

Final Report

Emergency Medical Services System Study Dickenson County, Virginia April, 2009

Prepared for:
Virginia Department of Health
Office of Minority Health and Public Health Policy

Prepared by:



Virginia Office of Emergency Medical Services

109 Governor Street, Suite UB-55

Richmond VA 23219

(804) 864-7600

(800) 523-6019

Table of Contents

I. Executive Summary	Page 3
II. Introduction	Page 4
III. Purpose and Methods of the EMS System Study	Page 6
IV. Study Results	Page 8
V. Key Findings and Recommendations	Page 17
VI. Appendices	Page 22

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 “OMHPHP”) to provide a comprehensive assessment of the Emergency Medical Services (hereinafter mentioned as “EMS”) system surrounding the Critical Access Hospital (hereinafter mentioned as “CAH”), Dickenson Community Hospital (hereinafter mentioned as “DCH”), located in Clintwood, Dickenson 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 CAH facilities 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 2008, staff from OEMS performed the assessment of both the hospital itself, and the EMS 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.

II. Introduction

Dickenson County, Virginia is a predominantly rural county located in the southwest portion of the Commonwealth of Virginia. It is bordered by Buchanan, Russell, and Wise Counties in Virginia, as well as Pike County, Kentucky. (See Map 1).

Map 1 – Dickenson County and Bordering Counties



According to the 2000 Census, the population of Dickenson County is 16,395 people. The county size is 334 square miles, with a population density of 49 people per square mile.

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

- 22.1 % are under the age of 18.
- 8.9% are in the 18 to 24 age group.
- 27.6% are in the 25 to 44 age group.
- 26.9% are in the 45 to 64 age group.
- 14.5% are 65 or older.

The median age is 40 years old.

Additionally, the gender distribution is 100 women to 95.7 men; and 100 women to 93.6 men over 18 years of age.

Race distribution is as follows:

98.96% White

Less than 1% of the following groups, respectively:

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

The county seat of Dickenson County is the Town of Clintwood, which is also the location of DCH, Clintwood Volunteer Rescue Squad, Dickenson County Ambulance, as well as the 911 center, and the county sheriff and county administration offices.

DCH is a not for profit hospital owned and operated by the Mountain States Health Alliance, and has had designation as a CAH facility since 2002. 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 hospital staff interviewed stated that they have been able to obtain additional supplies and equipment through grants funding streams. DCH has also been accredited by the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) and the College of American Pathologists (CAP), having successfully completed a JCAHO inspection in 2006.

DCH is the only hospital within the geographic boundaries of Dickenson County.

The DCH Emergency Department (ED) is open and staffed 24 hours a day/7 days a week, and has a four bed capacity, but at the time of the site visit was undergoing renovations that will bring the capacity to six beds. During interviews with DCH representatives, the lack of ED beds was mentioned as a significant issue for the facility.

There are four EMS agencies in Dickenson County that are licensed by OEMS. They are Clintwood Volunteer Rescue Squad, Dickenson County Ambulance, Haysi (pronounced HAY-sigh) Volunteer Rescue Squad, and the Sandy Ridge Rescue Squad. All the agencies, with the exception of Dickenson County Ambulance are volunteer staffed agencies.

III. Purpose and Methods of the EMS System Study

As outlined in the scope of services within the Memorandum of Agreement between the OMHPHP 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. Conducted formal interviews with various stakeholders of the EMS System in Dickenson County, as well as the Dickenson County 911 Coordinator. Additionally, formal interviews were conducted with staff from DCH, including the Chief Executive Officer, and the Clinical 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 Dickenson.
2. The four EMS agencies in Dickenson County all participated in a survey to gather some additional information about the EMS system capability, as well as the relationship with the CAH, and gave brief tours of facilities, vehicles and equipment.

A copy of the survey, as well as the responses from the participants is attached to this report, as "Appendix 1"

3. Several documents were reviewed in preparation for the study report, including:
 - All documents related to the CAH designation by DCH.
 - EMS network agreements for DCH, as required in the original CAH certification application.
 - OEMS licensure database information to determine the number and age of EMS vehicles of each of the agencies operating within Dickenson County.
 - OEMS PPCR database information for all EMS calls within Dickenson County for calendar years 2006 and 2007.
 - OEMS Technician database information for all certified EMS providers within Dickenson County.
 - Mutual Aid agreements existing between agencies in Dickenson County.
 - Rescue Squad Assistance Fund (RSAF) information for all EMS agencies within Dickenson County for 1998-2007 grant cycles, including items awarded and denied.

IV. Study Results

The results of the study of the EMS System and the Critical Access Hospital in Dickenson County brought forth a great deal of information. As mentioned previously in the purpose and methods of the study, several components were examined.

Demographics:

Demographic information for Dickenson 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.

Staffing:

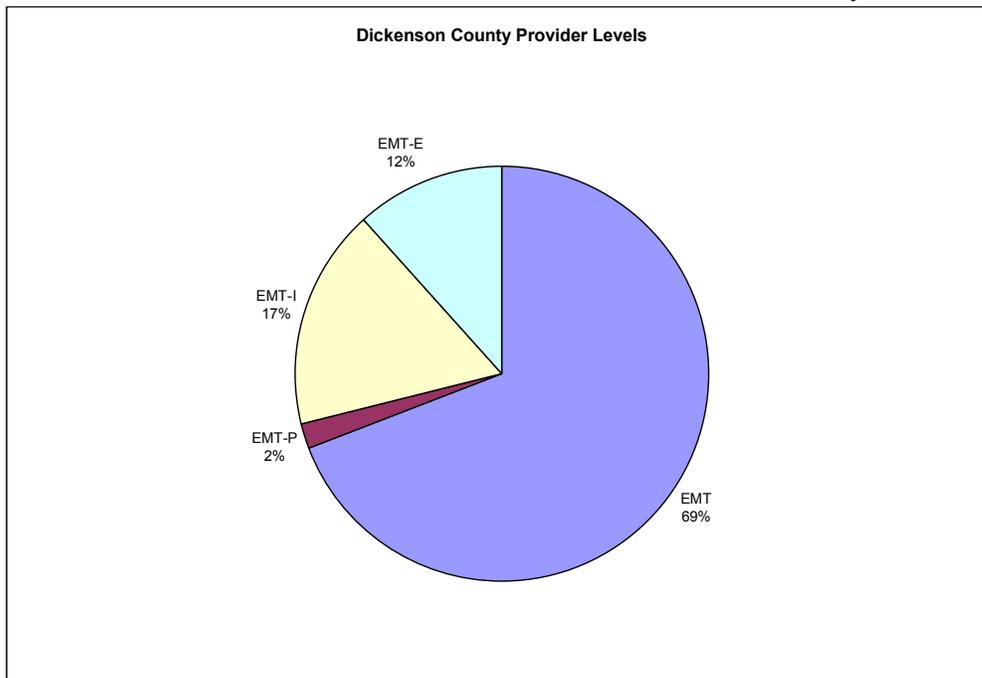
There are 52 certified EMS providers in Dickenson County. The distribution of providers by level is below:

Table 1 – Distribution of Certified Providers in Dickenson County

Certification Level	Number of Certified Providers
Emergency Medical Technician (EMT)	36 (69% of Providers in County)
EMT – Paramedic (EMT-P)	1 (2%)
EMT – Intermediate (EMT-I)	9 (17%)
EMT – Enhanced (EMT – E)	6 (12%)
Total	52

Source: Virginia OEMS Division of Educational Development Provider Database

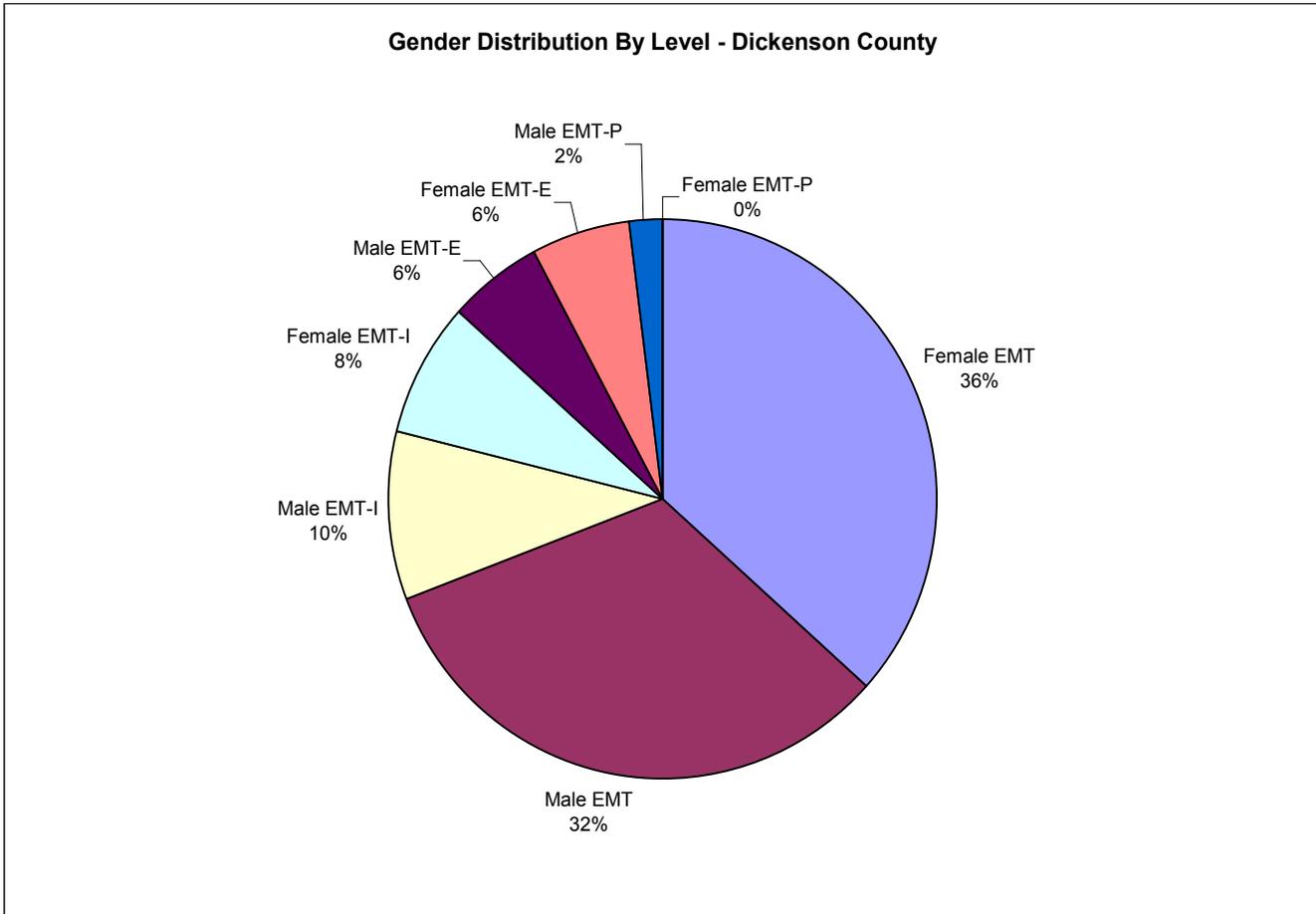
Chart 1 - Distribution of Certified Providers in Dickenson County



Source: Virginia OEMS Division of Educational Development Provider Database

Additionally, there is a distribution of certified EMS provider by gender and level, as outlined in the following chart:

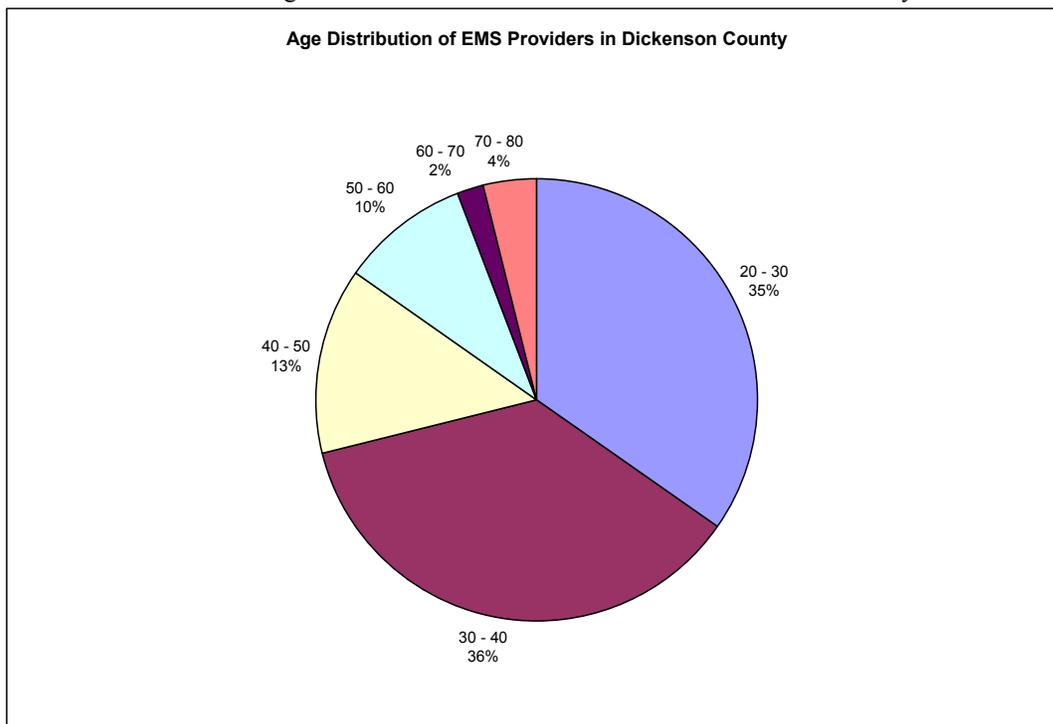
Chart 2 - Distribution of Certified Providers in Dickenson County by Level and Gender



Source: Virginia OEMS Division of Educational Development Provider Database

The age distribution of EMS Providers in Dickenson County is reflected in the graph below:

Chart 3 – Age Distribution of Certified Providers in Dickenson County



Source: Virginia OEMS Division of Educational Development Provider Database

Staffing of local EMS agencies within Dickenson County is overwhelmingly volunteer based, with only the Dickenson County Ambulance having paid staff. As mentioned previously, four EMS agencies are currently licensed in Dickenson County; Clintwood Volunteer Rescue Squad, Dickenson County Ambulance, Haysi Volunteer Rescue Squad, and the Sandy Ridge Rescue Squad. Three EMS agencies are licensed at the Advanced Life Support (ALS) level, with the exception of Sandy Ridge, and all provide ground transportation via ambulance.

EMS Coverage to Dickenson County

All of the agencies that serve Dickenson County report that they provide 24 hour/7 day a week service, with 100% coverage of the county. The table below outlines the coverage of Dickenson County by each agency:

Table 2 – EMS Coverage in Dickenson County by Agency

Agency	24/7 Service	In-house	Standby (pager)
Clintwood VRS	Yes	Day and Evening Only	Overnight hours
Dickenson Co. Amb.	Yes	Day and Evening Only	Overnight & weekend hours
Haysi VRS	Yes	Day & some evening hours	Some evenings & overnights
Sandy Ridge VRS	Yes	Some daytime hours	Most days, evenings & overnight

Source: OEMS interviews with Dickenson County EMS Agency representatives

The only career EMS service is Dickenson County Ambulance (DCA), which primarily provides non-emergency service. DCA operates an office in Clintwood, with another satellite office in the city of Norton, which is located in the neighboring county of Wise. DCA has a call volume of roughly 2,300 responses per year, but the overwhelming majority of those are non-emergency.

Recruitment and retention initiatives currently in place for these agencies include: letter drives to area residents, informational sessions at the local high school, open houses held at the station, and community awareness initiatives. Representatives from the Haysi Rescue Squad stated that the squad has no recruitment or retention initiatives in place currently.

Placement of Units

For the purposes of this evaluation, response time is defined as dispatch (call processing time) time (time from initial receipt of call by PSAP until EMS unit is alerted) plus reaction time (time from initial receipt of call by EMS unit until wheels are rolling) plus travel time (time from wheels rolling on EMS unit until arrive on scene.).

Average response times vary for the three agencies within Dickenson County, varying from 4 minutes for the Clintwood Rescue Squad, to 21 minute responses for Sandy Ridge VRS. None of the agencies in Dickenson reported the use of strategic placement of units based on call volume and/or location.

EMS Training Initiatives

The majority of EMS providers in Dickenson County receive training from the Emergency Medical Services Training program at Mountain Empire Community College (MECC) in Big Stone Gap, Virginia, which is 40 miles away from Dickenson County. Recently, MECC has established a distance learning site at the Dickenson County Education Center in Clintwood, with EMS Training offerings. This program was implemented too soon to determine a proper impact on training in Dickenson County.

The EMS training and continuing education (CE) opportunities for agencies and providers in Dickenson County are varied. Only the Clintwood Rescue Squad provides in-house CE, but most of the agencies report CE can be obtained through MECC, or through the use of the Emergency Medical Services Satellite Training (EMSAT) Program which is a training and information program developed and produced by the Virginia OEMS for Virginia EMS and Fire personnel, giving category III continuing education credit for viewing EMSAT DVDs.

All of the agencies interviewed reported that DCH has not been involved in the training and education of the EMS providers in Dickenson County.

Communications

Dickenson County has had Enhanced – 911 (E-911) since approximately 2005. The county 911 center is still working to complete reverse 911 and call mapping applications. Fire/Police/EMS dispatch is done through Dickenson County 911, and uses radio paging to contact EMS agencies. DCA does dispatch in-house, and contracts with an answering service for calls after business hours, with the answering service contacting the on-duty DCA supervisor upon call receipt. All EMS agencies in Dickenson County utilize radio and/or cellular phone communication to communicate with the CAH. These agencies provide patient report information prior to their arrival to the hospital 75 to 100% of the time.

Additionally, none of the agencies in Dickenson have telemetry transmission capability, and DCH does not have telemetry receiving capability.

Given that Dickenson County is located in such a remote area, certain areas of the county have “dead areas” where radio and cell phone communication are not possible, and all agencies report communication with DCH is a significant issue.

Resource Management

There are 17 permitted EMS vehicles among the 4 agencies in Dickenson County. This includes 15 Ambulances and two non-transport vehicles (A Chevrolet Avalanche and a Crash Truck owned and operated by Clintwood VRS).

As of the most recent inspections of each agency in Dickenson County by OEMS field representatives conducted between November of 2007 and May of 2008, all vehicles were in good working condition, without any failures noted in inspection reports. The vehicles range in age from 1 to 19 years of age at the time of inspection. According to inspection reports, 15 of the 17 vehicles are equipped at the ALS level.

In terms of aeromedical service, Dickenson County is primarily served by Virginia State Police Medflight II, based in Abingdon, VA, and Wings Air Rescue, based in Tennessee. Based on review of PPCR data from 2006 and 2007, Medflight II responded to all 25 requests for Medevac service in Dickenson County in 2006, and 14 calls for service in 2007. Wings Air Rescue responded to 89 calls for service in 2007.

Fiscal Support

For Fiscal Year 2006 and 2007, Dickenson County received \$23,837.98 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. Dickenson County uses these funds to assist in matching funds for equipment purchases by the EMS agencies within Dickenson County.

The funding distribution for both 2006 and 2007 are reflected in the tables below:

Table 3 – RTL Funding Distribution - Dickenson County

Dickenson County – Return to Locality – Fiscal Year 2006				
Agency Receiving Funds	Summary of Use of Funds			
	Training	Equipment	Supplies	Total
Clintwood VRS	\$150.00	\$1,935.75	\$2,381.01	\$4,466.76
Haysi VRS	\$1,388.49	\$1,236.83	\$1,841.44	\$4,466.76
Sandy Ridge RS	\$0.00	\$2,977.85	\$0.00	\$2,685.80
Carryover (Funds Not Expended)				\$0.00
Totals	\$1,538.49	\$6,150.43	\$4,222.45	\$11,911.37

Dickenson County – Return to Locality – Fiscal Year 2007				
Agency Receiving Funds	Summary of Use of Funds			
	Training	Equipment	Supplies	Total
Clintwood VRS	\$643.99	\$0.00	\$3,828.49	\$4,472.48
Haysi VRS	\$211.00	\$3,782.65	\$478.83	\$4,472.48
Sandy Ridge RS	\$0.00	\$600.00	\$2381.65	\$2,981.65
Carryover (Funds Not Expended)				\$0.00
Totals	\$854.99	\$4,382.65	\$6,688.97	\$11,926.61

Source: OEMS RTL Reports from Dickenson County

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

All of the EMS agencies in Dickenson County have fee for service programs in place. DCA does its own billing, and reports an 85% reimbursement rate, most of which is preauthorized through Virginia Medicaid. Clintwood Rescue Squad utilizes Certified Ambulance Group, based in Connecticut, and report a reimbursement rate of roughly 60%. Haysi utilizes Maxim Management in New York, and reports a reimbursement rate between 51 and 75%, and Sandy Ridge VRS utilizes Maximized Billing in Pennsylvania, and also reports a reimbursement rate between 51 and 75%,.

Rescue Squad Assistance Fund – Recent History

Dickenson County agencies have participated in RSAF grant process in reviewing RSAF records since 1998.

In that time, the Clintwood Volunteer Rescue Squad, as well as the Haysi Volunteer Rescue Squad have been awarded funds for vehicle and equipment purchases at a total of \$464,504.85.

The Dickenson County Ambulance Service is a commercial entity, and is ineligible to apply for RSAF funds.

Items of note include the facts that Sandy River Volunteer Rescue Squad has not applied for any RSAF funding since June of 1998, and that Dickenson County agencies have had 17 RSAF applications, totaling over \$117,000, denied since June of 1998.

Table 4 - RSAF Awards for Dickenson County – June 1998 to June 2008:

Clintwood Volunteer Rescue Squad			
Grant Cycle	Item	Amount	Percent of Fund Match By Agency
12/1998	1 Ambulance Stretcher	\$1,920.00	20%
12/1999	1 Defibrillator	\$9,596.00	20%
12/1999	1 Computer System	\$1,360.00	20%
06/2000	1 Ambulance	\$34,580.00	20%
06/2000	1 Automatic Defibrillator	\$3,000.00	0%
06/2001	4 mobile radios	\$1,872.00	20%
06/2001	11 portable radios	\$5,588.00	20%
12/2001	1 Light Duty Rescue Vehicle	\$22,148.80	20%
12/2002	Vehicle Rechassis	\$39,400.00	20%
12/2002	1 Defibrillator	\$11,341.60	20%
06/2004	27 Monitoring Pagers	\$1,404.00	50%
06/2004	1 Medium Duty Crash Vehicle	\$61,250.00	50%
06/2005	Extrication Equipment	\$32,997.00	20%
06/2005	1 Computer System	\$1,000.00	50%
06/2007	1 Ambulance	\$82,400.00	20%
06/2008	1 Stair Chair	\$1,816.00	20%
06/2008	Stretchers & Accessories	\$10,308.00	20%
	Total Award Amounts	\$321,981.40	

Haysi Rescue Squad			
Grant Cycle	Item	Amount	Percent of Fund Match By Agency
12/1999	1 Computer System	\$1,000.00	20%
06/2000	1 Ambulance	\$53,652.50	20%
06/2001	1 Defibrillator	\$9,432.29	20%
12/2001	Extrication Equipment	\$7,448.00	50%
12/2005	Vehicle Rechassis	\$52,000.00	20%
12/2005	1 Defibrillator	\$13,600.00	20%
12/2005	2 mobile radios	\$2,666.00	20%
12/2008	1 Desktop Computer	\$1,079.20	20%
12/2008	1 Laptop Computer & Projector	\$1,644.80	20%
	Total Award Amounts	\$142,523.45	

Source: Virginia OEMS RSAF Grant Awards Database

Medical Direction

There are two Operational Medical Directors (OMD) affiliated with the agencies in Dickenson County, Dr. Patricia VanOver and Dr. Olimpo Fonseca. Based on information gleaned from the agency representatives interviewed, it seems that both OMD's are not intimately involved in the operations of the EMS agencies, but are contacted when any significant issues arise. Both doctors are family practice based providers, and are not directly involved with the emergency department of DCH.

In addition to the OMD support, Dickenson County EMS providers utilize the protocols established by the Southwest Virginia EMS Council for off-line medical direction, and are able to receive on-line medical direction from the DCH ED at any time.

Quality Assurance

In calendar years 2006 and 2007, a total of 2,266 and 2,572 PPCR reports were submitted to OEMS by agencies in Dickenson County, Sandy Ridge Rescue Squad submitting data for 2006 only. This number is based on EMS responses based in Dickenson County only. Out of the total number of EMS call for 2006, 28% of those calls were categorized as ALS level of care provided, and 32% of the calls in 2007 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, 58% of the calls in Dickenson County in 2005, and 56% of the calls in 2006 were classified as "Medical" in nature.

Based on PPCR data, DCH received 66% and 64% of patients transported by Dickenson County agencies in 2005 and 2006, respectively. Of note is the fact that agencies had “no hospital listed” as a disposition in 11% and 16% of calls for 2006 and 2007, respectively. It is unknown if this number is representative of entry errors, or if it’s representative of patient refusals, cancelled calls, and other non-transports, but it would seem that it may be a combination of both. Norton Community Hospital received 13% and 12% of transported patients from Dickenson County agencies during that same timeframe.

In terms of response data, agencies in Dickenson County have varied response times, and transport times from scenes to hospitals. Based on data from 2006 and 2007, agencies average 14 and 16 minutes from the time the call is received to the time a unit is enroute, respectively.

For transfers from DCH to other hospitals, a limited amount of information was presented for this evaluation. Representatives from DCH reported that approximately 40 patients are transferred out of DCH per month. It was also stated that many patients are transferred to Norton Community Hospital and Johnson City (TN) Medical Center, as they are part of the same healthcare network. Dickenson County Ambulance transports the majority of the interfacility transfers, and is not compensated by DCH for interfacility transports. DCH does have a helipad, but administration reports that a small number of patients are transferred by air.

In review of OEMS agency inspection information and interview of EMS agency representatives, all agencies in Dickenson County have some form of established PI programs. These programs were reported to involve reviews of PPCR reports completed by the respective agency, but usually does not involve OMD participation. Additionally, in reviewing PPCR submission compliance information for 12 quarters for calendar years 2006-2007, three of the four agencies were compliant with their submissions.

Mass Casualty Preparedness

During the evaluation, there was no evidence of involvement of representatives of Dickenson County in the Far Southwest Hospital Preparedness Commission (FSHPC), which was organized to facilitate a coordinated regional healthcare response in the event of mass casualty events. Additionally, there was no evidence of Mass Casualty Training or mock exercises involving DCH and EMS in Dickenson County.

System Partnerships

All of the EMS Agencies within Dickenson County, with the exception of DCA, have mutual aid agreements in place. Though there is an area of the county that is part of The Breaks State Park, and borders Pike County, in the state of Kentucky, there are no formal agreements in place. There is also a positive working relationship that exists between the county EMS agencies, and the county sheriff’s office.

Based on interviews conducted and review of survey information, it does seem that EMS has a basic understanding of their role as it pertains to the CAH, but the EMS agencies collectively seem very uneasy about the ability of the CAH to remain viable in the community, based on past closures of the facility, and the impact, both from the impact of DCH as a receiving hospital, and the economic impact of closing a facility that employs a number of Dickenson County residents.

Hospital Capabilities

DCH has a contracted physicians group to provide physician coverage to the DCH ED. One physician staffs the ED 24 hours a day, 7 days a week, and has a total staff of roughly six core physicians. Two nurses are on staff 24 hours a day, with a registration clerk on staff as well. DCH does not employ EMS providers to staff the ED.

DCH has had a volume of patients in the ED of roughly 8,400 patients, or roughly 700 per month. Approximately 15% of these patients come to DCH via EMS.

DCH 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 was previously mentioned, DCH staff reported that they transfer approximately 40 patients per month, and stated that many patients are transferred to Norton Community Hospital and Johnson City (TN) Medical Center, as they are part of the same healthcare network. Norton and Johnson City are 34, and 100 miles from Clintwood, respectively.

DCH has had significant struggles over the past few years, as evidenced by a closure of the facility in the early 2000’s, recent layoffs and closure of units within the hospital, and a current shift in focus to providing outpatient services. Hospital administration attributes these struggles to the fact that DCH is for all intents and purposes the sole provider of care in Dickenson County, and reimbursement is vital to the survival of the facility. Decreases in the number of hospital admissions have forced the facility to make some difficult financial decisions, as well as the change in focus to more outpatient based services. DCH is able to provide many specialty services currently, and is planning to develop a cardiac rehabilitation program at the facility. These changes are anticipated to bring increased services to the community, while allowing DCH to maintain CAH status.

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 Dickenson County, there are 52 certified EMTs for the population size of 16,395 people, or 1 EMT for every 315 people in the county. This is significantly higher than the total number of EMTs versus people in the Commonwealth of 1 to 204, and those counties that also contain CAH facilities.

The number of volunteer versus career providers seem to be comparable to most rural counties in Virginia, with an overwhelming majority of providers being affiliated with volunteer agencies. Most, if not all 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 Dickenson seem to be relatively consistent with the demographic information of the county as a whole, as well as many other rural areas of Virginia.

In terms of hours of EMS coverage in the county, there seems to be a relatively large amount of time that the county has EMS coverage, with some small gaps. It seems that neighboring agencies seem to work well to ensure coverage, especially when faced with significant transport times to facilities outside of the county.

Recruitment and retention initiatives are varied, from letter drives to area residents, informational sessions at the local high school, open houses held at the station, and community awareness initiatives. It was worth noting that not all the agencies in the county have recruitment and retention initiatives in place.

Recommendations:

The shortage of EMS providers in Dickenson is alarming, to say the least. OEMS recommends that volunteer agencies in Dickenson 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. Maintaining an emphasis on the recruitment high-school students may continue to be valuable to the agencies in the county. Additionally, agencies should strive to provide training opportunities to their providers at free or discounted prices.

EMS Training Initiatives

Key findings:

It seems that educational opportunities for providers in Dickenson have been a challenge, with providers often needing to travel outside of the county for training, and little local involvement in providing the “alphabet courses” such as ACLS, PALS, and PEPP.

The one item of note is the efforts of the Mountain Empire Community College to place a satellite training site at the Dickenson County Education Center, which will bring EMS Training directly to Dickenson County providers.

Recommendations:

DCH should commit itself to become more actively involved in the training and continuing education of the EMS providers within the hospital’s catchment area. DCH should work collaboratively with the EMS agencies in Dickenson County in providing courses that they may already be providing to hospital staff (CPR, ACLS, etc.) that are also applicable to EMS. Additionally, each agency should be utilizing Virginia OEMS EMSAT DVDs, as well as the Virginia TRAIN online training portal to augment their CE requirements.

Communications

Key Findings:

Like many other rural areas, Dickenson struggles with the ability to have reliable radio and cellular coverage over 100% of the county. Additionally, the availability of 911 to the residents of Dickenson County is relatively recent, and it seems that the county has laid the groundwork to build a more advanced communication system on.

Recommendations:

Dickenson County governmental administration should continue to work collaboratively with internal and external entities and resources to upgrade communications abilities in Dickenson County, utilizing the regional hospital preparedness system to apply for state and federal grant funds for communications augmentation.

Fiscal Support

Key findings:

During the evaluation process, all EMS agencies in the county reported that they are using revenue recovery streams to bring in funds, with collection rates of over 50%.

Additionally, it is a significant concern that the Sandy Ridge VRS has not applied for any type of RSAF grant funding since 1998. However, Clintwood VRS is the #2 agency in

the region in terms of the amount of RSAF fund awards, and there has been a significant amount of vehicles and equipment that have been secured with RSAF funds.

It was also apparent that many of the EMS agency quarters that were visited during the site visits in Dickenson are in need of renovation, ranging from minor to major, or even consideration of relocation.

Recommendations:

Eligible agencies in Dickenson 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.

Dickenson County EMS agencies may qualify for federal funds earmarked for capitol improvement projects. These funds may be helpful in making renovations to existing EMS agency space, or to construct new buildings.

Medical Direction

Key findings:

The agencies of Dickenson do not seem to have very active involvement from the OMD's that serve them. There was no evidence of active involvement in Performance Improvement programs, and seem to only really serve to "put out fires" when called upon, or for signatures as needed. There was also no evidence of OMD involvement in protocol or system development, or for on or off-line medical direction. Additionally, there was no evidence of involvement of DCH in terms of medical direction, other than in situations where the emergency department was contacted when patients were being brought to DCH.

Recommendations:

The OMDs in Dickenson should be more engaged in the activities of the agencies that are functioning under the auspices of their medical license. At the very least, the OMDs should be directly involved in the PI programs for their respective agencies, and in the development of protocols for the agency, the county, or the region.

Quality Assurance

Key Findings:

In reviewing PPCR records for the agencies of Dickenson County, it was apparent that there seems to be a lack of proper completion of PPCR reports. Additionally, all agencies have some type of call review/PI program in place, which is essential for productive quality assurance, but there are variations in how those programs are conducted, with little to no involvement from the OMD, and DCH. Finally, review of data did bring to light some data submission issues that need to be addressed.

In terms of CAH interfacility transports, DCH 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 DCH not have the means to provide specialty service for every type of medical condition, otherwise they would have not received CAH designation. There was definitely a lack of information provided, which makes arriving at a definitive conclusion related to interfacility transports difficult.

Recommendations:

Dickenson County agencies should continue to strive to provide PPCR information to OEMS in the proper format, and on a consistent basis. They should also strive to fully and properly complete reports for the patients that are transported. OMDs for the agencies should ensure that they actively participate in agency PI programs, in order to promote improvements to patient care delivery. DCH should strive to provide in-depth information related to interfacility transports to include demographics, destination, and disposition.

Mass Casualty Preparedness/System Partnerships

Key Findings:

DCH has preparedness policies in place to address mass casualty/surge events, but there was no evidence of hospital or EMS agency involvement in regional hospital preparedness committees. Also, there was no evidence of mass casualty training or drills being conducted at DCH, or involving EMS agencies.

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

Recommendations:

DCH should strive to take an active role in mass casualty preparedness in the area, and collaborate with the EMS agencies in Dickenson to ensure that there is adequate resources and planning for a mass casualty event. Additionally, EMS agencies in Dickenson 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 DCH create a database to determine 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:

DCH should strive to collect additional patient data information, if for no other reason than to enhance quality of care. The ED sees roughly 32 patients a day, and that data should be able to be entered into a database on a daily basis. This will lend to better patient information between the CAH and EMS agencies.

Conclusion:

The Virginia OEMS believes that between continuing efforts to improve the EMS System in Dickenson, coupled with the recommendations that have been made in this report, that the EMS system in Dickenson 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.

Acknowledgements:

The Virginia Office of EMS greatly appreciates the assistance of the following individuals:

Virginia Department of Health, Office of Minority Health and Public Health Policy

Michael Royster, Director

Aileen Harris

Marilyn Jackson

Kenneth Studer

Virginia Department of Health, Office of Emergency Medical Services

Gary R. Brown, Director

P. Scott Winston, Assistant Director

Dennis Molnar, Business Manager

Amanda Davis

Ron Kendrick

Jodi Kuhn

Warren Short

Study Participants:

Dickenson Community Hospital:

Lee Turner, Executive Director

Peggy Anderson, Clinical Coordinator

Dickenson County EMS Agencies:

Ron Kendrick – Clintwood Rescue Squad

Joe Moore – Clintwood Rescue Squad

Albert McPeck – Dickenson County Ambulance

Dana Mullins – Haysi Rescue Squad

Diana Mullins – Haysi Rescue Squad

Matt Slemph – Sandy Ridge Rescue Squad/Dickenson County 911

Appendices:

Appendix 1 – Responses to survey questions by study participants.

Appendix 1 – Answers to CAH Study Survey Questions

EMS Agency Survey Questions – **Clintwood Rescue Squad – Joe Moore/Ron Kendrick**
Answers provided appear in ***Bold Italics***.

1. Does your county utilize centralized dispatch? **Yes**
 - a. What agency dispatches your calls?
Dickenson County 911
2. If you are an EMS transport agency, which Emergency Department(s) does your agency transport patients to? ***Primarily DCH, also Norton Comm. Hospital***
 - a. How many patients have you transported within the last 12 months?
Approximately 100 transports per year.
 - b. How many patients were ALS vs. BLS?
47% ALS
3. Has your agency provided patient reports to the Emergency Department within the past twelve months? **Yes**
 - 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 - ***Primary***
 - ii. Cell phone - ***Secondary***
 - iii. Other?
 - c. Do you face any challenges communicating with the Emergency Department?
Yes
 - i. If yes, what are these challenges?
The radio system at DCH is outdated, and currently out of service.
4. Does your agency have a fee-for-service arrangement for patient transports? **Yes – through Certified Ambulance Group**
 - a. If yes, what has the collection rate been over the past 12 months?
Roughly 60%
5. Do you have telemetry or other telemedicine equipment on your vehicle? **No**
 - a. If yes, what equipment do you have?
The radio system at DCH cannot receive telemetry transmissions.
6. What hospitals do you transport patients to?
Primarily DCH, secondarily Norton Community Hospital.
7. 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**
 - a. If so, how many occurrences?
1 time – redirected due to equipment at ED being out of service.
 - b. How was this communicated to your agency?
On arrival at DCH ED.

8. 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? **No**
9. Does your agency participate in any quality assurance/performance improvement programs with the critical access hospital? **No**
10. What is the total number of personnel in your agency? **17 members**
 - a. What is the average age (**approximately 35**); race (**Caucasian**); gender (**60% female**) of these personnel?
 - b. How many are volunteer personnel? **17**
 - c. How many are career personnel? **5**
11. What is the number of hours of dedicated coverage (ie. station and/or vehicle are staffed) your agency provides each day? **24/7 – mostly in house, with some coverage from home during overnight hours.**
 - a. What are the total hours of on-call coverage provided each day? **24/7**
 - b. What percent of each day does your county have EMS coverage? **100%**
12. Does your agency participate in any recruitment or retention initiatives? **Yes**
 - a. If yes, what types? **Yearly letter drive for recruitment and donation solicitation, as well as recruitment of high-school students.**
13. What is the average response time for your agency in the past twelve months? **Approximately 4 minutes.**
14. Is your agency utilizing strategic placement of units based on call volume and/or location? **Utilized for special events only.**
15. Is ALS or BLS training or continuing education available in your area? **Yes, primarily in-house.**
 - a. If yes, has the critical access hospital in your area provided any training or continuing education to your agency's providers? **DCH has not been involved in training or CE for EMS providers.**
16. Does your agency have formal cooperative agreements with other EMS agencies? **Yes**
 - a. If yes, are they honored? **Yes**

1. Does your county utilize centralized dispatch? **Yes – to a degree.**
 - a. What agency dispatches your calls?
In house dispatch during business hours, and a contracted answering service after hours.
2. If you are an EMS transport agency, which Emergency Department(s) does your agency transport patients to?
Primarily DCH, also Norton Comm. Hospital, and Mountain View
 - b. How many patients have you transported within the last 12 months?
Approximately 2300 transports per year.
 - c. How many patients were ALS vs. BLS?
10% ALS
3. Has your agency provided patient reports to the Emergency Department within the past twelve months? **Yes**
 - d. 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
 - e. What form of communication do you use?
 - v. Radio - ***Primary***
 - vi. Cell phone - ***Secondary***
 - vii. Other?
 - f. Do you face any challenges communicating with the Emergency Department?
Yes
 - viii. If yes, what are these challenges?
Long distances and remote areas of limited coverage.
4. Does your agency have a fee-for-service arrangement for patient transports? **Yes – self billing**
 - g. If yes, what has the collection rate been over the past 12 months?
Roughly 85% - mostly preauthorized through Medicaid.
5. Do you have telemetry or other telemedicine equipment on your vehicle? **No**
 - h. If yes, what equipment do you have?
The radio system at DCH cannot receive telemetry transmissions.
6. 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?
No – though DCH has contacted skilled nursing facilities prior to transfer, requesting that patients be transferred elsewhere.

7. 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? **Yes – transfers to Norton Comm. Hospital or Johnson City, TN.**
 - ix. What is the length of time these transports require? **Ranges from 30-120 minutes**
 - x. Do you communicate with the supporting hospital/facility while en route? **Only in an emergency.**
 - xi. Do you use telemetry or other telemedicine equipment during these transports? **Usually not.**
 - xii. Do you receive compensation from the hospital for these transports? **Yes – for round trip transfers only.**
 - xiii. How many of these transports are scheduled versus emergency or non-emergency transports?
90%+ are scheduled transfers.
8. Does your agency participate in any quality assurance/performance improvement programs with the critical access hospital? **No**
9. What is the total number of personnel in your agency? **6 members**
 - i. What is the average age (**35-40**); race (**Caucasian**); gender (**60% female**) of these personnel?
 - j. How many are volunteer personnel? **0**
 - k. How many are career personnel? **6**
10. What is the number of hours of dedicated coverage (ie. station and/or vehicle are staffed) your agency provides each day? **24/7 – mostly in house, with pager coverage during overnight and weekend hours.**
 - l. What are the total hours of on-call coverage provided each day? **24/7**
 - m. What percent of each day does your county have EMS coverage? **100%**
11. Does your agency participate in any recruitment or retention initiatives? **No**
12. What is the average response time for your agency in the past twelve months?
Approximately 12 minutes.
13. Is your agency utilizing strategic placement of units based on call volume and/or location? **Yes, one vehicle is based in a station in Norton, VA.**
14. Is ALS or BLS training or continuing education available in your area? **Yes**
 - n. If yes, has the critical access hospital in your area provided any training or continuing education to your agency's providers? **DCH has not been involved in training or CE for EMS providers.**
15. Does your agency have formal cooperative agreements with other EMS agencies?
DCA is not a DERA agency, and is not in the county mutual aid plan.

Answers appear in ***Bold Italics***

1. Does your county utilize centralized dispatch? **Yes**/No (Circle one)
 - a. What agency dispatches your calls? ***Dickenson County 911***

2. If you are an EMS transport agency, which Emergency Department(s) does your agency transport patients to? ***The majority of patients go to DCH***
 - b. How many patients have you transported within the last 12 months? ***40-50/month***
 - c. How many patients were ALS vs. BLS? ***60% BLS (approx)***

3. Has your agency provided patient reports to the Emergency Department within the past twelve months? **Yes**/No (Circle one)
 - d. If yes, how often?
 - xiv. 0-25% of the time
 - xv. 26-50% of the time
 - xvi. 51-75% of the time
 - xvii. 76-100% of the time
 - e. What form of communication do you use?
 - xviii. **Radio - Primarily**
 - xix. Cell phone
 - xx. Other?
 - f. Do you face any challenges communicating with the Emergency Department? **Yes**/No (Circle one)
 - xxi. If yes, what are these challenges? ***Intermittent down time with radios, as well as geographic dead spots.***

4. Does your agency have a fee-for-service arrangement for patient transports? **Yes**/No (Circle one) ***Agency utilizes Maxim Billing, and doesn't bill over what insurance covers.***
 - g. If yes, what has the collection rate been over the past 12 months?
 - xxii. 0-25% of the time
 - xxiii. 26-50% of the time
 - xxiv. 51-75% of the time
 - xxv. 76-100% of the time

5. Do you have telemetry or other telemedicine equipment on your vehicle? Yes/**No** (Circle one)

6. 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**

7. 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? **No**

8. Does your agency participate in any quality assurance/performance improvement programs with the critical access hospital? Yes/ **No**
9. What is the total number of personnel in your agency? **18 providers**
 - h. What is the age (**approx. 40**); race (**Caucasian**); gender (**even 50/50%**) of these personnel?
 - i. How many are volunteer personnel? **10**
 - j. How many are career personnel? **8**
10. What is the number of hours of dedicated coverage (ie. station and/or vehicle are staffed) your agency provides each day? **24/7**
 - k. What are the total hours of on-call coverage provided each day? **24/7**
 - l. What percent of each day does your county have EMS coverage? **100%**
11. Does your agency participate in any recruitment or retention initiatives? Yes/ **No**
12. What is the average response time for your agency in the past twelve months?
Approximately 6 minutes
13. Is your agency utilizing strategic placement of units based on call volume and/or location? Yes/ **No**
14. Is ALS or BLS training or continuing education available in your area? Yes/ **No**
Not available in-house
 - m. If yes, has the critical access hospital in your area provided any training or continuing education to your agency's providers? **No**
15. Does your agency have formal cooperative agreements with other EMS agencies?
Yes /No (Circle one)
 - n. If yes, are they honored? **Yes**

EMS Agency Survey Questions – Sandy Ridge Rescue Squad – Matt Slemp
Answers provided appear in ***Bold Italics***.

1. Does your county utilize centralized dispatch? **Yes**
 - a. What agency dispatches your calls?
Dickenson Co. 911, and at times calls are received from Wise Co. 911.
If you are an EMS transport agency, which Emergency Department(s) does your agency transport patients to?
Primarily DCH.
 - b. How many patients have you transported within the last 12 months?
Approximately 230 transports per year.
 - c. How many patients were ALS vs. BLS?
Agency is licensed at the BLS level only.
2. Has your agency provided patient reports to the Emergency Department within the past twelve months? **Yes**
 - d. If yes, how often?
 - xxvi. 0-25% of the time
 - xxvii. 26-50% of the time
 - xxviii. 51-75% of the time
 - xxix. 76-100% of the time
 - e. What form of communication do you use?
 - xxx. Radio - ***Primary***
 - xxxi. Cell phone - ***Secondary***
 - xxxii. Other?
 - f. Do you face any challenges communicating with the Emergency Department?
Yes
 - xxxiii. If yes, what are these challenges?
Long distances and remote areas of limited coverage.
3. Does your agency have a fee-for-service arrangement for patient transports? **Yes – Maximized Billing - Pennsylvania**
 - g. If yes, what has the collection rate been over the past 12 months?
51-75%
4. Do you have telemetry or other telemedicine equipment on your vehicle? **No**
5. 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?
No
6. 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? **No**
7. Does your agency participate in any quality assurance/performance improvement programs with the critical access hospital? **No**
8. What is the total number of personnel in your agency? **27 members**

- h. What is the average age (**34**); race (**Caucasian**); gender (**even 50/50%**) of these personnel?
 - i. How many are volunteer personnel? **27**
 - j. How many are career personnel? **0**
9. What is the number of hours of dedicated coverage (ie. station and/or vehicle are staffed) your agency provides each day? **24/7 – most members live within a mile or two of the station.**
 - k. What are the total hours of on-call coverage provided each day? **24/7**
 - l. What percent of each day does your county have EMS coverage? **100%**
10. Does your agency participate in any recruitment or retention initiatives? **Yes – community awareness projects, open houses, and a haunted house around Halloween.**
11. What is the average response time for your agency in the past twelve months? **Approximately 21 minutes.**
12. Is your agency utilizing strategic placement of units based on call volume and/or location? **No**
13. Is ALS or BLS training or continuing education available in your area? **Yes**
 - m. If yes, has the critical access hospital in your area provided any training or continuing education to your agency's providers? **DCH has not been involved in training or CE for EMS providers.**
14. Does your agency have formal cooperative agreements with other EMS agencies? **Yes, and it is honored.**

CAH Facility Survey Questions – Dickenson Community Hospital

Lee Turner – Executive Director, and Peggy Anderson, Clinical Coordinator

Answers appear in ***Bold Italics***

1. What changes have occurred in your Emergency Department due to your hospital's conversion to a CAH? ***Additional supplies for the hospital have been procured through Federal grant funding streams.***
 - a. What specific changes in your policies and procedures? ***None.***
 - b. If yes, how have these changes affected the CAH's relationship with EMS agencies? ***DCH's relationship with EMS agencies in the county has not been affected by CAH designation.***
2. How do you evaluate your role as a CAH? ***DCH is the sole provider of hospital care in Dickenson County. Reimbursement is vital to survival.***
 - a. What Quality Assurance/Performance Improvement procedures do you perform? ***DCH has an in-house QI program, which models the QI program in place at Norton Community Hospital, and is focused on continuous monitoring of core measures.***
3. Volume of patients arriving in ED. ***Approximately 700/month.***
 - a. Numbers arriving via specific EMS agency ***ED receives 15% of it's patients via EMS, doesn't track patients by specific agency.***
 - b. ALS versus BLS - ***Unknown***
 - c. Types of calls - ***Unknown***
 - d. Patient Disposition - ***Unknown***
4. How many beds do you have in your Emergency Department? ***4 ED Beds, with construction in progress to increase capacity to 6 beds.***
5. In the past 12 months has your facility been unable to admit patients from the ED due to lack of available beds? ***Yes, very infrequently.***
 - a. If yes, were those patients transferred another hospital? ***Yes, Norton Community Hospital, Bristol Regional Medical Center, and Johnson City Medical Center.***
6. Number and qualifications of staff in your facility's ED (i.e. doctors, nurses, technicians, etc.) ***6 physicians, 14 nurses, and several supplemental staff (unit clerks, x-ray/lab techs, etc.)***
 - a. Do you employ EMS personnel in your ED? ***No.***
7. What supporting hospital do you have a Network Agreement with? ***Norton Community Hospital and Johnson City Medical Center.***
 - a. What is your relationship with the supporting hospital? ***All facilities part of same health system.***
 - b. What is the distance in miles and time to this hospital? ***Norton: 34 miles/40 minutes by ground. Johnson City: 100 miles/1:45 by ground.***
8. How are patients transported to supporting and other hospitals? ***Dickenson County Ambulance is the primary service utilized for interfacility transfers.***
 - a. Do you have a hospital patient transport services? ***No.***

9. Patient Demographics for Patient Transfers
 - a. Number - **Unknown**
 - b. Types- **Unknown**
 - c. Equipment used- **Unknown**
 - d. Ground versus air transport
 - i. Does your hospital have a helipad to accommodate air transport? **Yes**
10. Number of patients transported inside the catchment area, but outside county your facility is located in. **99% of patients reside in Dickenson County.**

Additional information:

DCH allows EMT students to do clinical rotations through the ED. Challenges that DCH faces are: overcoming decreases in patient census, closure of units within the facility, and maintaining CAH designation. The facility is undergoing changes to structure itself toward more outpatient based services. DCH has faced recent layoffs, but were able to rehire 32 of 40 laid off employees.