfers from CGMH (total = 139) to receiving hospital January- June 2007 for all reasons including peak census days:
1. Carilion New River Valley Medical Center: 35 (25.2%)
 2. Carilion Roanoke Memorial Hospital: 81 (58.3%)
 3. Carilion Roanoke Community Hospital: 7 (5%)
 4. Montgomery Regional Hospital: 21 (15.1%)
 5. Princeton Community Hospital: 8 (5.8%)
 6. Other: 22 (15.8%)
- b. Types of transfers
- i. Service not offered at CGMH: 136 (78.2%). Services not available at CGMH which require transfers include the following:
 1. Cardiology (31.6% of transfers Jan-June 2007)
 2. Orthopedics (13.2% of transfers Jan-June 2007)
 3. Trauma (5.2% of transfers Jan-June 2007)
 4. Renal (5.2% of transfers Jan-June 2007)
 5. Psych (10.9% of transfers Jan-June 2007)
 6. Other- including pediatrics and OB (33.9% of transfers Jan-June 2007)
 - ii. No ICU Bed Available: 17 (9.8%)
 - iii. No Beds Available: 6 (3.4%)
 - iv. Hospitalist Request: 4 (2.3%)
 - v. PMD located at other facility: 7 (4.0%)

- vi. Patient/Family Request: 4 (2.3%)
 - c. Equipment used: Data not available
 - d. Ground versus air transport: A helipad is located at CGMH and they use primarily Carilion Life Guard 11. There is at least one flight/day.
3. **Volume of Patients arriving in the ED**: The number of ED users at CGMH has been increasing by 3 to 4% each year. Total ED visits for years 2000-2006 are as follows:
- 2000: 9870 visits
 - 2001: 10,039 visits
 - 2002: 9908 visits
 - 2003: 9424 visits
 - 2004: 10,269 visits
 - 2005: 11,113 visits
 - 2006: 11,913 visits
 - As of July 23, 2007: 9,321 visits (They currently average 1000 ED visits/month.)

Most users are elderly ranging in age from 60 to 80 years (average age is 72 to 78 years old). Almost 40% of patients transported to CGMH are from Monroe County, West Virginia which is in Giles County's catchment area.

- a. Number of patients arriving via specific EMS agency: No CGMH data available demonstrating the number of users that walk-in to the ED versus transported in. EMS agencies and CPTS collect this data on the patients they transport to the ED.
 - b. ALS versus BLS: No CGMH data available. EMS agencies and CPTS collect this data.
 - c. Types of calls: No CGMH data available. EMS agencies and CPTS collect this data.
 - d. Patient Disposition: No CGMH data available. EMS agencies and CPTS collect this data.
4. **Critical Access Hospital and Support Hospital(s)**: CGMH has Network Agreements with Carilion New River Valley Medical Center (CNRVMC) and Carilion Roanoke Memorial Hospital (CRMH) which is a tertiary care facility and trauma center. All three hospitals belong to Carilion Health Systems. In addition, patients may be transferred to Carilion Roanoke Community Hospital (CRCH), Montgomery Regional Hospital (MRH), and Princeton Community Hospital (PCH). Distance and transfer times to these hospitals are as follows:
- CNRVMC: 33 miles; 40 minutes.
 - CRMH: 65 miles; 1 hour, 15 minutes.
 - CRCH: 66 miles; 1hour, 15 minutes
 - MRH: 27 miles; 34 minutes
 - PCH: 29 miles; 37 minutes

According to CGMH's CEO there are occasionally pragmatic issues that must be addressed with Emergency Department (ED) to ED transfers. Admissions may be prevented at supporting/receiving hospitals if the physician/specialist is unwilling to

accept an admission/new patient; the patient's care is out of their scope of services; or they have no beds available.

Emergency Medical Services Capabilities

1. **Emergency Medical Services (EMS) Agencies in Giles County:**

- a. Volunteer agencies: There are two volunteer agencies in Giles County. Both agencies provide 911 on-call coverage 24 hours per day, 7 days per week. None of the staff are paid. Giles Life Saving and Rescue has 45 members ages 16 years to 70 years of age. Newport Volunteer Rescue Squad has 30 active and inactive members ages 18 years to 68 years of age. Both agencies have male and female providers and the majority is Caucasian. Recruitment initiatives for these agencies include offering free training and/or paying tuition fees for training; offering an observer program for possible recruits; and initiatives offered through the Virginia Association of Volunteer Rescue Squads.
- b. Career agencies: The only career agency in Giles County is Carilion Patient Transport Services- Giles Division (CPTS). CPTS offers dedicated coverage 24 hours per day, 7 days per week. They discontinued their on-call program six months prior to this study. Of their four trucks, they have one dedicated 911 truck that is available 16 hours per day and is the primary 911 responder for the County during the day. If the 911 truck is out on a call, the call rolls over to other CPTS trucks. Before these trucks can respond to a call they have to coordinate with the central Carilion dispatch office in Roanoke to ensure there are no scheduled transports. All 25 staff are paid employees of Carilion Health System ranging in age from 20 to 62 years of age. All but one of the staff are male and all are Caucasian. Approximately 50% volunteer with a fire and/or rescue agency in Giles County when not working for CPTS. New staff are recruited through Carilion Health Systems although there is minimal turn-over in the department.

2. **Emergency Department Transports:** All EMS agencies transport patients to Emergency Departments (ED). The majority of these transports by CPTS and Giles Life Saving and Rescue are to Carilion Giles Memorial Hospital (CGMH). CPTS also transports to ED's at Montgomery Regional Hospital, Carilion New River Valley Medical Center, Carilion Roanoke Community Hospital, Carilion Roanoke Memorial Hospital, Princeton Community Hospital, Pulaski Community Hospital, UVA-Charlottesville, and the Veteran's Administration Medical Center in Salem. Because it borders Montgomery County, Newport Volunteer Rescue Squad transports equally to CGMH and Montgomery Regional Hospital in Christiansburg.

- a. Number of transports/calls:
 - i. CPTS: 1,115 transports (October 2006 to June 2007). The majority of these transports were for adults age 40 years and older. CPTS ED transport data was provided for this report and is included in the attachments.
 - ii. Giles Life Saving and Rescue: 1000 transports in the past twelve months
 - iii. Newport Volunteer Rescue Squad: 207 calls in the past twelve months
- b. Life Saving requirements:

- i. CPTS: 385 ALS vs. 357 BLS
 - ii. Giles Life Saving and Rescue: 35% ALS vs. 65% BLS
 - iii. Newport Volunteer Rescue Squad: Data not available.
 - c. **Types of calls:** All three agencies reported that the majority of their calls were for medical emergencies. Additional calls were for motor vehicle accidents, falls, general illness, fire stand-bys, ALS intercept (CPTS), and public service events. CPTS call data for October 2006 to July 2007 was provided for this report and is included in the attachments.
 - d. **Patient Disposition:** This data was not available from any of the three agencies surveyed. The Newport Volunteer Rescue Squad stated they report this information to the Office of Emergency Medical Services.
 - e. **Communications with Emergency Departments:** All three agencies provide reports to the Emergency Departments (ED) 75 to 100% of the time and communicate en route to the Departments via radio or cell phone. Newport Volunteer Rescue Squad has two vehicles with heart monitors (one MRL and one Zoll) that can transmit to the ED.
- 3. Fee for Service:** Of the three EMS providers in Giles County, CPTS and Giles Life Saving and Rescue have a fee-for-service for patient transports. CPTS' collection rate for interfacility transports is 38%. Giles Life Saving and Rescue will bill the patient's insurance company but seldom will bill the patient for the fee. Their collection rate has been 26 to 50% in the past twelve months.
- 4. Average Response Time:** Average response times vary for the three agencies in Giles County.
- CPTS: 1 to 2 minutes for the dedicated 911 truck. The trucks assigned for patient transport have a response time of 2 to 3 minutes because they need to check in with Carilion Central Dispatch to ensure they do not have any scheduled transports. The agency does not have sub-stations in the County.
 - Giles Life Saving and Rescue: 4 to 9 minutes. Based on their response times, call volume, and location of calls, the agency has strategically placed units at sub-stations in Pembroke and Glen Lyn which has helped improve their response times in the past four months.
 - Newport Volunteer Rescue Squad: 15 minutes.
- 5. Mutual Aid Agreements:** All three EMS agencies in Giles County have mutual aid agreements that are honored with each other and with EMS agencies in the surrounding Virginia counties of Craig and Montgomery and the West Virginia County of Monroe. In addition there are mutual aid agreements with the Celanese Corporation in Narrows (Giles County). The Corporation's internal rescue services can provide mutual aid within an eight mile radius of their plant.
- 6. Transfers from the Critical Access Hospital:** The EMS agencies in Giles County were aware that Carilion Giles Memorial Hospital (CGMH) was a Critical Access Hospital (CAH). All agencies communicate en route to the CAH's Emergency Department (ED) and provide patient reports to the ED. In the past twelve months, the Giles Life Saving

and Rescue agency reported being told by the CAH to redirect a transport two or three times because the hospital was at capacity. This was communicated by the hospital via the dispatch office or by calling the squad directly. CPTS reported that CGMH will stabilize a patient in the ED before transferring to a supporting hospital even if it is at capacity. The majority of the transfers to supporting hospitals from the CAH are performed by CPTS and occasionally by Giles Life Saving and Rescue. Where they transfer to, and the distance and time involved in the transfer are as follows:

- a. Transfers from CGMH by CPTS to receiving hospital January- June 2007 for all reasons including peak census days:
 - i. Carilion New River Valley Medical Center (CNRVMC): 25.2% of transfers; distance is 33 miles and 40 minutes driving time.
 - ii. Carilion Roanoke Memorial Hospital (CRMH): 58.3% of transfers; distance is 65 miles and 1 hour, 15 minutes driving time.
 - iii. Carilion Roanoke Community Hospital (CRCH): 5% of transfers; distance is 55 miles and 1 hour, 15 minutes driving time.
 - iv. Montgomery Regional Hospital (MRH): 15.1% of transfers; distance is 27 miles and 34 minutes driving time.
 - v. Princeton Community Hospital (PCH): 5.8% of transfers; distance is 29 miles and 34 minutes driving time.
 - vi. Other (Pulaski, UVA, Lewis Gale, VA Hosp-Salem, out of state): 15.8% of transfers.
 - vii. From October 2006 to July 31, 2007, CPTS- Giles had 563 scheduled transports.
- b. Transfers from CGMH by Giles Life Saving and Rescue are usually to CNRVMC or MRH and require 35 minutes to one hour of driving time. CGMH does not compensate the agency for these transfers.

Patrick County

The Critical Access Hospital (CAH) in Patrick County is RJ Reynolds- Patrick County Memorial Hospital (RJRPCM). It is a for profit hospital. There are seven Emergency Medical Services (EMS) agencies that serve this hospital including Ararat Rescue Squad; Blue Ridge Volunteer Rescue Squad; CCDF Volunteer Fire Department and Rescue Squad; Jeb Stuart Rescue Squad; Smith River Rescue Squad; Vesta Rescue Squad; and RJRPCM's Patient Transport Services. In addition to these agencies, there are two first responder agencies- Moorefield Store Fire Department and Patrick Henry Fire Department (located in the adjacent county of Henry). The largest EMS agency in Patrick County, Jeb Stuart Rescue Squad, did not participate in this study. Law enforcement is coordinated by the Patrick County Sheriff's department. The county seat is Stuart which is the site of the CAH, CCDF Volunteer Fire Department and Rescue Squad, Jeb Stuart Rescue Squad, Sheriff's Department, and county administration offices.

Network Agreements:

Based on interviews with the Chief Executive Officer at RJRPCM, no deficiencies or gaps in the hospital's CAH certification were identified for the hospital. No specific needs or EMS initiatives regarding the CAH designation were recommended. They have a network agreement with Wake Forest University Baptist Hospital in Winston-Salem, North Carolina.

Site Visits:

County Administration/Law Enforcement/Communications

The County Administrator, the County Sheriff, and the E-911 coordinator for Patrick County were interviewed for this study to determine their relationship with the CAH and EMS providers in Patrick County.

Patrick County provides funds for placement equipment and vehicles for all of the volunteer EMS agencies in the county. They do not provide any financial support to the CAH. The County Administrator reported that he had a limited working relationship with EMS and Fire agencies in the County however as the acting Emergency Management Coordinator for Patrick County he works closely with these agencies. He has been on the scene of several fire and rescue events. He is currently working with the volunteer agencies on equipment and training needs. It was recently discovered that the gas detectors in use by the Fire Departments have sensors that have expired. The EMS Coordinator was able to get local funds approved by the Patrick County Board of Supervisors to purchase new sensors for the detectors. In addition, he is seeking funds (grant or other) to help upgrade the AED's in the schools, county administration offices, and some of the volunteer EMS/Fire agencies in the county. The "blue" AED's require a software upgrade and the "orange" AED's need to be replaced. The Board of Supervisors and County Administrator are in the process of interviewing candidates for the vacant Emergency Management Coordinator position.

Much of the information communicated to the community by the hospital occurs through the media and/or word of mouth. RJ Reynolds- Patrick County Memorial Hospital has been featured on local radio shows, in newspaper ads, or in business/human interest stories in the newspaper. The County Administrator does not attend regular meetings with the hospital. The County is currently working with the hospital on their pandemic flu plan and is very supportive of the hospital and its staff. The hospital restocks all the drug boxes for the volunteer EMS agencies and its' auxiliary provided AED's to the elementary schools in the County. Although the County Administrator was aware that the hospital was a CAH, the Sheriff and E-911 were not familiar with this designation.

The County Administrator is very pleased and proud of the Fire and Rescue volunteers that serve Patrick County. Occasionally there are delays in response time with the volunteer agencies depending on the time of day they respond to a call. Many of the volunteers work during the day and are unavailable to assist. The hospital patient transport services provide back-up 911 services. The County dispatcher will call the volunteer agency in the area of the call. If they are unable to respond the dispatcher will send out a mutual aid message and then request back-up from RJ Reynolds.

The Sheriff's office may at times transport the inmates to the CAH from the regional jail for emergency and routine care one to two times per week. Two of the jailers are Emergency Medical Technicians-Basic. Rarely do law enforcement personnel in Patrick County act as first responders.

A centralized 911 dispatch office is located in the Sheriff's Department serving all of Patrick County. Challenges faced by the dispatch office include difficulty getting a volunteer EMS

squad together for a call especially during working hours. Often they utilize the hospital's Patient Transport Services for 911 calls during these times. The dispatcher sets off tones (first then second) to page EMS providers.

Critical Access Hospital

A meeting of the Chief Executive Officer and the Director of Nursing was conducted to determine what effects Critical Access Hospital (CAH) conversion has had on RJ Reynolds-Patrick County Memorial Hospital (RJRPCM). In preparation for CAH designation, the Virginia Department of Health worked closely with hospital personnel on charting requirements and trained staff on CAH regulations. Admission criteria changed to a length of stay of 96 hours. Other changes included closing the Cardiac Care and Labor and Delivery units; no CT scan capability; and the lack of full-time orthopedic surgeon on staff all of which increased Emergency Department (ED) transfers to hospitals in surrounding areas.

The hospital however already had an ED physician on staff 24 hours per day, 7 days per week. The CAH conversion did not change the hospital's relationship with area EMS providers who work closely with hospital staff often times helping in the ED if needed.

Factors Affecting the Critical Access Hospital and Emergency Medical Services Capacity: *Emergency Medical Services Training Initiatives*

The availability of Emergency Medical Services (EMS) training and continuing education opportunities in Patrick County includes the following:

- Yearly offerings of initial Enhanced certification course and ALS Continuing Education hours at Patrick Henry Community College – Stuart location by Western Virginia Emergency Medical Services Council (WVEMS).
- EMT Basic course offered by EMT Instructor in Patrick County each year.

WVEMS offers 24 hours of Advanced Life Support continuing education hours each year in Patrick County at the Patrick Henry Community College – Stuart location. Additionally, an initial EMT-Enhanced certification course is offered each year at this same location. The last class held there was in the Spring of 2006. The program this past year did not spark interest but will be offered again for Spring of 2008. Adjunct certification programs such as ITLS, PEPP and AMLS are advertised each year for Patrick County. Often these programs are not held due to lack of provider participation.

The nursing staff of RJRPCM has provided supervised precepting of student enrolled in WVEMS sponsored initial certification programs. RN's employed by the hospital are actively teaching Continuing Education courses offered by WVEMS as well as teaching an Emergency Medical Technician (EMT)-Basic course yearly in the Patrick County area. RJRPCM will begin offering ALS classes to all residents in Patrick County who are interested in the certification.

Communications

Patrick County has E-911 and the dispatch office is located in the County Sheriff's office. The dispatch office sends tones using a radio system. The six EMS agencies who participated in this study reported using radio primarily, and at times cell phones, to communicate with the Critical

Access Hospital (CAH). These agencies have provided patient reports to the Emergency Department (ED) 76 to 100 percent of the time within the past twelve months.

The two first responder units do not communicate with the ED at the CAH.

Challenges in communications between EMS agencies and the CAH are due to the rural, mountainous terrain of Patrick County. Dead pockets occur where radio and cell phone communication does not function. Cell phone coverage is hit or miss in many areas of Patrick County. EMS agencies are using the “hear system” to communicate with the CAH.

Medical Direction

There is one Operational Medical Director in Patrick County, Dr. Diane Rowell, who is also the Emergency Department Director for RJ Reynolds Patrick County Memorial Hospital.

Dr. Rowell is a member of the Medical Direction committee for WVEMS. She participated in review and revision of the WVEMS protocols during a major revision in 2006. Her off-line and on-line participation with EMS providers is unknown. Dr. Rowell monitors the Emergency Medical Technician (EMT) program at the hospital. Patrick County EMS providers follow WVEMS Regional Protocol for the treatment, transfer, and transport of patients established in the WVEMS Regional Trauma Triage Plan.

Quality Assurance

RJ Reynolds Patrick County Memorial Hospital (RJRPCMH) evaluates its services and performance improvement standards through Joint Commission (JCAHO) mandated quality assurance (QA) procedures. RJRPCMH’s most recent JCAHO survey in January 2007 revealed no deficiencies. Wake Forest University Baptist Hospital provides QA reviews as needed as well. In addition, the Director of Nursing reviews Emergency Department data provided by EDCare Management. The hospital tracks patient length of stay to ensure compliance with Critical Access Hospital requirements.

Three of the six EMS agencies participate in QA programs with the hospital and all do QA Management reporting which is reviewed by the agencies.

Mass Casualty Preparedness

In the event of a mass casualty, CGMH has the surge capacity for 18 additional beds in addition to the five ED beds and 25 normally staffed beds at the hospital.

The Near Southwest Preparedness Alliance has offered emergency/disaster training to CGMH including:

- Hazardous materials/ decontamination
- Trauma/burn management
- Basic/advanced disaster life support
- National Disaster management system
- Hospital Incident Management System
- Psychosocial / Behavioral Health aspects of Terror
- Personal protective equipment

- Management of mass casualties
- Isolation and quarantine
- Pandemic Flu
- Drills and exercises

Critical Access Hospital's Capabilities

1. **Emergency Department (ED) Staff:** The number and qualifications of the ED staff at RJ Reynolds Patrick County Memorial Hospital (RJRPCMH) include:
 - a. One physician staffs the ED 24 hours per day, 7 days per week. RJRPCMH contracts with United Emergency Services for this position. In addition, they contract with Night Hawk Radiology Services for radiologist review services 24 hours per day, 7 days per week.
 - b. One RN is on staff 24 hours per day, 7 days per week.
 - c. One Secretary is on staff 24 hours per day, 7 days per week.
 - d. RJRPCMH employs six full-time, and nine part-time, Emergency Medical Technicians (EMT) for their Patient Transport Services. One EMT is on-staff 24 hours per day, 7 days per week with two additional EMT's on staff for weekends, holidays, and county festivals. RJRPCMH's Patient Transport Services is the only ACLS crew readily available in the county 24 hours per day, 7 days per week. There is always at least one ALS EMT on staff at all times. The hospital is centrally located in the county and therefore they can respond more rapidly than many of the volunteer EMS agencies especially when an ALS provider is needed. The EMT's act as patient care assistants when not on a run including, but not limited to triage, IV's, phlebotomy, and EKG's.
2. **Demographics of Patients Transfers:** The majority of patient transfers are done by RJRPCMH patient transport services. The hospital is in need of a new ambulance as its current truck has over 300,000 miles. Most of the volunteer EMS agencies in the county do not transport patients outside the county because this would leave their agencies without coverage locally. Patient transport services (PTS) contracts with the local nursing home for routine transports as well. The hospital has a 25 bed nursing home. Approximately 47% of these transfers for the PTS are emergency transports versus 53% scheduled transports. Occasionally the hospital will call Stone's Ambulance Service in Martinsville (paid service) for a transfer. The Veterans Administration will transfer its patients from RJRPCMH.

In the past twelve months, the hospital has had not been unable to admit patients from the Emergency Department (ED) due to a lack of available beds.

All patients are transferred outside of the county to a supporting hospital for care.

- a. Number of transfers: Transfers from RJRPCMH [98 (YTD 2007); 356 (2006)] to the following supporting hospitals:
 - i. Wake Forest University Baptist Hospital, Winston-Salem, North Carolina
 - ii. Forsyth Memorial Hospital, Winston-Salem, North Carolina
 - iii. Carilion Roanoke Memorial Hospital, Roanoke, Virginia
 - iv. UVA Medical Center, Charlottesville, Virginia

- v. Brennan's Children Hospital, Greensboro, North Carolina
 - vi. Martinsville Memorial Hospital, Martinsville, Virginia. RJRPCMH uses this hospital for outpatient x-rays as well.
- b. Types of transfers: Transfer is dependent on patient's diagnosis, patient preference, and availability of services at RJRPCMH. The hospital has experienced an increase in the number of transfers due to lack of a Cardiac Care Unit, Labor and Delivery Unit, CT scan, and full-time orthopedic surgeon.
- c. Equipment used: Data not available
- d. Ground versus air transport: RJRPCMH does not have a helipad on-site. Air transport is provided by Wake Forest University Baptist Hospital Air Care and Carilion Roanoke Memorial Hospital Life Guard 10.
3. **Volume of Patients arriving in the ED**: At times agencies may be asked to redirect transport to the Critical Access Hospital (CAH) ED due to lack of services including Cardiac Care, Labor and Delivery, Orthopedic Services and CT scan. (*ED Care Data Jan-Mar 2007. ED Care Data for 2006*)
- a. Numbers arriving via specific EMS agency
 - i. **170 (YTD 2007)**
 - ii. **968 (2006)**
 - b. ALS versus BLS: ***This information not available***
 - c. Types of calls
 - i. **Trauma: 24.8% (YTD 2007); 24.4% (2006)**
 - ii. **Behavioral: 2.4% (YTD 2007); 2.2% (2006)**
 - iii. **Toxic: 2.2% (YTD 2007); 4.6% (2006)**
 - iv. **Cardiac: 1.9% (YTD 2007); 2.9% (2006)**
 - v. **Burns: 0.3% (YTD 2007); 0.4% (2006)**
 - vi. **Total Rechecks: 0.3% (YTD 2007); 0.3% (2006)**
 - vii. **Perinatal: 0.2% (YTD 2007); 0.1% (2006)**
 - d. Patient Disposition
 - i. **Admits: 5.9% (YTD 2007); 7.3% (2006)**
 - ii. **LWOT: 0.5% (YTD 2007); 0.3% (2006)**
 - iii. **AMA: 0.4% (YTD 2007); 0.7% (2006)**
 - iv. **Transfers: 7.1% (YTD 2007); 5.6% (2006)**
 - v. **Expired: 0.4% (YTD 2007); 0.1% (2006)**
4. **Critical Access Hospital and Support Hospital(s)**: RJ Reynolds Patrick County Memorial Hospital has a Network Agreement with Wake Forest University Baptist (WFBH) Hospital in Winston-Salem, North Carolina. In addition, as previously noted, patients may be transferred to Forsyth Memorial Hospital (FMH), Winston-Salem, North Carolina; Carilion Roanoke Memorial Hospital (CRMH), Roanoke, Virginia; UVA Medical Center, Charlottesville, Virginia; Brennan's Children's Hospital (BCH), Greensboro, North Carolina; and Martinsville Memorial Hospital (MMH), Martinsville, Virginia. Distance and transfer times to these hospitals are as follows:
- WFBH: 68 miles; 55 minutes
 - FMH: 56 miles; 60 minutes
 - CRMH: 76 miles; 1 hour 10 minutes

- UVA: 189 miles; 3 hours
- BCH: 68 miles; 55 minutes
- MMH: 27 miles; 30 minutes

Emergency Medical Services Capabilities

1. **Emergency Medical Services (EMS) Agencies in Patrick County:**

- Volunteer agencies: There are six volunteer EMS agencies in Patrick County and two First Responder agencies. Five of these EMS agencies Ararat Rescue Squad, Blue Ridge Volunteer Rescue Squad, CCDF Volunteer Fire Department and Rescue Squad, Smith River Rescue Squad, and Vesta Rescue Squad as well as the two first responder agencies- Moorefield Store Fire Department and Patrick Henry Fire Department (located in the adjacent county of Henry) participated in this study. All the EMS agencies provide 911 on-call coverage 24 hours per day, 7 days per week. The First Responder agencies do not transport patients. The EMS agencies have 18 to 32 members, ranging in age from 16 to 70 years of age. They all have male and female providers and the majority is Caucasian. Recruitment initiatives for these agencies include Open House; providing fees for tuition and books for training; and purchasing jump kits and radios for providers. Not all of the agencies actively recruit members.
- Career agencies: The only career agency in Patrick County is RJ Reynolds Patrick County Memorial Hospital's Patient Transport Services (PTS). PTS offers dedicated coverage at the station/vehicle 16 hours per day, seven days per week and 8 hours of on-call coverage the remainder of the time. Sixty-six (66) percent of ALS coverage in the county is provided by PTS. They employ six full-time and nine part-time Emergency Medical Technicians (EMT), ranging in age from 20 to 50 years of age. All but three are male and all are Caucasian. All hospital EMT's also are members of volunteer Emergency Medical Services (EMS) agencies in the county. New employees are recruited through the hospital system.

2. **Emergency Department Transports:** All EMS agencies transport patients to Emergency Departments including RJ Reynolds Patrick County Memorial Hospital (RJRPMH); Northern Hospital, Surry County, North Carolina; Wake Forest University Baptist Hospital, Winston-Salem, North Carolina; Martinsville Memorial Hospital, Martinsville, Virginia; Carilion Franklin Memorial Hospital, Rocky Mount, Virginia; and Twin County Hospital, Galax, Virginia.

- Number of transports/calls:
 - RJRPMH PTS: Over 700 runs in the past twelve months. [265 (Jan 1- April 30, 2007), 71 (May 1- July 11, 2007)]
 - Ararat Rescue Squad: 107 transports in the past twelve months.
 - Blue Ridge Volunteer Rescue: 250 transports in the past twelve months
 - CCDF Volunteer Fire Department & Rescue Squad: 136 transports in the past twelve months
 - Smith River Rescue Squad: 241 transports in the past twelve months
 - Vesta Rescue Squad: 90 transports in the past twelve months.
- Life Saving requirements:

- i. RJRPCMH PTS: 52% ALS vs. 48% BLS
 - ii. Ararat Rescue Squad: 45% ALS vs. 55% BLS
 - iii. Blue Ridge Volunteer Rescue: 80% ALS vs. 20% BLS
 - iv. CCDF Volunteer Fire Department & Rescue Squad: 25% ALS vs. 75% BLS
 - v. Smith River Rescue Squad: 47% ALS vs. 53% BLS
 - vi. Vesta Rescue Squad: 60% ALS vs. 40% BLS
 - c. Types of calls: All agencies reported that the majority of their calls were for medical emergencies. Additional calls were for motor vehicle accidents, and mutual aid. The PTS reported 141 routine transports from January 1, 2007 to April 30, 2007.
 - d. Patient Disposition: Patient dispositions included treated and transported, treated and transferred care, no treatment required, or refusal of treatment.
 - e. Communication with Emergency Departments: All agencies provide patient reports to the Emergency Departments (ED) 75 to 100% of the time and communicate en route to the ED via radio or cell phone. Smith River Rescue Squad had four Zoll monitors, two with 12 leads, that they use to transmit to the ED when applicable.
3. **Fee for Service**: Of the six EMS agencies in the study, PTS and CCDF Volunteer Fire Department and Rescue Squad have a fee-for-service for patient transports. PTS' collection rate is 26 to 50%. CCDF bills Medicare and Anthem with a collection rate of 0 to 25%. They are fine tuning their billing process to increase the collection rate.
4. **Average Response Time**: Average response times in the past twelve months vary for the EMS agencies in Patrick County. None of the agencies reported utilizing strategic placement of units based on call volume, location of call, or response time.
- a. RJRPCMH PTS: 2 minutes for the 911 truck.
 - b. Ararat Rescue Squad: 8 minutes
 - c. Blue Ridge Volunteer Rescue: 10 minutes
 - d. CCDF Volunteer Fire Department & Rescue Squad: 12 minutes
 - e. Smith River Rescue Squad: 20 minutes
 - f. Vesta Rescue Squad: 20 minutes
5. **Mutual Aid Agreements**: All agencies reported having mutual aid agreements that are honored with agencies in Patrick County and agencies in surrounding counties including Henry, Floyd, and Carroll counties.
6. **Transfers from the Critical Access Hospital**: Two EMS agencies were unable to define a Critical Access Hospital (CAH) and did not identify RJ Reynolds Patrick County Memorial Hospital as a CAH. All agencies transport patients to the CAH and communicate en route with the hospital's ED. Two agencies were redirected to another ED by the CAH primarily due to the lack of CT services at the hospital. Although the CAH does not reimburse these agencies for the transports, they have a restocking agreement with all the County volunteer EMS agencies at no charge to these agencies. They provide 14 to 15 drug boxes/year to each agency as well as other patient care

supplies and linens. The majority of transfers to supporting hospitals from the CAH are performed by the CAH's PTS. Where they transfer to, and the distance and time involved in the transfer are as follows:

- a. Wake Forest University Baptist Hospital, Greensboro, NC (68 miles, 55 minutes)
- b. Forsyth Memorial Hospital, Winston-Salem, NC (55.7 miles, 1 hour)
- c. Carilion Roanoke Memorial Hospital, Roanoke, VA (76 miles, 1 hour 10 minutes)
- d. UVA Medical Center, Charlottesville, VA (189 miles, 3 hours)
- e. Brennan's Children's Hospital, Greensboro, NC (68 miles, 55 minutes)
- f. Martinsville Memorial Hospital, Martinsville, VA (27 miles, 30 minutes)

Rockbridge County

The Critical Access Hospital (CAH) in Rockbridge County is Carilion Stonewall Jackson Hospital. There are 13 Emergency Medical Services (EMS) agencies that serve this hospital including Carilion Patient Transport Services (CPTS), 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, 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. Of these agencies, surveys were completed for CPTS, Fairfield Volunteer Rescue Squad, and Glasgow Life Saving Crew. The Central Shenandoah Emergency Medical Services Council provided a summary for the remaining agencies in the County. Law enforcement agencies in Rockbridge County include the Sheriff's Department and Policy Departments in Lexington, Buena Vista, and Glasgow. There is a Office of Emergency Management which is directed by the County Administrator and employs a full-time coordinator. 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.

Network Agreements:

Based on interviews with the CAH's Director of Nursing and Emergency Department (ED) Director, no deficiencies or gaps in the hospital's CAH certification were identified for the hospital. No specific needs or EMS initiatives regarding the CAH designation were recommended. They have a network agreement with Carilion Roanoke Memorial Hospital in Roanoke, Virginia which is a tertiary care facility and trauma center.

Site visits:

County Administration/Law Enforcement/Communications

A meeting of the County Administrator, Office of Emergency Management Coordinator, Rockbridge County Emergency Rescue Group President, Lexington Police Department, Regional 911 Director, and the Director of the Central Shenandoah EMS Council was conducted to determine their relationship with the CAH and EMS providers in the County.

All agencies in the county are volunteer agencies except the Lexington Life Saving & First Aid Crew which is staffed during the day by Carilion Patient Transport Services. Rockbridge County makes financial contributions to the volunteer agencies. In the county the agencies are members of the Rockbridge County Fire Fighters Association or the Rockbridge County Emergency

Rescue Group. There is a good working relationship between the volunteer agencies and the county administration.

The Office of Emergency Management Coordinator acts as the liaison between the county administration and the EMS agencies. He attends monthly meetings of the Rockbridge County Emergency Rescue Group. The Office of Emergency Management involves the volunteer agencies in planning and drills throughout the county. Recently the Emergency Management's operations plan was rewritten and the agencies reviewed the fire and rescue components and provided feedback.

The majority of those questioned about Carilion Stonewall Jackson Hospital (CSJH) were not aware that it is a Critical Access Hospital (CAH). Although the hospital is the only hospital in the County and it does not advertise its CAH designation to the general public. CSJH is involved in outreach programs like participating in festivals, sponsoring an AED drive in the County, and offering flu clinics and other patient services to the community. Although the hospital does not make financial contributions to the volunteer EMS agencies in the county, it is a training site for CPR classes. In addition, they restock the agencies' drug boxes and other patient care supplies.

Law enforcement officials in Rockbridge County do not routinely transport patients to the Emergency Department. The Sheriff's office may occasionally transport inmates to the CAH for routine and acute care.

There is a Regional 911 office located in Buena Vista that dispatches for all fire and rescue agencies, as well as the Lexington and Buena Vista police departments. The Sheriff's department has their own independent dispatch office. County funds support the Regional 911 office primarily. Fire and Rescue service areas are generally a cooperative effort based on the mileage between two agencies.

Critical Access Hospital

A meeting of the CSJH's Chief Executive Officer, the Director of the Emergency Department, the Director of Nursing, and Carilion Transport Services (CPTS) was conducted to determine what effects Critical Access Hospital (CAH) conversion has had on the hospital system.

CSJH did not experience major changes in their policies and procedures due to CAH designation other than managing the inpatient census according to CAH standards. They have Joint Commission (JCAHO) accreditation for Acute Care Standards and have an established network agreement with a supporting hospital. The greatest change to the Emergency Department was developing an in-house patient transport service which has greatly enhanced patient flow and interfacility transfers.

Factors Affecting the Critical Access Hospital and Emergency Medical Services Capacity: Emergency Medical Services Training Initiatives

The availability of Emergency Medical Services (EMS) training and continuing education (CE) opportunities in Rockbridge County includes the following:

- CE classes are held in central locations to the county (Lexington, Buena Vista)

- In the past few years Initial Certification classes (EMT – Basic and Enhanced) have been held in areas of need throughout the county

The Central Shenandoah EMS Council (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.

- Sample CE Announcement: <http://www.csems.vaems.org/ceclasses/>
- 2007 Super CE Schedule: http://www.csems.vaems.org/ceclasses/2007_ce_schedule_als.pdf

Initial Certification classes and location since 2005

- 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.

Carilion Stonewall Jackson hospital teaches the following classes each year:

- ACLS: 2 Full Provider and 3 Renewal
- PALS: 1 Full Provider and 3 Renewal
- BLS Provider: 11 Classes
- NRP classes: 2 each year

Communications

Rockbridge County is E-911 countywide. There is a centralized dispatch office that services fire and rescue agencies as well as the police departments. All EMS agencies use radio and cell phones to communicate with the Emergency Department (ED) during transports. Due to the mountainous terrain of the County, radio and cell phone communications can be challenging and there is a need for an updated system for fire and rescue.

Medical Direction

There is one Operational Medical Director (OMD) in Rockbridge County, Dr. John Sheridan. He participates in the Regional Medical Control Review Committee (MCRC). This Committee reviews regional policies, updates regional protocol and approves regional preceptors/ALS coordinators. Dr. Sheridan is an Emergency Department Physician at Carilion Stonewall Jackson Hospital. His on-line and off-line participation with EMS providers is unknown.

Rockbridge County EMS providers follow CSEMS Regional Protocol. These protocols are a comprehensive, evolving set of protocols that require minimal on-line direction for providers at all levels of training. Carilion Patient Transport Services follows CSEMS protocols as well as Western Virginia EMS Council Regional Protocols when operating in the respective regions.

Quality Assurance

Carilion Stonewall Jackson Hospital (CSJH) evaluates its services and performance improvement standards through Joint Commission (JCAHO) Acute Care Standards which have stricter guidelines to follow than the Critical Access Standards. To evaluate their 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 CSJH. Carilion Patient Transport Services participates in the hospital's quality assurance activities including analysis of documentation, timelines, skills provided, types of service, and availability of services.

Mass Casualty Preparedness

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

CSJH 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.

Critical Access Hospital's Capabilities

1. **Emergency Department (ED) staff:** The number and qualifications of the ED staff at Carilion Stonewall Jackson Hospital (CSJH) include:
 - a. One physician staffs the ED 24 hours per day, 7 days per week. A mid-level provider (Physician Assistant) is available six days per week (no Wednesdays) and provides non-emergent care.
 - b. Two RN's and one LPN 24 hours per day, 7 days per week.
 - c. One to two Emergency Medical Technicians (EMT) per day. The jobs they perform depend on their certification level and scope of practice. Some are EMT-Intermediates. CSJH is beginning to phase these positions out as vacancies arise and replacing them with LPN's who have a greater scope of practice.

2. **Demographics of Patient Transfers:** Carilion Stonewall Jackson Hospital (CSJH) uses Carilion Patient Transport Services (CPTS) primarily for patient transfers. CPTS staffs the Lexington Life Saving and First Aid crew via a contract with the City of Lexington. They are the primary responders to 911 calls during the day. They staff the agency 7 days per week from 6 a.m. to 6 p.m. and will respond to calls throughout the county through mutual aid agreements. Occasionally, CSJH will use the Rockbridge Area Transport Service for wheelchair and non-stretcher routine transports. They are a community service agency that charges a minimal fee for transports.

In the past twelve months there has been one to two occasions that CSJH was unable to admit patients from the Emergency Department due to peak census. None of the volunteer EMS agencies reported that they have been redirected from CSJH because it was at capacity. CSJH transfers patients to supporting in surrounding counties due to patient preference, availability of beds at the hospital, and/or scope of services available. All stroke patients on TPA are sent directly to the University of Virginia (UVA) Medical Center in Charlottesville, Virginia.

- a. Number of transfers: Transfers from CSJH to supporting hospitals from January to June 2007 were 231 compared to 309 transfers for 2006 to the following hospitals.
 - i. Carilion Roanoke Memorial Hospital, Roanoke, Virginia
 - ii. UVA Medical Center, Charlottesville, Virginia
 - iii. Augusta Regional Medical Center, Fishersville, Virginia
 - iv. Lynchburg General Hospital, Lynchburg, Virginia
 - v. Virginia Baptist Hospital, Lynchburg, Virginia
 - b. Types of transfers: Primarily cardiac patients and stroke patients are transferred to hospitals based on physician/services availability. CSJH has CT services, Labor and Delivery Unit, and an orthopedic surgeon on staff.
 - c. Equipment used: Telemetry and advanced life support equipment available.
 - d. Ground versus air transport: There is a helipad at CSJH. CSJH uses Carilion Life Guard and UVA's Pegasus for air transports.
3. **Volume of Patients Arriving in the Emergency Department (ED)**: Carilion Stonewall Jackson Hospital (CSJH) does not routinely collect data on the numbers of patients arriving in the ED via specific EMS agency; ALS vs. BLS patients; types of calls; or patient disposition. They serve primarily Rockbridge County residents, college students from Washington and Lee University and the Virginia Military Institute, as well as visitors from outside the County.
4. **Critical Access Hospital and Support Hospital(s)**: CSJH has a Network Agreement with Carilion Roanoke Memorial Hospital (CRMH) which is a tertiary care and trauma center. Both hospitals belong to Carilion Health Systems. In addition, patients may be transferred to the UVA Medical Center, Augusta Regional Medical Center (ARMC), Lynchburg General Hospital (LGH), and Virginia Baptist Hospital (VBH). Distance and transfer times to these hospitals are as follows:
- CRMH: 52 miles and 50 to 60 minutes traveling time
 - UVA: 69 miles and 60 minutes traveling time
 - ARMC: 30 miles and 40 minutes traveling time
 - LGH: 50 miles and 50 minutes traveling time
 - VBH: 50 miles and 50 minutes traveling time

Emergency Medical Services Capabilities

The following information was summarized by the Central Shenandoah EMS Council and Carilion Patient Transport Services.

1. **Emergency Services (EMS) Agencies in Rockbridge County**:
 - a. Volunteer agencies: There are 12 volunteer agencies in Rockbridge County and belong to either the Rockbridge Emergency Rescue Group or the Rockbridge County Fire Association. On average these agencies provide 12 hours of on-call coverage each day. There are a total of 234 volunteers in the county ages 16 to 80 years of age. Approximately 62% are male and 38% are female and are

Caucasian, African American, and Hispanic. Recruitment initiatives for these agencies include mailings and community awareness programs.

- b. Career agencies: Carilion Patient Transport Services is the only career agency in Giles County. They provide 12 hours of dedicated 911 coverage each day (6 a.m. to 6 p.m.) through a contract with the City of Lexington at the Lexington Life Saving and First Aid Crew station and do not provide on-call hours. There are 18 paid staff members ages 21 to 62 years, all are Caucasian, and the majority are males. Recruitment and retention initiatives are through Carilion Health Systems and include benefits package, paid education and training programs, and opportunities in mass gathering events (ie. Nascar races).
2. **Emergency Department (ED) Transports**: Volunteer EMS agencies in Rockbridge County transport patients to ED's at Augusta Regional Medical Center; Carilion Stonewall Jackson Hospital; Bath County Community Hospital, and Alleghany Regional Hospital. Carilion Patient Transport Services (CPTS) transports patients to Carilion Stonewall Jackson Hospital primarily.
 - a. Number of transports/calls:
 - i. Volunteer agencies transported 4200 patients in the past twelve months.
 - ii. CPTS transported 1,880 patients in the past twelve months
 - b. Life Saving requirements:
 - i. Volunteer agencies 25% ALS vs. 75% BLS
 - ii. CPTS 24% ALS vs. 40% BLS vs. 36% other
 - c. Types of calls: Types of calls for all volunteer agencies and CPTS included medical emergencies; trauma emergencies to include industrial accidents, drowning, motor vehicle and motorcycle accidents; stand-by's; and public service.
 - d. Patient Disposition: Dispositions reported by volunteer agencies included treatment, obvious death, and traumatic head injuries.
 - e. Communications with Emergency Departments: All volunteer agencies and CPTS communicate en route to the ED using radio or cell phone communications. All reported providing patient reports 51 to 100% of the time. Several agencies, including CPTS, had heart monitors with 3 to 12 lead capabilities that can be transmitted to the ED's.
 3. **Fee for Service**: Lexington Life Saving and First Aid Crew and Carilion Patient Transport Services have a fee-for-service for patient transport. Their collection rate in the past year has been 26 to 50%.
 4. **Average Response Time**:
 - a. Volunteer agencies have an average response time of 11 minutes. Based on call volume, location of calls, and response time, Glasgow Life Saving Crew has a substation that has helped to reduce response times.
 - b. CPTS has an average response time of 8 minutes in the past year.
 5. **Mutual Aid Agreements**: All agencies reported having mutual aid agreements that are honored with agencies in Rockbridge County and agencies in surrounding counties.

6. **Transfers from the Critical Access Hospital:** Several of the volunteer EMS agencies did not identify Carilion Stonewall Jackson Hospital as the Critical Access Hospital (CAH) in Rockbridge County. No agencies reported having to be redirected from the CAH's Emergency Department (ED) in the past twelve months and all communicate with the ED via radio and/or cell phone. Almost all transfers from the CAH to a supporting hospital are performed by Carilion Patient Transport Services. They communicate with the supporting hospitals en route and use telemetry when necessary. Where they transfer to, and the distance and time involved in the transfer are as follows:
 - a. Carilion Roanoke Memorial Hospital: 52 miles and to 60 minutes traveling time
 - b. University of Virginia Medical Center: 69 miles and 60 minutes traveling time
 - c. Augusta Regional Medical Center: 30 miles and 40 minutes traveling time
 - d. Lynchburg General and Virginia Baptist Hospitals: 50 miles and 50 minutes traveling time

Study Recommendations: The Scope of Services provided by the Western Virginia Emergency Medical Services Council (WVEMS) is an adjunctive component to a larger scope of work to be produced by the Virginia Department of Health's Office of Emergency Medical Services (OEMS) for the *Virginia Critical Access Hospital Project*. WVEMS would like to collaboratively develop final recommendations for this project with the OEMS after the final report has been completed.

Appendix 1: CAH Survey Questions

1. What changes have occurred in your Emergency Department due to your hospital's conversion to a CAH?
 - a. What specific changes in your policies and procedures?
 - b. If yes, how have these changes affected the CAH's relationship with EMS agencies?
2. How do you evaluate your role as a CAH?
 - a. What Quality Assurance/Performance Improvement procedures do you perform?
3. Volume of patients arriving in ED
 - a. Numbers arriving via specific EMS agency
 - b. ALS versus BLS
 - c. Types of calls
 - d. Patient Disposition
4. How many beds do you have in your Emergency Department?
5. In the past 12 months has your facility been unable to admit patients from the ED due to lack of available beds?
 - a. If yes, were those patients transferred another hospital?
6. Number and qualifications of staff in your facility's ED (i.e. doctors, nurses, technicians, etc.)
 - a. Do you employ EMS personnel in your ED?
 - i. If so, how many?
 - ii. What types of jobs do they perform?
7. What supporting hospital do you have a Network Agreement with?
 - a. What is your relationship with the supporting hospital?
 - b. What is the distance in miles and time to this hospital?
8. What other hospitals do you transfer patients to?
 - a. What is your relationship with these hospitals?
 - b. What is the distance in miles and time to these hospitals?
9. How are patients transported to supporting and other hospitals?
 - a. Do you have a hospital patient transport services?
 - b. Do you call EMS agencies for transport?
 - i. Does your hospital compensate EMS agencies for these transports?
10. Patient Demographics for Patient Transfers
 - a. Number
 - b. Types
 - c. Equipment used
 - d. Ground versus air transport
 - i. Does your hospital have a helipad to accommodate air transport?
11. Number of patients transported inside the catchment area, but outside county your facility is located in.

Appendix 2: County Government/Law Enforcement Survey Questions

Survey Questions

County Administrator

1. What is your relationship/familiarity with area EMS agencies?
 - a. Do you currently have an EMS coordinator for your county? If so, what is their contact information?
2. What does the hospital in your area do to communicate its capabilities to the community?
 - a. Are you aware that the hospital is a critical access hospital?
 - b. Does the hospital contribute financially or otherwise to EMS agencies in the county? How?

Law Enforcement

1. How often does law enforcement personnel have to transport patients to the hospital?
 - a. What is the volume for the past 12 months?
2. Does your agency utilize a centralized dispatch system?

Appendix 3: EMS Survey Questions

1. Does your county utilize centralized dispatch? Yes/No (Circle one)
 - a. What agency dispatches your calls?

2. If you are an EMS transport agency, which Emergency Department(s) does your agency transport patients to?
 - a. How many patients have you transported within the last 12 months?
 - b. How many patients were ALS vs. BLS?
 - c. What types of calls have you received in the past twelve months?
 - d. What was the patient disposition?

3. Has your agency provided patient reports to the Emergency Department within the past twelve months? Yes/No (Circle one)
 - a. If yes, how often?
 - i. _____ 0-25% of the time
 - ii. _____ 26-50% of the time
 - iii. _____ 51-75% of the time
 - iv. _____ 76-100% of the time
 - b. What form of communication do you use?
 - i. Radio
 - ii. Cell phone
 - iii. Other?
 - c. Do you face any challenges communicating with the Emergency Department? Yes/No (Circle one)
 - i. If yes, what are these challenges?

4. Does your agency have a fee-for-service arrangement for patient transports? Yes/No (Circle one)
 - a. If yes, what has the collection rate been over the past 12 months?
 - i. _____ 0-25% of the time
 - ii. _____ 26-50% of the time
 - iii. _____ 51-75% of the time
 - iv. _____ 76-100% of the time

5. Do you have telemetry or other telemedicine equipment on your vehicle? Yes/No (Circle one)
 - a. If yes, what equipment do you have?

6. What hospitals do you transport patients to?

7. What is your definition of a Critical Access Hospital?
 - a. Are there any Critical Access Hospitals in your service area? Yes/No (Circle one)
 - b. If yes, where are they?

8. Have you been told by the critical access hospital within the past 12 months that you must redirect your patient transport because the hospital is at capacity? Yes/No (Circle one)
 - a. If so, how many occurrences?
 - b. How was this communicated to your agency?

9. Within the past 12 months, has the critical access hospital called your agency to transport patients to a supporting hospital or facility outside the county?
 - a. Where do you transport these patients?
 - i. What is the length of time these transports require?
 - ii. Do you communicate with the supporting hospital/facility while en route?
 - iii. Do you use telemetry or other telemedicine equipment during these transports?
 - b. Do you receive compensation from the hospital for these transports?
 - c. How many of these transports are scheduled versus emergency or non-emergency transports?

10. Does your agency participate in any quality assurance/performance improvement programs with the critical access hospital? Yes/No (Circle one)
 - a. If yes, what types of programs?

11. What is the total number of personnel in your agency?
 - a. What is the age _____; race _____; gender _____ of these personnel?
 - b. How many are volunteer personnel?
 - c. How many are career personnel?

12. What is the number of hours of dedicated coverage (ie. station and/or vehicle are staffed) your agency provides each day?
 - a. What are the total hours of on-call coverage provided each day?
 - b. What percent of each day does your county have EMS coverage?

13. Does your agency participate in any recruitment or retention initiatives? Yes/No (Circle one)
 - a. If yes, what types?

14. What is the average response time for your agency in the past twelve months?

15. Is your agency utilizing strategic placement of units based on call volume and/or location? Yes/No (Circle one)
 - a. If yes, have response times improved?

16. Is ALS or BLS training or continuing education available in your area? Yes/No (Circle one)
- a. If yes, has the critical access hospital in your area provided any training or continuing education to your agency's providers?
17. Does your agency have formal cooperative agreements with other EMS agencies? Yes/No (Circle one)
- a. If yes, are they honored?