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Essex County Emergency Medical Services: Existing Conditions Report

How Emergency Medical Care is Provided

February, 2017

Prepared for:
Essex County and New York State Department of State Municipal Restructuring Fund

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Summary

Introduction

Essex County has identified that its current system of emergency medical services is in need of a long term strategic plan to improve its operations and set the system on a sustainable course. This project will lead to the development of a strategic plan and specific action plans for the county and several agencies that provide EMS in the county.

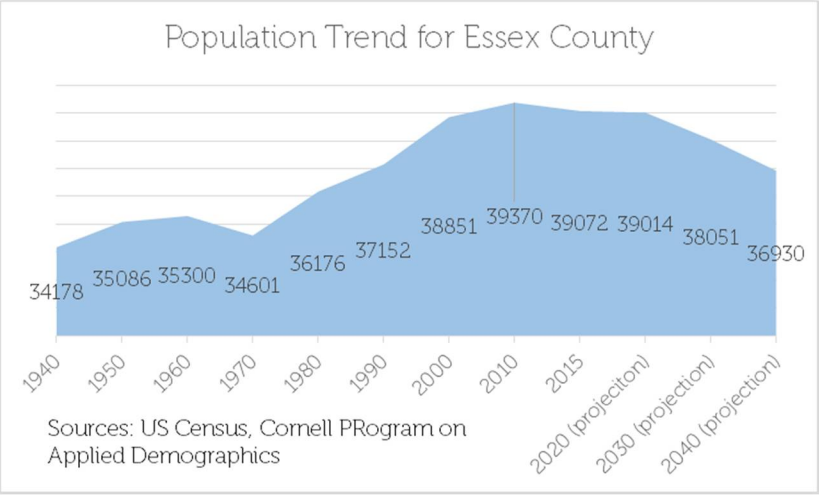
CGR has collaborated with the county and area EMS agencies to analyze the existing operations of the EMS system. The baseline document will provide information to enable the leaders of the county and area agencies to develop options for improving the operations of EMS in the county and drafting plans to implement the changes. Throughout the planning process, members of the agencies as well as community leaders will have the opportunity to shape the outcome of the project to best serve the community.

Essex County Overview

Essex County is located in the northeast section of New York. The county has 18 towns and over 1,900 sq. miles of land area. The county is wholly located in the Adirondack Park. The population is estimated to be just over 39,000. Not included in this population are the many seasonal residents that have second homes or the visitors to the many outdoor attractions in the county. On some peak weekends, it is estimated that the population is nearly double the permanent residents.

Population Changes

Over the long term, the population of Essex County had been slowly increasing until the 2015 estimated population showed a slight decline from the 2010 census. There is a projected decline of population in the county due to decreasing birth rates combined with out-migration of younger adults.



EMS System Overview

The emergency medical services (EMS) system in Essex County has evolved over the last three decades from an entirely volunteer system that subsisted on donations or minimal tax funds to one where most EMS calls are answered by agencies with a paid staff that bill for services. Along that evolutionary pathway, community expectations have increased, care standards are higher, medical equipment is more expensive, the number of available volunteers has reportedly decreased and the age of the workforce has increased. The system has 18 transport EMS companies that serve the county and 2 flight medical companies that operate in the county.

An EMS system commonly includes not only the transport ambulances, but emergency communications, receiving hospitals, first responders, educational facilities, physician medical direction and administrative oversight. While transportation and the care they provide will be the primary focus of the project, each of the other aspects will also be addressed.

Emergency Communications

Most of the EMS agencies in the county primarily receive emergency calls through a central public safety answering point (PSAP) operated by the Essex County Emergency Services Office (ESO). The 911 Center then assigns calls to the appropriate EMS agency using a combination of radio transmissions and text notifications. The ESO operates a dispatch center with a minimum of two dispatchers on duty at all times. There are 11 full time employees and four per diem staff. The 911 center supervisor will also fill in as needed during peak demand periods. The center is responsible for EMS calls, fire calls and the Essex County Sheriff's Road Patrol and Ticonderoga Police.

The Essex County EMS agencies have dispatch protocols that do not initiate the request for mutual aid until after 8 minutes have passed from the initial time of the call. This practice is requested by the EMS agencies, but can lead to extended response times. The 911 Center does not routinely know which agencies have a crew available to respond to calls. The latter is influenced by the fact that not all agencies have a "duty crew" that indicates they are ready to respond.

The PSAP receives about 200 calls per day and only about 20 percent are true emergencies.

Hospitals In and near Essex County

There are two hospitals in Essex County (Elizabethtown Community Hospital and Moses-Ludington Hospital in Ticonderoga) and a free standing emergency room in Lake Placid (Adirondack Medical Center) that operates 16 hours per day. In addition to the three emergency rooms in the county, EMS agencies frequently transport to three hospitals in neighboring counties - Champlain Valley Physician's Hospital (CVPH) in Plattsburgh, **Glens Falls Hospital** in Glens Falls and Adirondack Medical Center – Saranac Lake Site. Also, EMS agencies will occasionally transport out of the immediate area to specialty hospitals in Burlington or Albany. The table shows the transports in 2015.

Transports by Hospital

Destination Hospital	Transports	% of Total
Elizabethown Comm. Hospital	776	23.8%
Moses-Ludington Hospital	648	19.9%
AMC-Saranac Lake ED	635	19.5%
CVPH	464	14.3%
AMC-Lake Placid ED	370	11.4%
Glens Falls Hospital	313	9.6%
Non Hospital Destinaton	16	0.5%
Porter Medical Center/Middlebury	14	0.4%
Fletcher Allen Healthcare/Burlington	6	0.2%
Albany Medical Center Hospital	5	0.2%
Univ. of Vermont Healthcare	4	0.1%
Newcomb Health Center	3	0.1%
Lake Placid Airport	1	0.0%
Grand Total	3,255	100.0%

Medical Direction

Medical direction for Essex County EMS agencies comes primarily from one of four physicians. All physicians have been heavily involved in EMS for many years and provide the service on a volunteer basis to the agencies. The physicians perform a variety of services for the agencies from reviewing operating plans to signing necessary paperwork. All physicians participate on the Regional Emergency Medical Advisory Committee (REMAC) for the Mountain Lakes Region.

Education

EMS education in Essex County is handled through the county EMS County Coordinator's Office in coordination with Mountain Lakes Regional EMS Council. In 2015, there was one CFR original course that yielded 3 certified providers and two EMT original courses that yielded 21 new EMTs. There were also two EMT recertification courses that helped 15 EMTs retain their certification. Also, 4 AEMT-CCs became certified in courses taught in the county and six others completed their recertification.

Regional Coordination

Essex County is in the Mountain Lakes Region for the New York State EMS Councils. The region includes Clinton, Franklin, Warren and Washington Counties. The regional coordination infrastructure includes a program agency, the REMAC and Regional EMS Council (REMSCO). The program agency's role is to provide support to the REMAC and REMSCO, collect data related to the performance of EMS in the region, and support educational initiatives including through the training of new instructors and the approval of new EMS course sponsors. The REMAC sets protocols and standards of practice for the region. The REMAC consists of physicians and EMS providers from each county in the region. The REMSCO has the authority to regulate the agencies that provide ambulance transport, advanced life support first response and EMS education. The REMSCO is also tasked with developing a training plan for EMS providers.

County Coordination

Essex County named their first full time EMS coordinator in January 2016. Previously, the position was filled by a part time employee. The full time coordinator has wide range of responsibilities including interfacing with county government, liaison with the 911 Center, participation in regional EMS activities, coordination of training, representing the county in state EMS activities, and responding to large scale events. The office has only the one employee, but she does receive support from other members of the emergency management office.

Agency Profiles

The data on the agencies comes from a variety of sources including agency interviews, agency records, Department of Health records, Essex County data and U.S. Census. In some cases, the data was not provided for all agencies or certain data points were missing.

The EMS transport agencies in the county are as diverse as the communities that they serve, each has a proud history that usually goes back to the middle decades of the 20th century when volunteers sought training and equipment to begin helping neighbors get to the hospital in emergencies. Over the ensuing decades, community expectations, training requirements and fiscal demands have led many of the agencies to begin billing for services and hiring paid employees to meet the needs of the community. The full report contains information on a variety of agency characteristics. The table below provides a summary of some of the key findings.

Agency Name	Type of Service	Service Area	Members/ Employees	Ambulances	Bill for Service?	Population	Calls in 2015
Ausable Forks Vol Amb Svc Corp	Combo	Towns of Jay and Black Brook	51	2	Yes	4003	405
Elizabethtown Community Hospital Transport	Paid	n/a: Hospital Transport	21	2	yes	n/a	n/a
Elizabethtown-Lewis Emergency Squad	Combo	Town of Lewis, Town of Elizabethtown	43	2	yes	2,545	214
International Paper	Paid	International Paper facility	12	1	no	n/a	n/a
Keene Rescue Squad	Vol	Town of Keene	7	1	yes	1105	64
Keene Valley EMS	Vol	Keene Valley FD	31	1	no		74
Lake Placid Vol Amb Svc, Inc	Combo	Lake Placid Village and Town of North Elba	37	3	yes	8957	1071
Lamoille EMS	Paid	Interfacility and Crown Point	12	2	yes		177
Minerva Rescue Squad	Vol	Town of Minerva	28	1	no	809	168
Moriah EMS	Vol	Town of Moriah	12	2	no	4798	411
Newcomb Ambulance Squad	Combo	Town of Newcomb	40	1	Yes	436	73
Schroon Lake EMS	Combo	Schroon Lake, North Hudson	22	2	no	1894	298
Ticonderoga Emergency Squad	Vol	Ticonderoga, Putnam,	40	2	yes	7711	429

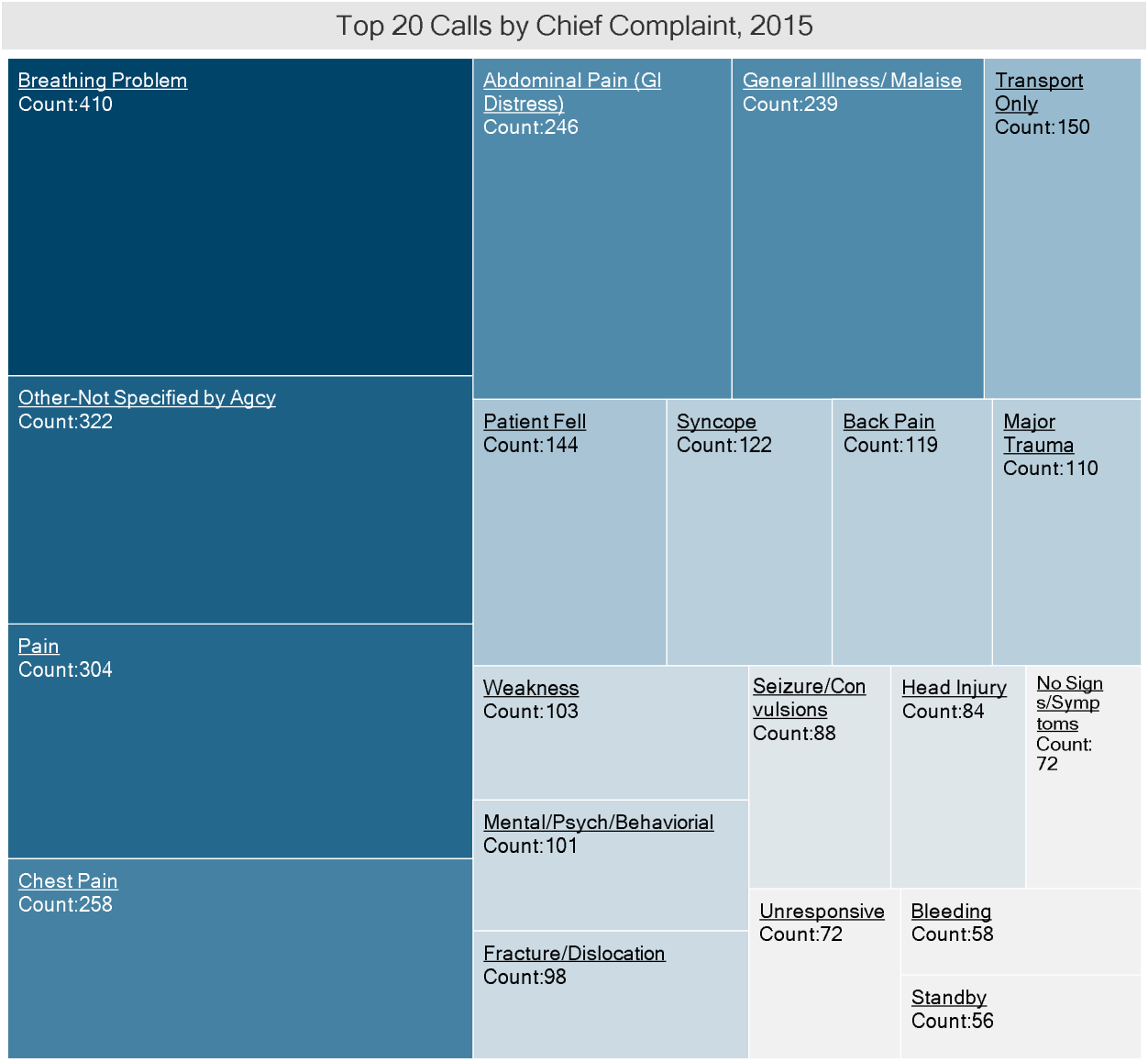
Agency Name	Type of Service	Service Area	Members/ Employees	Ambulances	Bill for Service?	Population	Calls in 2015
		Crown Point					
Westport Fire District Emergency Squad	Vol	Town of Westport	28	2	no	1312	150
Willsboro-Essex EMS	Vol	Towns of Willsboro and Essex	26	3	yes	2696	403
Wilmington Town Ambulance	Combo	Town of Wilmington	25	2	yes	1253	191
Total			435	29	11 of 16	37519	4128
Keeseville and Saranac Lake are based outside the county and were not included in this section of the report.							

Other EMS services include the Olympic Regional Development Authority (ORDA) which is responsible for providing EMS staffing at five venues in Essex County, North Country Life Flight is a non-profit, combination service that provides medical staffing for the New York State Police helicopters that are stationed at the Adirondack Regional Airport north of Saranac Lake, and Lifenet of New York, which began operating a helicopter service out of the Ticonderoga Airport in October, 2016.

Calls for Service in 2015

The data regarding the EMS calls for services in Essex County was requested from each of the 13 ambulance services that provide substantial EMS transport in the county. The agencies were requested to submit 25 common data points (see list in Appendix 1) for each call that they responded to during 2015. All agencies completed an excel spreadsheet and submitted at least partial data for the calls. 4,128 calls for service were reported by the agencies indicating that there are about 11 calls per day on average in Essex County.

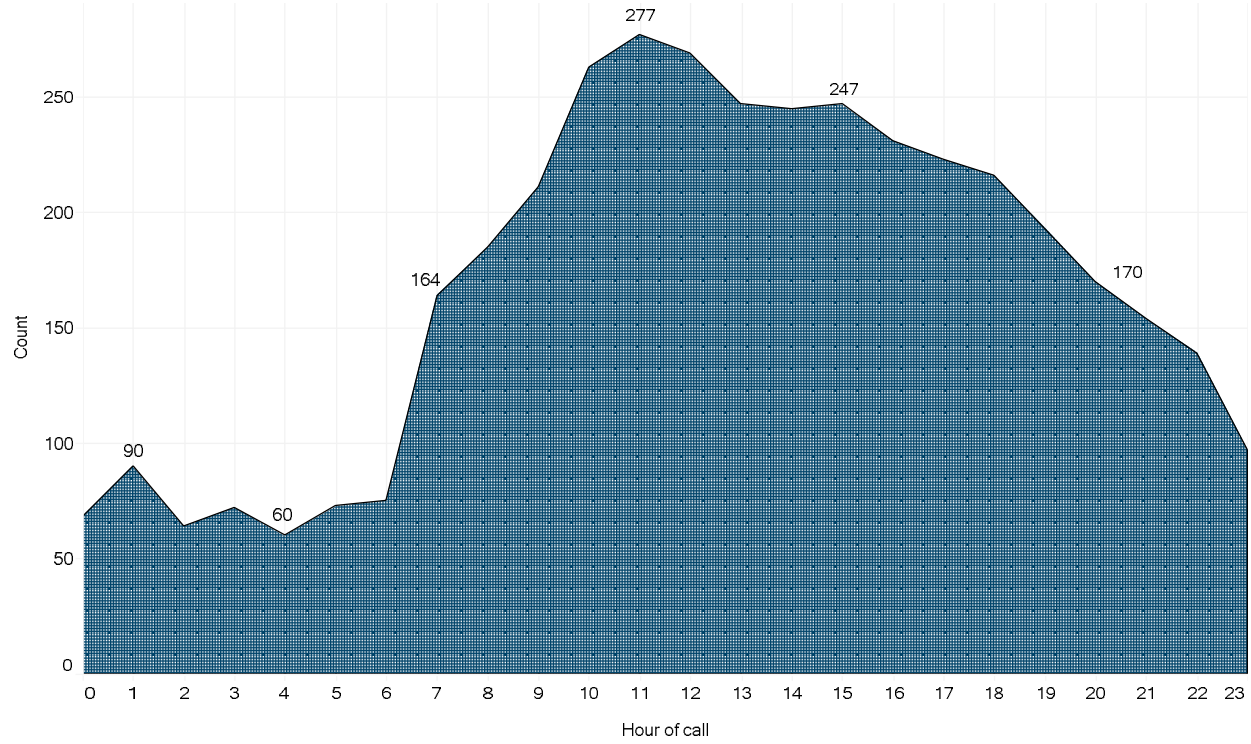
The top 20 calls by chief complaint accounted for 76 percent of the calls that were reported by the agencies. These are the complaints specified by the agency at time of transport and may not reflect the final outcome of the patient. More than 20 percent of calls had chief complaints of breathing problems, chest pains, major trauma, seizures, and unresponsiveness that likely would benefit from advanced life support. Other calls list pain and fracture/dislocations as a chief complaint that might benefit from pain management from ALS providers.



Distribution of EMS Calls by Time of Day

About 69 % of EMS calls occur between the hours of 7 am and 7 pm. The rate of calls per hour is substantially lower on the overnight hours with the hours between midnight and 7 am accounting for only 12% of calls. The busiest hours are between 10 am and 3 pm with those 5 hours accounting for 32 % of calls.

Calls by Hour



Call Time Intervals

CGR calculated some key time intervals for each agency. The intervals were shown in the agency descriptions earlier in the report (p. 10). On the following table, the times are presented for the county as a whole. An important caveat is that not all data was provided for each call. Also, a missing data piece is the call processing time from when the call is answered at the 911 center to when it is assigned to the agency. For EMS calls, it routinely takes 1.5 to 2 minutes from the time of answering the call to the time it is assigned to the agency.

Chute Time: Across the county, the median chute time is 5 minutes and the 90th percentile chute time is 11 minutes. The Mountain Lakes Region has established a target of 10 minutes or less for this time interval. Five agencies (AuSable, Keene, Lake Placid, LaMoille, and Newcomb) meet this target and only one of them (Keene) relies primarily on volunteer responders.

Response Time: Response times are a frequent measure of EMS performance, but full context is needed to use that measure properly and full context is not available from the agencies. The key piece that is missing is the call type at time of dispatch. It is common practice in EMS to not respond to with lights and sirens to routine calls such as transports between facilities or minor medical problems as identified through the dispatch triage process. The information on call type was not available for this

analysis. The median response time in the county is 10 minutes and the 90th percentile is 21 minutes. Some agencies with larger service areas (Schroon Lake and LaMoille) have longer 90th percentile response times, while Lake Placid and its dense call distribution has the shortest 90th percentile time. This time interval includes the chute time.

Transport Time: The transport time is the time interval from when an agency begins transporting to when they arrive at the hospital. While the median time for transport is only 20 minutes in the county, that time is lowered by several higher volume agencies with short distances to their hospitals. Minerva, Newcomb, and Schroon Lake all have transport times that exceed a median value of 40 minutes and a 90th percentile of nearly an hour. These long transport times lengthen the total call time and also place a burden on the crews that are on those calls, particularly the volunteers.

Total Call Time: The total call time for agencies indicates how long their ambulance is out of service on the event. The median value of 75 minutes is influenced, again, by the larger agencies with short transport time. The communities with longer transport times (Minerva, Newcomb and Schroon Lake) all have median call times around 2 and half hours with 90th percentile values over an hour longer. These time intervals don't include the time necessary for crews to prepare for their next call or completing paperwork. For crews in areas with long transports, an EMS call is more than three hours in length when the other routine tasks are taken into consideration. It should also be acknowledged that during the calls in many places, there is not another ambulance available or the crew to staff one if it does exist, therefore there is a gap in EMS coverage.

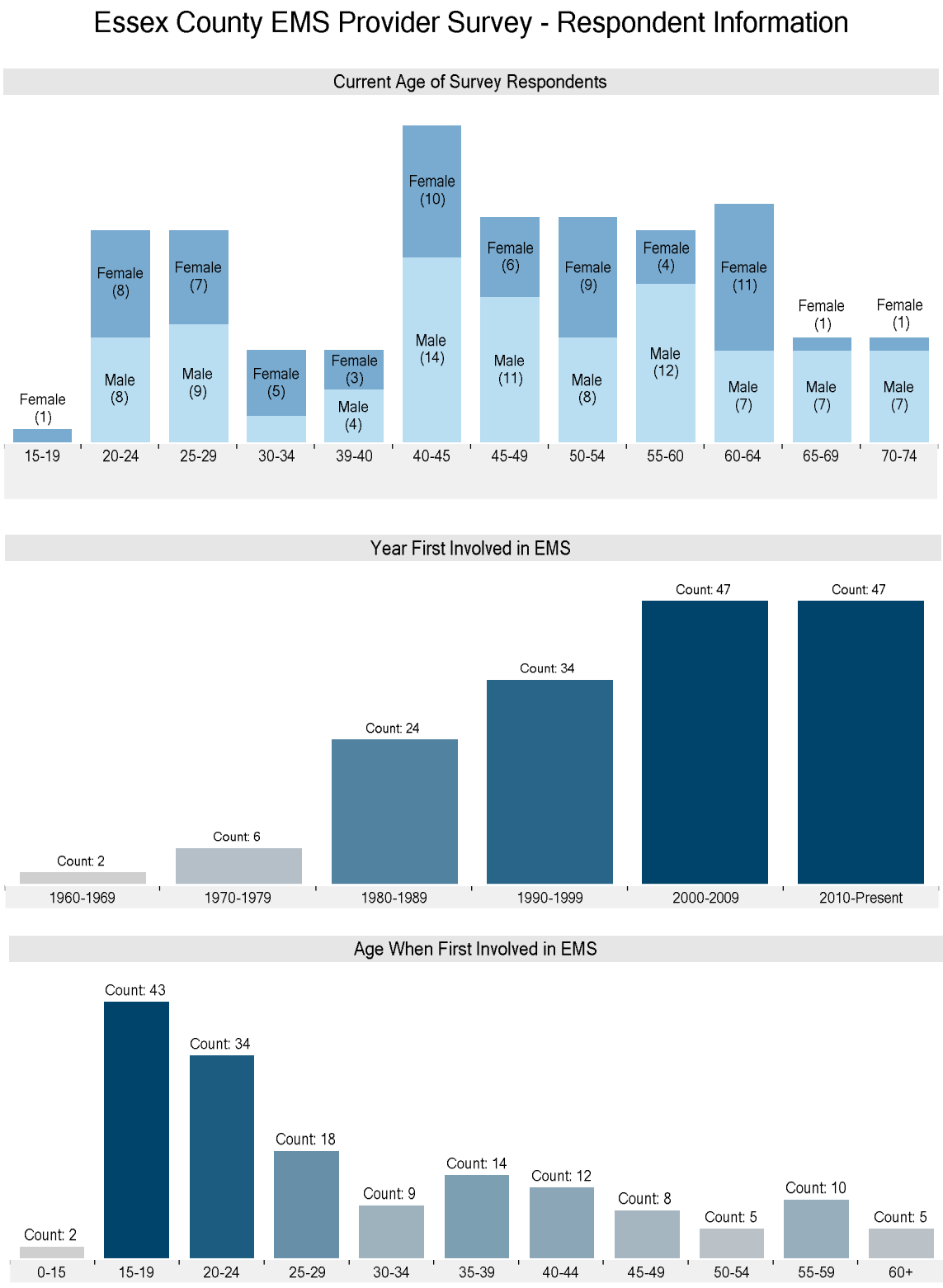
Call Time Intervals												
	Chute Time (hh:mm)			Response (hh:mm)			Transport Time (hh:mm)			Total Call Time (hh:mm)		
Agency	Median	80thP	90thP	Median	80thP	90thP	Median	80thP	90thP	Median	80thP	90thP
Essex County	0:05	0:09	0:11	0:10	0:16	0:21	0:20	0:35	0:45	1:15	2:03	2:35
AuSable	0:03	0:06	0:09	0:10	0:16	0:21	0:35	0:43	0:46	0:39	1:47	2:14
Etown-Lewis	0:08	0:11	0:13	0:15	0:21	0:25	0:08	0:15	0:21	0:50	1:17	1:39
Keene	0:06	0:08	0:09	0:09	0:13	0:20	0:15	0:19	0:21	1:13	1:29	1:49
Keene Valley	0:08	0:12	0:14	0:10	0:17	0:23	0:17	0:21	0:24	1:30	1:48	2:08
Lake Placid	0:03	0:06	0:08	0:07	0:11	0:15	0:18	0:21	0:23	0:57	1:28	1:55
LaMoille	0:05	0:08	0:10	0:15	0:21	0:25	0:12	0:24	0:44	1:04	1:54	2:27
Minerva	0:07	0:09	0:11	0:13	0:17	0:20	0:49	0:54	0:58	2:33	3:11	3:34
Moriah	0:08	0:10	0:12	0:13	0:16	0:19	0:21	0:26	0:28	1:38	1:57	2:10
Newcomb	0:03	0:06	0:07	0:07	0:14	0:20	1:05	1:10	1:17	2:46	3:34	3:46
Schroon Lake	0:03	0:10	0:14	0:12	0:20	0:27	0:44	0:51	0:57	2:25	3:09	3:30
Ticonderoga	0:06	0:09	0:11	0:10	0:15	0:20	0:03	0:07	0:12	0:39	0:55	1:10
Westport	0:07	0:10	0:12	0:12	0:17	0:21	0:12	0:16	0:19	1:29	1:51	2:11
Wb-Esx	0:07	0:10	0:12	0:11	0:16	0:19	0:31	0:37	0:40	1:50	2:09	2:19
Wilmington	0:05	0:09	0:11	0:11	0:17	0:21	0:24	0:35	0:41	1:53	2:15	2:34

Survey of EMS Workforce

In October of 2016, surveys were electronically distributed[1] to the Essex County EMS community that requested provider data on items such as tenure, volunteer and/or employment commitment levels, certification levels, and agency affiliation. Open-ended questions were included for the respondent to express personal answers to questions regarding training opportunities and solutions to challenges their agency

[1] paper copies of surveys were available to those that requested them

may face. The 160 responses received were provided anonymously and no identifying data was requested. Some of the questions will be used to inform later stages of the



project.

More than half (53%) that completed the survey indicated that they are only volunteers, while 30% both work and volunteer. 45% indicate that they are with only one agency. A small share (6%) indicate that they are involved with 5 or more agencies.

The majority of volunteer providers feel that they are appreciated and recognized by their community. They also feel that they would be more likely to continue to volunteer if they received incentives such as tax relief or a life insurance program. The paid EMS providers were split as to whether they were fairly compensated for their job.

Respondents who indicated that they:	
Both VOL and work for PAY	42
Volunteer only	73
Work for Pay only	22
Work/VOL at 1 agency	69
Work/VOL at 2 agencies	35
Work/VOL at 3 agencies	22
Work/VOL at 4 agencies	14
Work/VOL at 5 agencies	5
Work/VOL at 6 agencies	3
Work/VOL at 7 agencies	2
Work/VOL at 9 agencies	1

Baseline Key Findings

- EMS Agency Characteristics
  - There are 18 EMS transport agencies that serve the county. Most are either fire department based (41%) or independent non-profit organizations (30%). In 2015, the independent ambulances responded to about 73% of the calls in the county and fire department ambulances about 18%. The remaining amount were reported being split by the town ambulance and the commercial services' 911 calls. The hospital based systems were excluded.
  - The EMS system responded to 4,128 events in 2015, 11.3 responses per day countywide. Through mid-September 2016, there were 11.7 responses per day. As call volume slows after the summer tourist season ends, response per day is anticipated to finish consistent with 2015.
  - Only the five busiest EMS agencies respond to calls at a rate greater than one call per day and no agency averages more than two calls per day. The five least active agencies responded to fewer than six calls per month.
  - Agencies can assure an adequate EMS response when all resources are available, but second calls or calls when key people are unavailable challenge the system's ability to respond in a timely manner. Nearly all agencies meet the goal of having an ambulance responding to calls in less than 10 minutes 90 percent of the time

- Nearly all agencies are providing the highest tier of medical care (advanced life support) or have it readily available. ALS is requested by BLS providers as needed, but is not dispatched by protocol.
- Most of the basic life support ambulances have advanced treatments such as epinephrine injections, albuterol administration and continuous positive airway pressure adjuncts available to them.
- Advanced life support (ALS) is often available for calls to the larger agencies with some paid staff. Some agencies have very few ALS providers.
- Anecdotally, patients are harmed from slow EMS response several times a year. This is typically attributed to lack of provider availability. This is not officially reported or reviewed.
- Community observers report little improvement EMS response times over the last few decades. The lack of historical data will prevent this from being measured.
- The addition of a full time county EMS coordinator in 2016 is seen as having a positive impact by both EMS providers and outside parties.
- No non-commercial ambulance reports being able to cover all their operational costs based on patient billings. More than half the agencies have a substantial reliance on property tax revenue.

- EMS Workforce
  - Based on 2015 NYS DOH data, there are 215 certified EMS providers living in Essex County. Three are Certified First Responders (CFRs), 159 are Emergency Medical Technicians (EMTs), 5 are Advanced EMTs, 37 are AEMT-Critical Care, and 10 are paramedics. This equates to 4.1 EMTs per thousand residents and 1.2 advanced life support providers per thousand residents. This rate is slightly better than the other four counties in the EMS region (Clinton, Franklin, Warren, and Washington). Additional data is needed to compare against other rural counties and previous years.
  - The EMS system and the individual agencies rely on a small percentage of the certified EMS providers to respond to calls and provide agency leadership.
  - Based on interviews, the share of calls covered by paid staff has increased in each of the previous 5 years.

- A majority of the key EMS providers are over 50 with a substantial percentage planning to leave the field in the next five to ten years.
- There is no coordinated effort to develop EMS leaders for the next decade and beyond.
- There are few paramedics (10) in the county, probably related to the limited educational facilities and lack of career opportunities.
- Agencies that employ EMS providers report that they have difficulty recruiting both full and part time employees.
- The majority of agencies that rely on volunteers report that their numbers are down from five years ago, that they rarely have new members join and that the burden of responding is increasingly shifted to a few active members.
- The expanded EMS Educational curriculum from 2012 improves patient care, but is a barrier to recruiting and retaining EMS providers because of the extended number of hours in the class.
- EMS providers report difficulty in finding appropriate continuing education and recertification education opportunities.
- There are only three active Certified Instructor Coordinators (CICs) that are able to teach EMS certification courses and all teach on a part time basis.
- State law limits EMT certification to individuals 18 and older. The NYS Department of Health takes this one step further by not allowing enrollment in EMT classes that end before the individual turns 18. This limits the opportunity to work with high schools to develop EMTs and provide valuable vocational training. This could be rectified by a change in DOH regulation to allow EMT students complete the course, then take the certification exam after turning 18.
- Most EMS providers in the county became involved under the age of 30 with a substantial portion getting involved in their early 20s or younger.

- General Observations On Improving the EMS System
  - EMS in Essex County will never match that in an urban or suburban area, however a well-designed system could lead to improvements in response time and level of care.
  - The hospitals in the county will need to participate in any EMS system improvement.

  - The records management system at the 911 center has substantial information on EMS calls, but the data are not extracted and analyzed to improve the system.
  - The aging population will both reduce the number of available volunteers as they become physically unable to perform the work and will increase the volume of calls because older residents use the EMS at a greater rate.
  - The solutions for improving the EMS system could involve partners from neighboring counties and Vermont.
- Unanswered Questions
  - The prevalence and distribution of mutual aid was not able to be answered from the available data.
  - The varied funding sources and opaque financial reports prevented the development of a model for financial operations.
  - The utilization of air medical resources and the impact of the new service could not be analyzed.
  - Historical call data on a county and agency level was not available to evaluate long term trends.

Recommendations for Immediate Action

The following items are based on practices in other EMS systems and could be undertaken with limited additional resources.

- Institute a shorter time interval before mutual aid is requested from neighboring agencies. The home agency could continue to be requested, but help from a neighboring agency should initiated at four minutes if the home agency has not indicated there is a crew available.
- Advanced life support should be assigned to calls using Emergency Medical Dispatching protocols such as all calls categorized "Charlie", "Delta" and "Echo".
- First response protocols for "Echo" calls that involve non-ambulance personnel such as law enforcement and firefighters.
- EMS agencies and the 911 center need to better communicate when there are crews available to respond to calls. This is particularly important for volunteer

agencies that rely on scramble crews and have a volume of calls greater than 150 per year.

- The 911 Center and EMS coordinator should develop a series of operational "dashboards" to help manage the EMS system using data from the dispatch system. Data points that should be tracked on a regular basis, by municipality, include: number of responses, type of responses, chute time, response time, utilization of mutual aid, need or availability of ALS and destination hospitals for transport.

- Develop an "incident report" that can be generated by the 911 center to the EMS coordinator to official track key events such as mutual aid, extended response times for serious calls, and unavailability of ALS when requested.

- Develop a process for critical event reviews (including medical direction) at an agency or county level for calls such as cardiac arrests, severe trauma, acute myocardial infarction, stroke and pediatric calls. This should be a "no fault" review targeted at improving the agency response.

- Work with the REMSCO to develop training programs for low frequency skills such as pediatric assessment, epi-auto pens, needle decompression, and synchronized cardioversion.

- Develop a process that neighboring agencies can be "put on alert" when an agency with limited resources (only one ambulance) will be tied up on a call for transport. Although state law prohibits "staging" in another operating district, this step could reduce response times.

Next Steps

Strategic Planning Process for the county and the agencies will move toward developing specific action plans to address some of the concerns identified in this report. To inform that process, the EMS survey and interviews of the agencies asked questions related to the strengths, weakness, opportunities for improvement and threats to current operations.

CGR will be working with members of the EMS study steering committee and other interested parties to develop key action areas and then work to develop action plans to help the EMS agencies progress into the future.

The goal is for CGR to work with local providers to develop several strategic action plans by May 2017 that can be implemented over the following 18 months.

Acknowledgements

Many thanks to the representatives of each agency that spent time with the CGR team to answer questions and provide volumes of data to develop the report. A special thanks to Patty Bashaw and Travis Howe for their effort in creating a well-rounded report. A committee of Essex County EMS personnel aided the process by reviewing documents and participating in planning meetings.

Staff Team

Amelia Rickard provided extensive data analysis and writing for this report. Kate Bell developed the maps and the online collateral. Mike Silva assisted with data analysis.

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Introduction

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Study Background

Essex County has received financial support from the New York State Municipal Restructuring Fund to enable this project to be conducted. CGR was hired to start the project after a competitive bid process and began work in July, 2016. CGR made several visits to the county and with the assistance of Patty Bashaw, EMS Coordinator, conducted nearly two dozen interviews and meetings to obtain the information in this report.

The data for the study comes from a wide variety of sources including interviews, agency reports, county records, state records, regional EMS council records, and the United States Census. Efforts were made to verify all information before it was included in the report, however if errors are identified, please notify the authors so they can be corrected in later iterations of the project's reports.

Essex County Overview

Essex County is located in the northeast section of New York. The county has 18 towns and over 1,900 sq. miles of land area. The county is wholly located in the Adirondack Park. The population is estimated to be just over 39,000. Not included in this population are the many seasonal residents that have second homes or the visitors to the many outdoor attractions in the county. On some peak weekends, it is estimated that the population is nearly double the permanent residents.

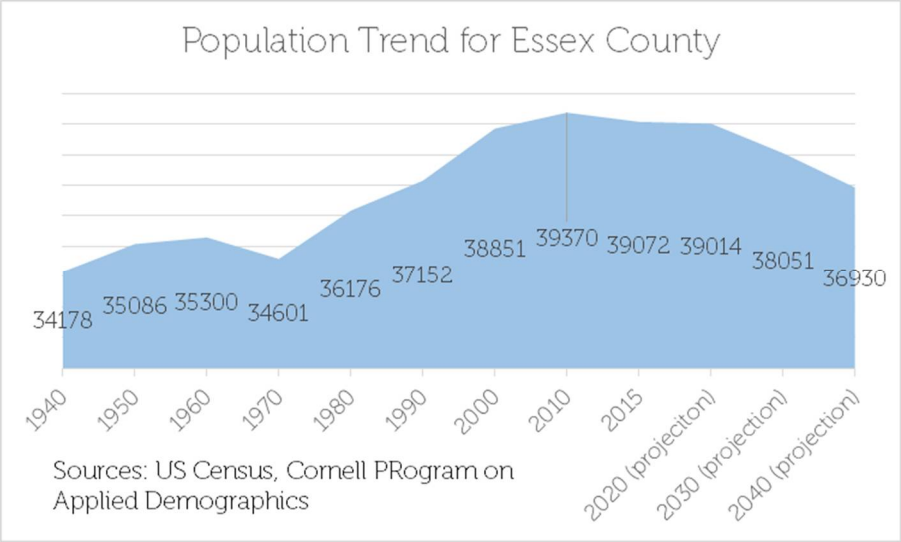
The labor force in the county hovers around 17,000 outside of peak season with a bump of about 10 percent during the summer months. The unemployment rate was

6.9% in 2014 and 6.1 % in 2015. However, the rate for 2016 may be a full percentage point lower based on the first ten months of the year.

The primary industries in the county are focused on tourism and recreation. Other major employers are healthcare systems and government agencies. The county is part of the North Country Region of New York for labor statistics.

Population Changes

Over the long term, the population of Essex County had been slowly increasing until the 2015 estimated population showed a slight decline from the 2010 census. There is a projected decline of population in the county due to decreasing birth rates combined with out-migration of younger adults.



In addition to a projected declining population, Essex County will see a continued trend of an aging population. The table below shows that the number of residents over age 65 has increased in the last 15 years while the number of residents below 18 has decreased. As seen later in this report, older residents have a substantially higher utilization rate for ambulance services than younger residents. Also, the EMS workforce is generally drawn from the community, with most in the field under the age of 65.

Population, Essex County					
		Total	Under 18	65 and Older	85 and Older
Population	2000	38,851	8,858	6,227	779
	2010	39,370	7,586	7,143	995
	2015	39,072	7,024	7,651	1,030

Source: U.S. Census Bureau

For additional information on the current and projected changes in the population in Essex County, refer to the 2013 Essex County Profile [2] developed by the Cornell University Program on Applied Demographics.

Topography and Transportation System

The county has varied terrain from the tallest point in New York at the peak of Mount Marcy (5,344 ft.) to the shores of Lake Champlain (95 ft.). As noted previously, the entire county is in the Adirondack State Park and as such its development and building are regulated by the Adirondack Park Agency of New York (APA). The county has large swaths of public and private wilderness lands and wild forest accounting for about 44 % of total acreage. The state reports that it owns 46 % of the land in the county. Only about 3% of the land is classified as hamlet or moderate intensity use.

The road network includes 57 miles of Interstate 87, 59 miles of US Route 9, 330 miles of state highway, 357 miles of county highway and 640 miles of town roads. I-87 has an estimated daily traffic over 10,000 vehicles in summer months and it includes a substantial volume of commercial trucks and buses. There is a single railroad line running along the shores of Lake Champlain that carries both freight and passenger traffic, although the volume is minimal with just single passenger train scheduled in each direction daily.

Because of the topography and restrictions on development, the cellular phone network has substantial gaps, especially outside of the hamlets. One company (Verizon) has a more robust network than its competitors, but there are still multiple gaps even in non-wilderness areas.

[2] https://pad.human.cornell.edu/profiles/Essex.pdf

EMS System Overview

The emergency medical services (EMS) system in Essex County has evolved over the last three decades from an entirely volunteer system that subsisted on donations or minimal tax funds to one where most EMS calls are answered by agencies with a paid staff that bill for services. Along that evolutionary pathway, community expectations have increased, care standards are higher, medical equipment is more expensive, the number of available volunteers has reportedly decreased and the age of the workforce has increased. The system has 18 transport EMS companies that serve the county and 2 flight medical companies that operate in the county.

An EMS system commonly includes not only the transport ambulances, but emergency communications, receiving hospitals, first responders, educational facilities, physician medical direction and administrative oversight. While transportation and the care they provide will be the primary focus of the project, each of the other aspects will also be addressed.

Emergency Communications

Most of the EMS agencies in the county primarily receive emergency calls through a central public safety answering point (PSAP) operated by the Essex County Emergency Services Office (ESO). The 911 Center then assigns calls to the appropriate EMS agency using a combination of radio transmissions and text notifications. The ESO operates a dispatch center with a minimum of two dispatchers on duty at all times. There are 11 full time employees and four per diem staff. The 911 center supervisor will also fill in as needed during peak demand periods. The center is responsible for EMS calls, fire calls and the Essex County Sheriff's Road Patrol and Ticonderoga Police.

The radio system utilizes eleven towers on a VHF- High Band multicast system. The system was installed in 2015 and was designed by Motorola. The system includes new mobile units for the response agencies. The system had a total cost of $10 million. The system allows for interoperability between the public safety disciplines, including the New York State Police. The new system reportedly has 98 percent coverage in the county for mobile and handheld radios. However, emergency calls for EMS services and fire departments are still dispatched using VHF- Low Band equipment because of the number of pagers owned by the agencies and the inability of the new system to assign calls to pagers.

The dispatch center uses Intrado Viper computer aided dispatching software to maintain records and handle the 911 calls. The center also installed Medical Priority System's Pro QA software to assist in the emergency medical dispatching process.

The 911 Center produces very few reports from their software to assist in the management of the EMS system. For example, the 911 Center was not able to produce call logs for the agencies or the frequency of call triage codes despite the data being recorded in the records management system.

The Essex County EMS agencies have dispatch protocols that do not initiate the request for mutual aid until after 8 minutes have passed from the initial time of the call. This practice is requested by the EMS agencies, but can lead to extended response times. The ESO does not routinely know which agencies have a crew available to respond to calls. The latter is influenced by the fact that not all agencies have a "duty crew" that indicates they are ready to respond.

The PSAP receives about 200 calls per day and only about 20 percent are true emergencies. A fraction of calls are received from cellular phones in Vermont that transmit their signal across Lake Champlain. These calls are transferred to the appropriate dispatch center in Vermont.

Exceptions

When an EMS call for Lake Placid's service area is received to the 911 Center, it is immediately transferred to either Lake Placid Fire Department dispatchers. Essex County dispatchers remain on the line to assist with emergency medical instructions if it is needed. The Lake Placid Fire Department handles all the future communications for the Lake Placid Volunteer Ambulance. Also, the free standing emergency department and one of the nursing homes calls the fire department directly for their ambulance requests, bypassing the 911 center.

When a call is received for Minvera, the call is transferred to the Warren County 911 Center. Many 911 calls for Minerva are routed directly to the Warren County 911 Center based on a decision in the 1980s when the 911 systems were first installed.

Long Lake EMS is dispatched by Essex County 911 Center, although they operate in Hamilton County. There is a regular exchange of mutual aid between Long Lake and Newcomb.

The Village of Saranac Lake is located partially in Essex County and their EMS services covers all of St. Armand and a portion of North Elba. Most of the district is dispatched through Franklin County and most 911 calls in that area are directly routed to their dispatch center.

New York State Police

The New York State Police operates a dispatch center in the same room as Essex County's PSAP that is capable of dispatching all of Troop B's territory which includes

Clinton, Essex, Franklin, Hamilton and St. Lawrence counties. All of the NYSP dispatchers are able to answer 911 calls and are able to enter data into the Essex County system. Some of their dispatchers are cross trained to dispatch Essex County resources as necessary.

Essex County Receiving Hospitals

There are two hospitals in Essex County (Elizabethtown Community Hospital and Moses-Ludington Hospital in Ticonderoga) and a free standing emergency room in Lake Placid (Adirondack Medical Center) that operates 16 hours per day. Patients meeting criteria for specialty centers (trauma, pediatrics, stroke and cardiac) need to be transported out of the county.

Elizabethtown Community Hospital is owned by the University of Vermont Health Network. The hospital operates an emergency department and has 25 in-patient beds. The hospital does have a shared MRI and CT scanner. There are also telemedicine capabilities for staff to work with specialist hospitals in the network as needed. In 2015, there were about 6800 emergency department visits. ECH operates an ambulance that is used almost exclusively for inter-facility transports. The staff for the ambulance are drawn from departments inside the hospital. Additional information on the transport service can be found later in the report.

Moses Ludington Hospital is currently an independent hospital but is under acquisition by the University of Vermont Health Network. The hospital operates an emergency department and has 15 in-patient beds, but most admissions are transferred to other hospitals. The hospital does have CT scanner on site and is visited by a traveling MRI scanner shared with ECH. There are also telemedicine capabilities for staff to work with specialist hospitals in the network as needed.

Transports by Hospital

Destination Hospital	Transports	% of Total
Elizabethown Comm. Hospital	776	23.8%
Moses-Ludington Hospital	648	19.9%
AMC-Saranac Lake ED	635	19.5%
CVPH	464	14.3%
AMC-Lake Placid ED	370	11.4%
Glens Falls Hospital	313	9.6%
Non Hospital Destinaton	16	0.5%
Porter Medical Center/Middlebury	14	0.4%
Fletcher Allen Healthcare/Burlington	6	0.2%
Albany Medical Center Hospital	5	0.2%
Univ. of Vermont Healthcare	4	0.1%
Newcomb Health Center	3	0.1%
Lake Placid Airport	1	0.0%
Grand Total	3,255	100.0%

Adirondack Medical Center/ Lake Placid Site is a free standing emergency department that operates 15 hours each day. The facility is on the site of a former hospital in Lake Placid. The hospital is a part of Adirondack Health. Patients that need admission or other care are usually transferred to the Adirondack Medical Center Hospital in Saranac Lake. This site is authorized to receive ambulance transports.

Hospitals in Neighboring Counties

In addition to the three emergency rooms in the county, EMS agencies frequently transport to three hospitals in neighboring counties. Also, EMS agencies will occasionally transport out of the immediate area to specialty hospitals in Burlington or Albany.

Champlain Valley Physician's Hospital (CVPH) is located in Plattsburgh (Clinton County) and is owned by the University of Vermont Health Network. The hospital is a designated Level II Trauma Center and a Level One Perinatal Center. The hospital is licensed to operate 300 beds. The hospital can provide a variety of specialty services including cardiac catheterization, renal dialysis, MRIs and CT scans.

Glens Falls Hospital is located in Glens Falls (Warren County). The hospital is a designated Level One Perinatal Center. The hospital is licensed to operate 410 beds. The hospital can provide a variety of specialty services including cardiac catheterization, renal dialysis, and CT scans.

Adirondack Medical Center – Saranac Lake Site is located in Franklin County, only a fraction of a mile from the Essex County line. The hospital is licensed to operate 95 beds. It is a Level One Perinatal Center. The hospital does operate an MRI scanner and can conduct renal dialysis. It has a very close relationship with the ED in Lake Placid and receives most of the patients from that site that need admission.

Medical Direction

Medical direction for Essex County EMS agencies comes primarily from one of four physicians, Dr. DeMuro, Dr. Deisdario, Dr. Michael Pond and Dr. Ventre. All physicians have been heavily involved in EMS for many years and provide the service on a volunteer basis to the agencies. The physicians perform a variety of services for the agencies from reviewing operating plans to signing necessary paperwork. All physicians participate on the Regional Emergency Medical Advisory Committee (REMAC) for the Mountain Lakes Region.

During phone interviews, it was shared that there is some frustration in the current EMS system. Some of the challenges that were identified include poor data regarding patient care, EMS agencies struggling to respond to calls in a timely manner, and the challenges of retaining an adequate EMS workforce. The physicians both recognize

that there are many dedicated volunteers that are able to keep the system working but there is a noticeable lack of newer members and the next generation of leadership. It was observed that administrative tasks, such as billing and organizational development might be better under a consolidated operation.

Education

EMS education in Essex County is handled through the county EMS County Coordinator's Office in coordination with Mountain Lakes Regional EMS Council. In 2015, there was one CFR original course that yielded 3 certified providers and two EMT original courses that yielded 21 new EMTs. There were also two EMT recertification courses that helped 15 EMTs retain their certification. Also, 4 AEMT-CCs became certified in courses taught in the county and six others completed their recertification.

There are only two active certified instructor coordinators (lead instructors) in the county and only one certified lab instructors (CLIs) that are currently certified. CLIs perform an integral role of small group skill instruction in EMS classes. While EMS providers can fill that role, CLI training provides the appropriate techniques to best educate the students. The effect of this limited pool of instructors is there are few courses that are offered and the travel times to the location can be a burden for those interested in getting involved in EMS.

Regional Coordination

Essex County is in the Mountain Lakes Region for the New York State EMS Councils. The region includes Clinton, Franklin, Warren and Washington Counties. The regional coordination infrastructure includes a program agency, the REMAC and Regional EMS Council (REMSCO). The program agency's role is to provide support to the REMAC and REMSCO, collect data related to the performance of EMS in the region, and support educational initiatives including through the training of new instructors and the approval of new EMS course sponsors. The REMAC sets protocols and standards of practice for the region. The REMAC consists of physicians and EMS providers from each county in the region. The REMSCO has the authority to regulate the agencies that provide ambulance transport, advanced life support first response and EMS education. The REMSCO is also tasked with developing a training plan for EMS providers.

County Coordination

Essex County named their first full time EMS coordinator in January 2016. Previously, the position was filled by a part time employee. The full time coordinator has wide range of responsibilities including interfacing with county government,

liaison with the 911 Center, participation in regional EMS activities, coordination of training, representing the county in state EMS activities, and responding to large scale events[3]. The office has only the one employee, but she does receive support from other members of the emergency management office.

EMS Agency Profiles

In this section of the report, we provide a brief profile of the operating ambulance services in Essex County. The data comes from a variety of sources including agency interviews, agency records, Department of Health records, Essex County data and U.S. Census. In some cases, the data was not provided for all agencies or certain data points were missing.

The EMS transport agencies in the county are as diverse as the communities that they serve, each has a proud history that usually goes back to the middle decades of the 20th century when volunteers sought training and equipment to begin helping neighbors get to the hospital in emergencies. Over the ensuing decades, community expectations, training requirements and fiscal demands have led many of the agencies to begin billing for services and hiring paid employees to meet the needs of the community. This section of the report provides a brief overview of the agencies with a short narrative and a dashboard regarding key characteristics of performance. The information was drawn from interviews with the agencies and a review of their records. A discussion of call data for the whole system follows. In some cases, the numbers from different sources do not match because of different reporting periods.

Profile Data Definitions:

The agency profile definitions are summarized below.

- Service Area is the area that the agency responds to calls on a primary basis.
- Agency Type is a brief definition of the organizational structure.
- Bills for Service is a yes/no question about whether the agency bills for service.
- Staff Type generally breaks down to paid, combination paid and volunteer or volunteer only.
- Level of service is as reported by the DOH, but is dependent upon available staff.
- Membership trend is as reported by the agency over the last five years.
- The certification numbers and number of personnel were based on DOH records.

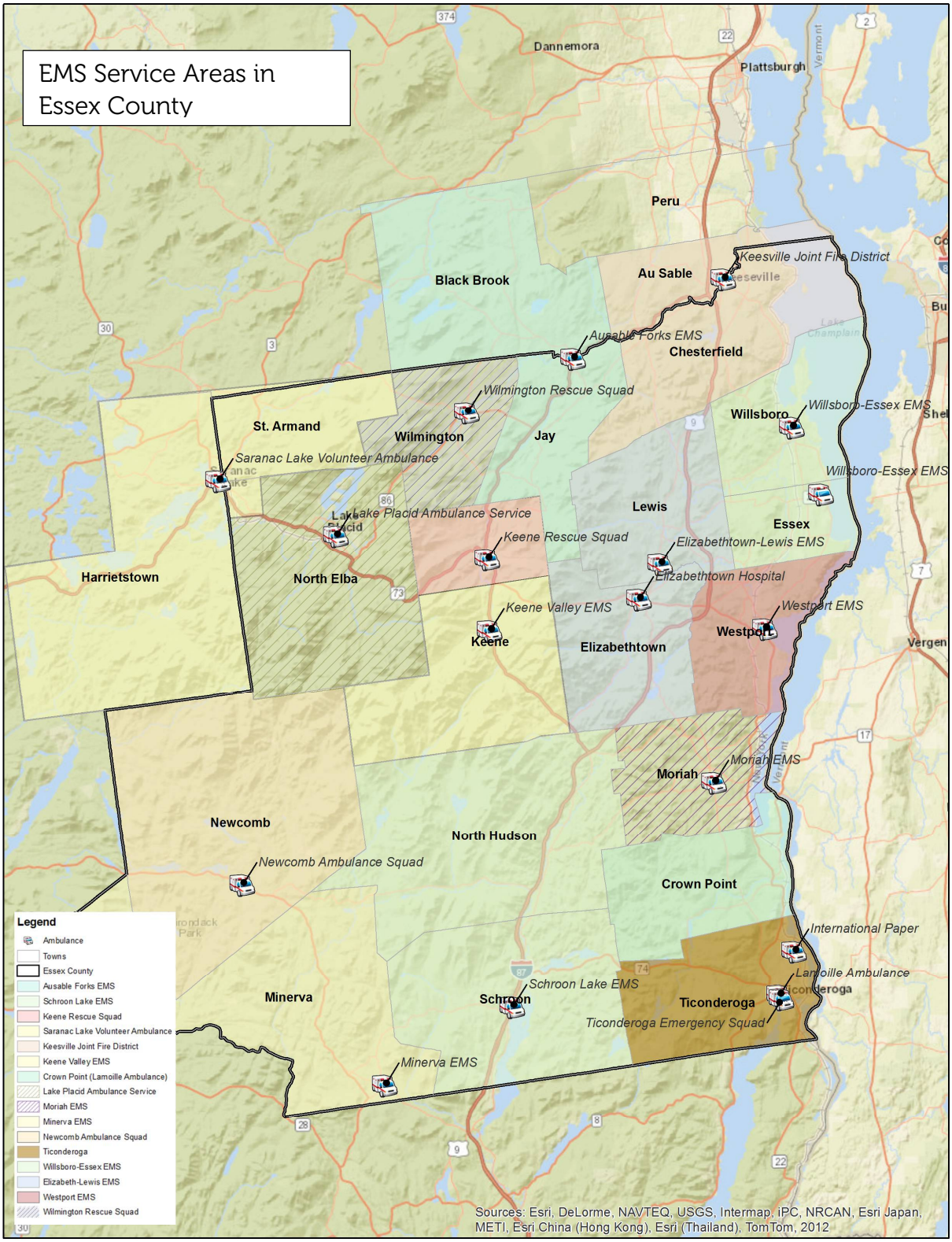
[3] The incumbent also volunteers at one of the EMS agencies, works part time at two others and is one of only two qualified EMS instructors in the county.

- The information related to equipment and ability to perform certain medical skills at the BLS level was reported by the agencies.
- Population and service areas were provided by the U.S. Census

The **call time data** that is shown is based on information provided by the EMS agencies. The following definitions should be considered when looking at the data for each agency:

- Chute Time: The time interval from when a call is assigned to an agency from the PSAP to the time the agency is responding to the call with an ambulance. The Mountain Lakes Region has set a goal of having a chute time less than 10 minutes, 90 percent of the time.
- On Scene Time (Response Time): The time interval from when a call is assigned to an agency by PSAP to the time the agency is on scene of the call. There is no defined standard for this call interval in the region. This time interval is a common metric for EMS system performance. The Chute Time is included in this interval.
- Transport Time: The time interval from when the agency begins transport to the time the agency is at the receiving hospital.
- Total Call Time: The time interval from when the agency receives the call to the time the agency is back in service. This is the total length of time that the ambulance is not available to respond to other calls. This does not include the time that EMS crews need to take to prepare for the next call or complete documentation of the call they have just completed.
- Median value was calculated for each time and shows the middle of the time range. Stated differently, half of the calls had a shorter time interval and half had a longer interval.
- 80^{th} percentile indicates that 80 percent of time intervals were shorter than that value. For example, an 80^{th} percentile chute time of 6 minutes indicates that 8 out of 10 calls had an ambulance on the way in 6 minutes or less.
- 90^{th} percentile follows the same definition as the 80^{th} percentile.
- Count is the number of calls that included the appropriate data points to calculate that time interval.

The accompanying map shows the location of the EMS stations and their approximate service areas. The ambulance services without a specific service area (Elizabethtown Hospital, International Paper and Lamoille Ambulance) have their locations shown.


EMS Service Areas in Essex County
Dannemora
Plattsburgh
Peru
Black Brook
Au Sable
Keesville Joint Fire District
Ausable Forks EMS
Chesterfield
Wilmington Rescue Squad
St. Armand
Wilmington
Jay
Willsboro
Willsboro-Essex EMS
Saranac Lake Volunteer Ambulance
Lake Placid Ambulance Service
Lewis
Essex
Keene Rescue Squad
Elizabethtown-Lewis EMS
Harrietstown
North Elba
Elizabethtown Hospital
Keene Valley EMS
Westport EMS
Keene
Westport
Elizabethtown
Moriah EMS
Moriah
Newcomb
North Hudson
Newcomb Ambulance Squad
Crown Point
International Paper
Lamoille Ambulance
Schroon Lake EMS
Minerva
Schroon
Ticonderoga
Ticonderoga Emergency Squad
Minerva EMS
Legend
Ambulance
Towns
Essex County
Ausable Forks EMS
Schroon Lake EMS
Keene Rescue Squad
Saranac Lake Volunteer Ambulance
Keesville Joint Fire District
Keene Valley EMS
Crown Point (Lamoille Ambulance)
Lake Placid Ambulance Service
Moriah EMS
Minerva EMS
Newcomb Ambulance Squad
Ticonderoga
Willsboro-Essex EMS
Elizabeth-Lewis EMS
Westport EMS
Wilmington Rescue Squad
Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2012

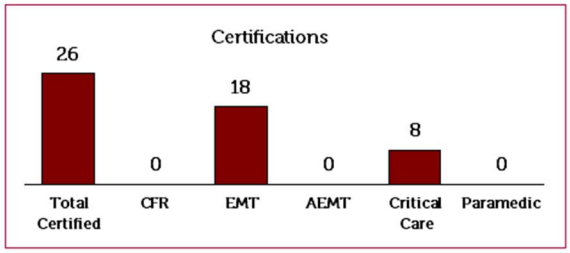
Ausable Forks Volunteer Ambulance Service Corporation

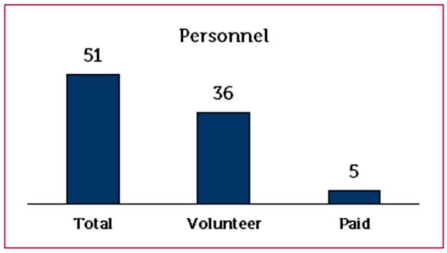
The Ausable Forks EMS agency serves the community in and around the hamlet of Ausable Forks. They are funded primarialy through billings for transport, but also receive support from the two towns that they serve. The agency has 5 full time employees (4 AEMT-CC including a supervisor and an EMT) and 15-20 per diem of various levels of training. There are also about 36 volunteers with a number of new members in the last year.

The agency has a crew on duty and premisies 24/7 with an ALS tech more than 90 percent of the time. The paid crew is dedicated to the two towns that contract for service. Volunteer crews respond to any requests for mutual aid as well as second calls in the district. The paid crew is at the station while on duty.

Ausable Forks Vol Amb Svc Corp

Service Area	Towns of Jay and Black Brook	Agency/Org Type	Nonprofit, Private
		Org Structure	Board of Directors
Bills for Service?	Yes	Staff Type	Combo
Level of Service	Paramedic	Membership Trend	slightly increasing





# EASVs or First Response Vehicles	0	# Ambulances	2								
Cardiac Monitor Type(s)	Zoll X	Stretcher Type(s)	Stryker Power								
Defib/PAD	x	EpiPen	x	Albuterol	x	Glucometry	x	Naloxone	x	CPAP	

Population of Service Area (POSA)	4,003	Sq. mi. of Service Area	198
% POSA >= 65	16.0	% POSA >= 85	1.3

Total Calls Reported by Agency: 405

Service Times (hh:mm)	Chute	On Scene	Transport	Total Call
Median	0:03	0:10	0:35	0:39
80th Percentile	0:06	0:16	0:43	1:47
90th Percentile	0:09	0:21	0:46	2:14
Count* (n)	388	359	304	75

** Times are based on call data provided. Not all fields were completed for each call.*

The agency has been able to keep up with its capital needs and staffing for its full time positions, but it is having trouble filling its part time positions. A substantial portion of its service area is in Clinton County. When a crew in Ausable Forks is assigned to a call, they communicate with the dispatch centers in both counties for the duration of the call.The base has crew quarters for the on-duty staff but no separate meeting space or training room.

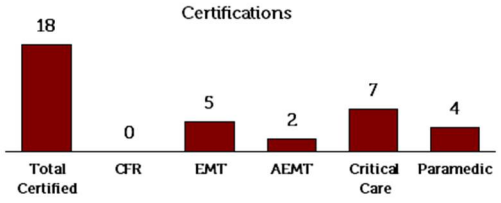
Elizabethtown Community Hospital (ECH)

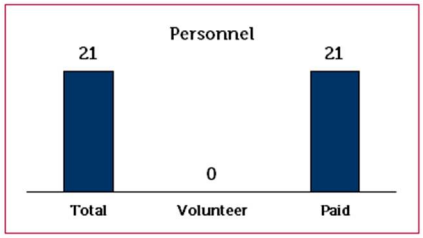
The ECH Ambulance service works almost exclusively on inter-facility transports leaving the hospital to other hospitals for additional care. The ambulance is staffed with employees of the hospital that have other responsibilities either providing patient care, maintenance or administration. The employees are then called to assist with transportation using one of two ambulances. The unit has 1.85 FTEs of paramedic staffing and 8 EMTs. The program was initiated in 2012 and now transports about one patient per day. The ambulance has available staff 24/7. The staff is usually in other departments and needs to be mustered when a call is received.

The hospital has training facilities available for EMS use and many EMT students in the county complete their hospital training in the emergency department. The hospital is also actively pursuing becoming a paramedic course sponsor with the support of the local EMS system.

Elizabethtown Community Hospital Transport

Service Area	n/a: Hospital Transport	Agency/Org Type	Nonprofit, Corporation
		Org Structure	Hospital Board of Directo
Bills for Service?	yes	Staff Type	Paid
Level of Service	Paramedic	Membership Trend	





# EASVs or First Response Vehicles	0	# Ambulances	2								
Cardiac Monitor Type(s)		Stretcher Type(s)									
Defib/PAD	x	EpiPen	x	Albuterol	x	Glucometry	x	Naloxone	x	CPAP	

Population of Service Area (POSA)		Sq. mi. of Service Area	
% POSA >= 65		% POSA >= 85	

Total Calls Reported by Agency

Service Times (hh:mm)	Chute	On Scene	Transport	Total Call
Median				
80th Percentile				
90th Percentile				
Count* (n)				

** Times are based on call data provided. Not all fields were completed for each call.*

Elizabethtown – Lewis Emergency Squad

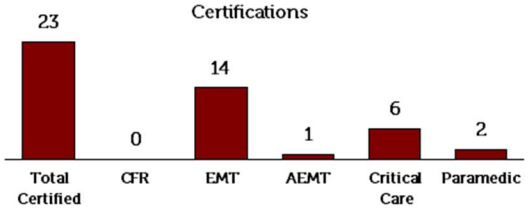
This independent non-profit agency serves the two towns noted in the name. It also provides mutual aid advanced life support service, either by flycar or with an ambulance to neighboring agencies. The agency has a single full time employee (AEMT-CC) and typically schedules per diem or volunteer staff to ensure that a single ambulance is always available. The full time staff member works weekdays during the day. Evenings and weekends are filled by volunteers. A volunteer is always needed to respond to staff the ambulance when the employee is there.

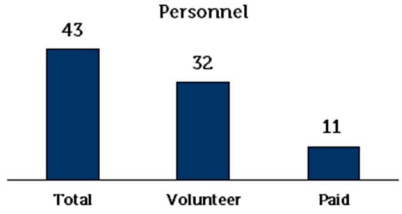
The agency receives $68,000 from the two towns to support general operations. The paid staff budget is primarily from patient billings. The rest of the budget is from donations and $5,000 from each of the two towns that is to be used for capital expenses.

The agency's station was completed in 2007 and it has multi-purpose room that can be used for training. It does host EMT and other EMS classes on occasion.

Elizabethtown-Lewis Emergency Squad

Service Area	Town of Lewis, Town of Elizabethtown	Agency/Org Type	Nonprofit, Corporation
		Org Structure	Board of Directors
Bills for Service?	yes	Staff Type	Combo
Level of Service	Paramedic	Membership Trend	slightly increasing





# EASVs or First Response Vehicles	1	# Ambulances	2						
Cardiac Monitor Type(s)	Zoll	Stretcher Type(s)	Ferno						
Defib/PAD	x	EpiPen	x	Albuterol	x	Glucometry	x	Naloxone		CPAP	

Population of Service Area (POSA)	2,545	Sq. mi. of Service Area	166
% POSA >= 65	17.8	% POSA >= 85	3.4

Total Calls Reported by Agency: 214

Service Times (hh:mm)	Chute	On Scene	Transport	Total Call
Median	0:08	0:15	0:08	0:50
80th Percentile	0:11	0:21	0:15	1:17
90th Percentile	0:13	0:25	0:21	1:39
Count* (n)	210	206	172	212

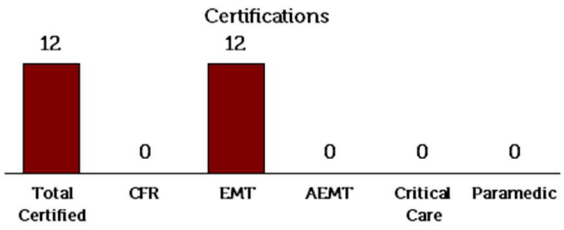
** Times are based on call data provided. Not all fields were completed for each call.*

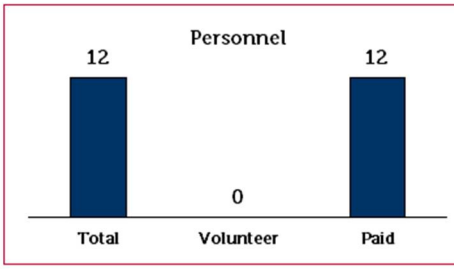
International Paper

The International Paper plant in Ticonderoga has a BLS ambulance that responds to emergencies on the plant. The ambulance is staffed by plant employees and efforts are made to ensure that there is at least one EMT available on all shifts. Plant security officers can assist with driving the ambulance if necessary. The ambulance only responds to calls off the site under disaster situations. Many of the plant's EMTs also volunteer in their community for their local EMS agencies. In cases when advanced life support is needed for a patient, Ticonderoga EMS is requested to respond. The plant ambulance typically transports about two patients per month. All of the EMTs perform this role in addition to their other job duties.

International Paper

Service Area	International Paper facility	Agency/Org Type	Private
		Org Structure	Intn'l Paper Corporate Of
Bills for Service?	No	Staff Type	Paid
Level of Service	BLS	Membership Trend	steady





# EASVs or First Response Vehicles	0	# Ambulances	1						
Cardiac Monitor Type(s)		Stretcher Type(s)							
Defib/PAD	x	EpiPen	x	Albuterol	x	Glucometry	x	Naloxone		CPAP	

Population of Service Area (POSA)		Sq. mi. of Service Area	
% POSA >= 65		% POSA >= 85	

Total Calls Reported by Agency

Service Times (hh:mm)	Chute	On Scene	Transport	Total Call
Median				
80th Percentile				
90th Percentile				
Count* (n)				

** Times are based on call data provided. Not all fields were completed for each call.*

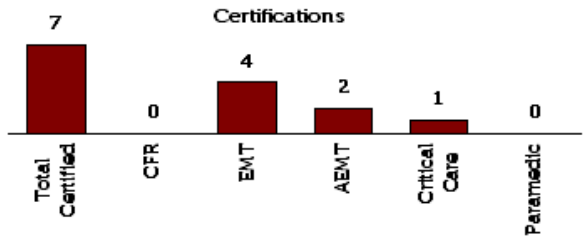
Keene Emergency Medical Services

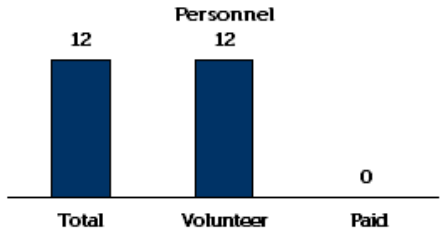
Keene EMS is an independent volunteer agency that separated from the Keene Fire Department in 2015. The agency provides ALS transport service to the residents and visitors to the northern Keene, but their operating certificate allows them to respond the whole town of Keene. The agency does not have crews on schedule and its members respond to the station when a call is received. There is only a single AEMT and a single AEMT-CC to provide ALS care, but ALS will be requested from neighboring agencies if it is needed.

The agency bills for EMS transports and does receive some additional funding from the Keene Fire District as well as in kind services. The existing expenses are limited because of the in kind support from the fire district.

Keene Rescue Squad

Service Area	Town of Keene	Agency/Org Type	Nonprofit, Corporation
		Org Structure	Board of Directors
Bills for Service	yes	Staff Type	Volunteer
Level of Service	AEMT-CC	Membership Trend	steady





# EASVs or First Response Vehicles	0	# Ambulances	1						
Cardiac Monitor Type(s)	Zoll X	Stretcher Type(s)	Stryker Power						
Defib/PAD	x	EpiPen	x	Albuterol	x	Glucometry	x	Naloxone	x	CPAP	x

Population of Service Area (POSA)	1,105	Sq. mi. of Service Area	156
% POSA >= 65	18.8	% POSA >= 85	5.0

Total Calls Reported by Agenc: 64

Service Times (hh:mm)	Chute	Response	Transport	Total Call
Median	0:06	0:09	0:15	1:13
80th Percentile	0:08	0:13	0:19	1:29
90th Percentile	0:09	0:20	0:21	1:49
Count* (n)	63	63	45	58

** Times are based on call data provided. Not all fields were completed for each call.*

The agency leases space from the Keene Fire Department and many of its members are also members of the fire department. The fire station was rebuilt after being destroyed during Hurricane Irene in 2011. The EMS squad has a single bay and an office for administration. It would be able host local and regional EMS training activities in the training room.

Note: The population and area statistics below include the whole town of Keene, but much of the southern half of Keene is handled by the Keene Valley Fire Department.

Keene Valley Fire Department

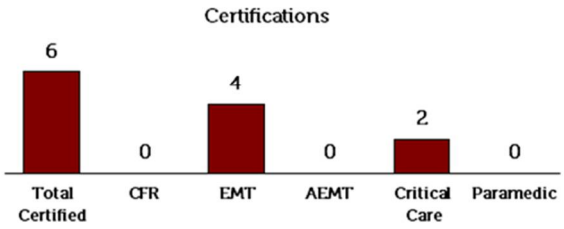
The Keene Valley Fire Department provides an ALS ambulance transport to the residents and visitors of the Keene Valley Fire District in the southern portion of the town of Keene. The 6 certified EMS providers (4 EMT and 2 AEMT-CC) are supported by the other two dozen members of the fire department that respond to operate the ambulance. The ambulance is not staffed and crews respond on an as needed basis. The overall membership of the department and the EMS squad have declined slightly over the last 5 years.

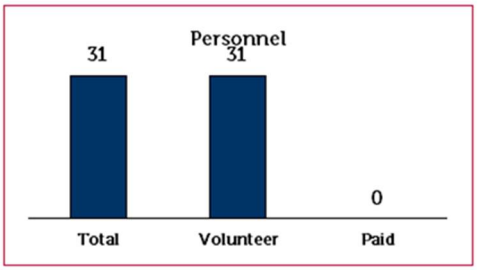
The fire department also has a backcountry rescue team that is called upon to assist the Department of Environmental Conservation with responding into areas of the high peaks to assist with rescues about twenty times a year, on average.

The EMS service is funded through fire district tax revenue and some donations. The Keene Valley Fire Department has a station that would support training activities for its members as well as any regional training.

Keene Valley EMS

Service Area	Keene Valley FD	Agency/Org Type	w/ Fire Department
		Org Structure	Commissioners, elected
Bills for Service?	no	Staff Type	Volunteer
Level of Service	AEMT-CC	Membership Trend	decreasing





# EASVs or First Response Vehicles	0	# Ambulances	1								
Cardiac Monitor Type(s)	Zoll X	Stretcher Type(s)	Ferno Manual								
Defib/PAD	x	EpiPen	x	Albuterol	x	Glucometry	x	Naloxone	x	CPAP	x

Population of Service Area (POSA)		Sq. mi. of Service Area	
% POSA >= 65		% POSA >= 85	

Total Calls Reported by Agency: 74

Service Times (hh:mm)	Chute	On Scene	Transport	Total Call
Median	0:08	0:10	0:17	1:30
80th Percentile	0:12	0:17	0:21	1:48
90th Percentile	0:14	0:23	0:24	2:08
Count* (n)	71	69	54	69

** Times are based on call data provided. Not all fields were completed for each call.*

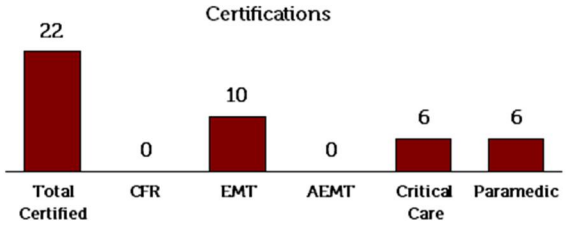
Lake Placid Volunteer Ambulance Service

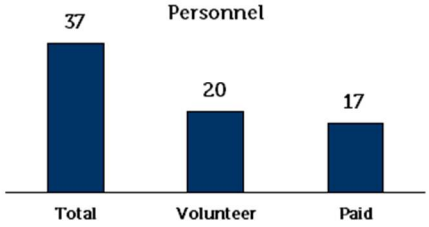
The Lake Placid Volunteer Ambulance Service provides EMS response to the village of Lake Placid and most of the town of North Elba. The agency is dispatched by the Lake Placid Fire Department. Many of its calls originate at the Lake Placid Site of the Adirondack Medical Center where the patients are transported to the Saranac Lake AMC. The LPVAS has a single ambulance on duty 24 hours a day that is staffed with a combination of full time and part time paid staff. They also staff a second ambulance with volunteers when possible. The independent agency is funded primarily by billing for ambulance transports, but also receives contributions from community members including a successful capital drive that helped them substantially renovate and expand their operating base. The on duty staff is generally at the station.

The agency reports that there is little turnover among the volunteers with the last new member joining more than 18 months ago. The newly renovated station has facilities that would allow it to host EMS training courses.

Lake Placid Vol Amb Svc, Inc

Service Area	Lake Placid Village and Town of North Elba	Agency/Org Type	Nonprofit, Corporation
		Org Structure	Board of Directors
Bills for Service?	yes	Staff Type	Combo
Level of Service	Paramedic	Membership Trend	declining, had to hire vo





# EASVs or First Response Vehicles	1	# Ambulances	3								
Cardiac Monitor Type(s)	Zoll M	Stretcher Type(s)	Stryker Power and Manua								
Defib/PAD	x	EpiPen	x	Albuterol	x	Glucometry	x	Naloxone	x	CPAP	x

Population of Service Area (POSA)	8,957	Sq. mi. of Service Area	152
% POSA >= 65	15.2	% POSA >= 85	3.1

Total Calls Reported by Agency: 1071

Service Times (hh:mm)	Chute	On Scene	Transport	Total Call
Median	0:03	0:07	0:18	0:57
80th Percentile	0:06	0:11	0:21	1:28
90th Percentile	0:08	0:15	0:23	1:55
Count* (n)	1067	986	870	1071

** Times are based on call data provided. Not all fields were completed for each call.*

Lamoille Ambulance Service

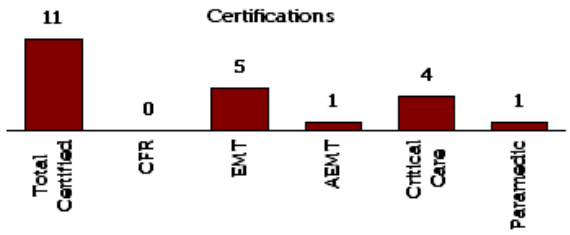
Lamoille Ambulance Service is headquartered in Johnson, Vermont and they station at ambulance in Ticonderoga. The agency responds to about 800 requests for service in the county, although about three quarters are for inter-facility transports. The 911 calls are dispatched through the Essex County 911 center. Inter-facility transports are through a call center in Vermont. The agency has two ambulances stationed in Ticonderoga. An ALS ambulance is staffed 24/7 while a BLS ambulance is on duty during daytime hours to handle some of the routine transports.

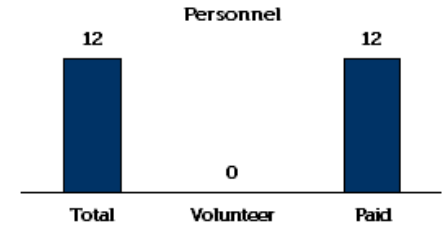
Lamoille is the primary responder to Crown Point and provides back up service to Ticonderoga. The agency is available to respond to other calls in the county, but is generally used only after other resources are exhausted. The on duty employees are required to be within 5 minutes of the base and respond to the base when calls are received. The employees are usually notified through alphanumeric pagers. When needed for large events, the ambulances are stationed elsewhere in the county and additional resources are available from their Vermont base.

The agency has some stability among the full time employees, but there is regular turnover for the part time staff. There is constant competition between other EMS employers in the area to keep staff.

Lamoille Ambulance Service, Inc.

Service Area	Essex County and City of Plattsburgh in NY	Agency/Org Type	Commercial Service
		Org Structure	Corporation
Bills for Service	Yes	Staff Type	Paid
Level of Service	Paramedic	Membership Trend	





# EASVs or First Response Vehicles	0	# Ambulances	2						
Cardiac Monitor Type(s)	Zoll M	Stretcher Type(s)	Stryker Power						
Defib/PAD		EpiPen		Albuterol		Glucometry	x	Naloxone		CPAP	

Population of Service Area (POSA)		Sq. mi. of Service Area	
% POSA >= 65		% POSA >= 85	

Total Calls Reported by Agenc: 177

Service Times (hh:mm)	Chute	Response	Transport	Total Call
Median	0:05	0:15	0:12	1:04
80th Percentile	0:08	0:21	0:24	1:54
90th Percentile	0:10	0:25	0:44	2:27
Count* (n)	176	170	173	177

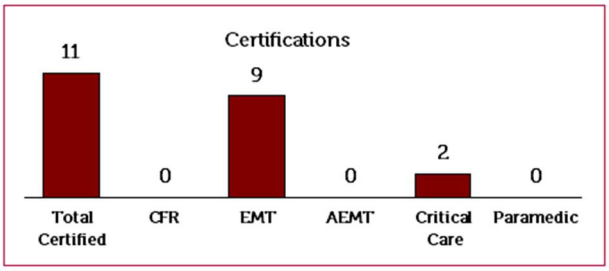
** Times are based on call data provided. Not all fields were completed for each call.*

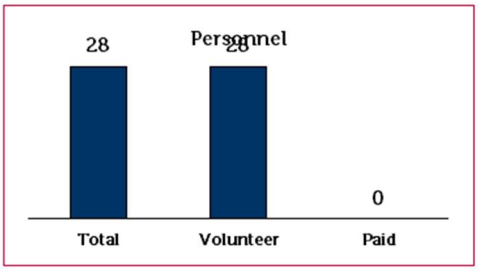
Minerva Fire Department

The Minerva Fire Department EMS Service is integrated into the fire department, but is actively considering separating into a separate service. The primary purpose of separation would be to enable the service to bill for transports. The service area is in the southwestern corner of the county and it is regularly called into Warren County to provide mutual assistance. The agency is usually dispatched from Warren County and 911 calls from the town are directed to that PSAP. They are part of the mutual aid plan for Essex County and will respond as needed to Newcomb.

Minerva Rescue Squad

Service Area	Town of Minvera	Agency/Org Type	w/ Fire Department
		Org Structure	Board of Directors
Bills for Service?	no	Staff Type	Volunteer
Level of Service	AEMT-CC	Membership Trend	steady





# EASVs or First Response Vehicles	0	# Ambulances	1								
Cardiac Monitor Type(s)	LP15	Stretcher Type(s)	Stryker Manual								
Defib/PAD	x	EpiPen	x	Albuterol	x	Glucometry	x	Naloxone	x	CPAP	x

Population of Service Area (POSA)	809	Sq. mi. of Service Area	157
% POSA >= 65	22.2	% POSA >= 85	16.0

Total Calls Reported by Agency: 168

Service Times (hh:mm)	Chute	On Scene	Transport	Total Call
Median	0:07	0:13	0:49	2:33
80th Percentile	0:09	0:17	0:54	3:11
90th Percentile	0:11	0:20	0:58	3:34
Count* (n)	134	128	107	98

** Times are based on call data provided. Not all fields were completed for each call.*

The agency utilizes a scramble method to staff its single ambulance. For overnights, there are assigned duty crews that use an internet program to indicate they are responding. There are 2 AEMT-CCs and 9 EMTs that provide the needed staffing. The agency has been getting some new members, mostly from children of existing members. The size of the agency has been steady in recent years.

The agency is based at one of the fire stations and would continue to rent space in the fire department if it separated.

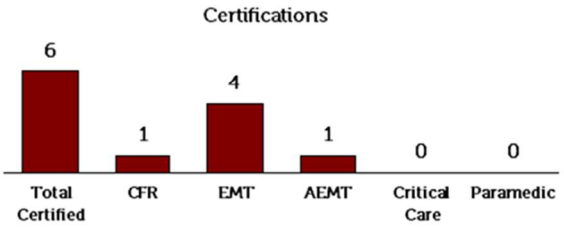
Moriah Ambulance Service

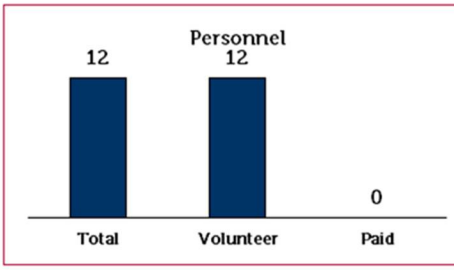
Moriah is an independent volunteer agency that provides ALS transport to the community. The agency does bill for service as well as solicit donations from the community. They receive $15,000 from the town to help support the service. The agency uses a scramble crew format when a call is received.

While there are a dozen members on the rolls, only about half that number are active and only three are regularly available to respond during the day. One member responded to 85 percent of calls in 2015 and another member responded to 53 percent. The membership has dropped in half over the last five years. There is only

Moriah EMS

Service Area	Town of Moriah	Agency/Org Type	Nonprofit, Corporation
		Org Structure	Board of Directors
Bills for Service?	Yes	Staff Type	Volunteer
Level of Service	AEMT-CC	Membership Trend	decreasing





# EASVs or First Response Vehicles	0	# Ambulances	2								
Cardiac Monitor Type(s)	LP12	Stretcher Type(s)	Stryker Manual								
Defib/PAD	x	EpiPen	x	Albuterol	x	Glucometry	x	Naloxone	x	CPAP	x

Population of Service Area (POSA)	4,798	Sq. mi. of Service Area	64
% POSA >= 65		% POSA >= 85	

Total Calls Reported by Agency: 411

Service Times (hh:mm)	Chute	On Scene	Transport	Total Call
Median	0:08	0:13	0:21	1:38
80th Percentile	0:10	0:16	0:26	1:57
90th Percentile	0:12	0:19	0:28	2:10
Count* (n)	410	407	312	410

** Times are based on call data provided. Not all fields were completed for each call.*

AEMT-CC that is a member of the agency and they rely on other agencies if he is not available.

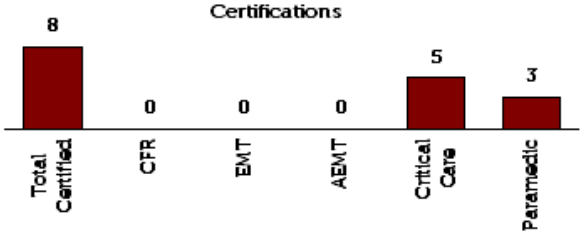
The agency rents space from the local fire district for a nominal fee. The space allows for both ambulances to be parked inside and administrative space in an unimproved garage space.

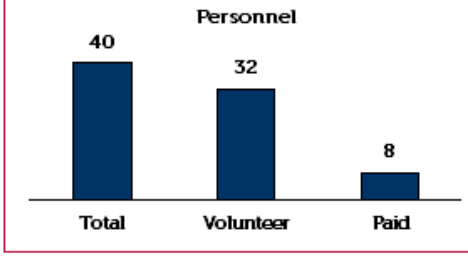
Newcomb Fire Department Ambulance

The Newcomb Fire Department Ambulance operates a single ambulance that serves its small population in the isolated town. The agency staffs its ambulance with a paid ALS tech 24/7 and relies on volunteers from the fire department to operate the ambulance. There are about 40 volunteers, three quarters of whom are active, that provide the support to the paid ALS providers. The agency has been operating with a

Newcomb Ambulance Squad

Service Area	Town of Newcomb	Agency/Org Type	w/ Fire District, Indepen
		Org Structure	Board of Directors
Bills for Service	No	Staff Type	Combo
Level of Service	Paramedic	Membership Trend	increasing





# EASVs or First Response Vehicles	0	# Ambulances	1						
Cardiac Monitor Type(s)	LP15	Stretcher Type(s)	Stryker Manual						
Defib/PAD	n/a	EpiPen		Albuterol		Glucometry		Naloxone		CPAP	

Population of Service Area (POSA)	436	Sq. mi. of Service Area	226
% POSA >= 65	29.6	% POSA >= 85	3.0

Total Calls Reported by Agenc: 73

Service Times (hh:mm)	Chute	Response	Transport	Total Call
Median	0:03	0:07	1:05	2:46
80th Percentile	0:06	0:14	1:10	3:34
90th Percentile	0:07	0:20	1:17	3:46
Count* (n)	66	57	42	65

** Times are based on call data provided. Not all fields were completed for each call.*

paid ALS staff for the last 10 years. The agency has recently struggled to recruit a new full time employee after a previous one had to leave for medical reasons. The on duty ALS staff is at the station, but drivers need to respond to the station.

The agency covers nearly all of its calls with only 2 or 3 per year requiring mutual aid, usually from Long Lake in Hamilton County. The agency is also permitted to transport minor emergencies to the local health center for evaluation rather than transport everyone to a hospital.

The agency operates out of a separate EMS station. The space is adequate for the on duty crews, but would not accommodate training easily. However, the fire station would be able to host training.

Saranac Lake EMS

Saranac Lake EMS is headquartered in Franklin County in the western portion of the Village of Saranac Lake. They provide EMS coverage to the portions of the village in Essex County, the northwestern portion of North Elba (roughly to the edge of the hamlet of Ray Brook), and the whole town of Saint Armand. They also respond to several towns around the village in Franklin County and are the primary provider of ambulance transports out of the Adirondack Medical Center Hospital in the village. Their total coverage area is over 650 square miles. The agency is dispatched through the Franklin County 911 center.

They have two paid ALS crews on duty 24/7. One crew is dedicated to inter-facility transfers and the other to emergency calls. Volunteers fill in back up calls, and on evenings from Thursday to Saturday. There are eight full time employees and fourteen per diem staff. There are twenty volunteers in the EMS agency. They also have several members of the village fire department that are qualified to drive the ambulance and will assist on emergency calls. There is a challenge finding qualified staff, especially at the ALS level. The on duty crews are generally at the station.

The agency bills for their calls as their primary source of income. However, they do receive subsidies from the towns they serve to support coverage.

The agency owns its own base with limited space outside of its apparatus bays, a small office and living quarters. It would not be able to host substantial training classes.

The agency has 4 ALS equipped ambulances and 1 BLS equipped ambulance. They respond to about 1,600 calls per year with about one third being inter-facility

transports from the hospital. Detailed call statistics and other profile information were not provided because they provide limited service to the county.

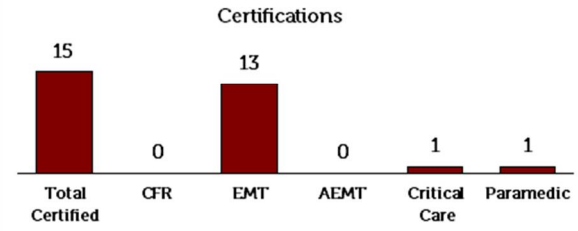
Schroon Lake EMS

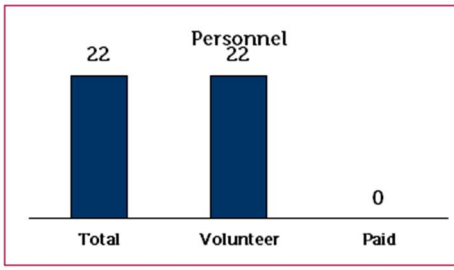
Schroon Lake EMS operates as a part of the Schroon Lake Fire Department. The fire department is supported by the Schroon Lake Fire District. The fire district raises taxes on its own for fire protection and it receives contributions from the towns of Schroon and North Hudson for the provision of EMS services and fire protection outside of the district.

The agency contracts with a staffing service to provide an ALS technician (AEMT-CC or paramedic) and EMT from 6:00 am to 6:00 pm each day. This is a recent expansion of contracted services that previously only included weekdays. The agency relies on volunteers for other times of the day and for second requests for

Schroon Lake EMS

Service Area	Schroon Lake, North Hudson	Agency/Org Type	w/ Fire District
		Org Structure	Board of Directors
Bills for Service?	no	Staff Type	Combo
Level of Service	AEMT-CC	Membership Trend	decreasing





# EASVs or First Response Vehicles	0	# Ambulances	2								
Cardiac Monitor Type(s)	Zoll X	Stretcher Type(s)	Ferno Power								
Defib/PAD	x	EpiPen	x	Albuterol	x	Glucometry	x	Naloxone	x	CPAP	

Population of Service Area (POSA)	1,894	Sq. mi. of Service Area	314
% POSA >= 65	23.9	% POSA >= 85	4.0

Total Calls Reported by Agency: 298

Service Times (hh:mm)	Chute	On Scene	Transport	Total Call
Median	0:03	0:12	0:44	2:25
80th Percentile	0:10	0:20	0:51	3:09
90th Percentile	0:14	0:27	0:57	3:30
Count* (n)	274	258	203	288

** Times are based on call data provided. Not all fields were completed for each call.*

the ambulance. The contract agency has had some struggles meeting their obligations, especially for ALS providers. (Three volunteers also work for the contract agency.) There are only two volunteer ALS providers, so they would rely on outside assistance for ALS calls between 6:00 pm and 6:00 am if they are not available. In addition to the members of the EMS squad, some of the members of the fire department can operate the ambulances. Typically, the paid crews are at the station while volunteers typically respond to the station from home.

Schroon Lake EMS shares space with the fire department and they have a large meeting room that would be effective for any needed training or meeting spaces.

Ticonderoga Emergency Medical Services

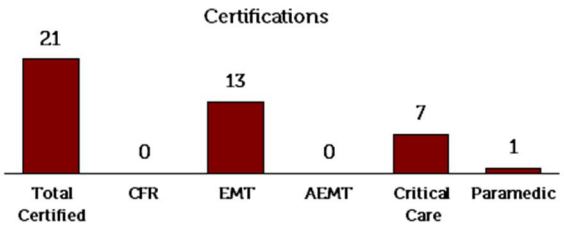
Ticonderoga EMS is a fully volunteer service that covers the town of Ticonderoga as well as Putnam in Warren County. The agency bills for services and receives $20,000 from the town of Ticonderoga plus $6,000 from Putnam. The agency uses a combination of duty crews and scramble crews when a call is received. Members do not need to be in the station while on duty, but need to be able to get to the station within 5 minutes.

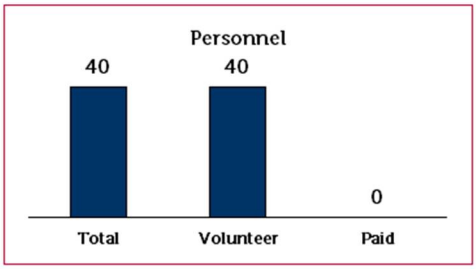
There are 8 ALS providers including 1 paramedic and 13 EMTs among the 40 members. It is estimated that about a quarter to a third of the members perform the majority of the tasks in the department including administrative tasks.

The ambulance base was completed in 2011 and was funded through donations and a mortgage. The base is adequate for the needs of the agency and it includes space for training courses if needed.

Ticonderoga Emergency Squad

Service Area	Ticonderoga, Putnam, Crown Point	Agency/Org Type	Nonprofit, Private
		Org Structure	Board of Directors
Bills for Service?	yes	Staff Type	Volunteer
Level of Service	Paramedic	Membership Trend	increased





# EASVs or First Response Vehicles	0	# Ambulances	2								
Cardiac Monitor Type(s)	Zoll X	Stretcher Type(s)	Stryker Power								
Defib/PAD	x	EpiPen	x	Albuterol	x	Glucometry	x	Naloxone	x	CPAP	x

Population of Service Area (POSA)	7,711	Sq. mi. of Service Area	191
% POSA >= 65	19.0	% POSA >= 85	2.6

Total Calls Reported by Agency: 429

Service Times (hh:mm)	Chute	On Scene	Transport	Total Call
Median	0:06	0:10	0:03	0:39
80th Percentile	0:09	0:15	0:07	0:55
90th Percentile	0:11	0:20	0:12	1:10
Count* (n)	372	366	372	370

** Times are based on call data provided. Not all fields were completed for each call.*

Westport Fire Rescue Squad

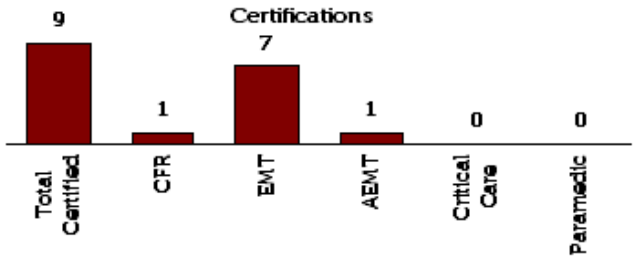
The Westport Fire Department Rescue Squad staffs a volunteer ALS ambulance with about 30 volunteers. Only 5 EMTs, 1 AEMT, and 2 AEMT-CCs are available to be in charge in the back of the ambulance. The agency typically responds with three members on the crew. The certified EMS providers are on a rotation from 6:00 pm to 6:00 am during the week and for 24 hours on the weekend. At other times the agency is staffed using a scramble method. Crews are not asked to be at the station during their times on duty.

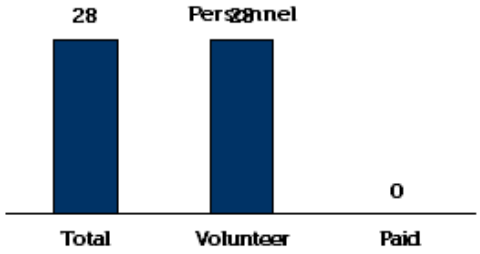
The agency does not bill for services. The Rescue Squad receives money from the Westport Fire District to operate the ambulance. They also accept donations to fund Rescue Squad specific expenses.

The agency is stationed in the cramped and dated fire department building on Main Street. The agency has had trouble maintaining an adequate number of volunteers and has also seen an increase in call volume from people moving into the area.

Westport Fire District Emergency Squad

Service Area	Town of Westport	Agency/Org Type	w/ Fire District
		Org Structure	w/ Fire District
Bills for Service	no	Staff Type	Volunteer
Level of Service	AEMT-CC	Membership Trend	





# EASVs or First Response Vehicles	0	# Ambulances	2						
Cardiac Monitor Type(s)	LP	Stretcher Type(s)	Stryker Power						
Defib/PAD	x	EpiPen	x	Albuterol	x	Glucometry	x	Naloxone	x	CPAP	x

Population of Service Area (POSA)	1,312	Sq. mi. of Service Area	58
% POSA >= 65	21.3	% POSA >= 85	2.2

Total Calls Reported by Agency: 150

Service Times (hh:mm)	Chute	Response	Transport	Total Call
Median	0:07	0:12	0:12	1:29
80th Percentile	0:10	0:17	0:16	1:51
90th Percentile	0:12	0:21	0:19	2:11
Count* (n)	128	122	93	134

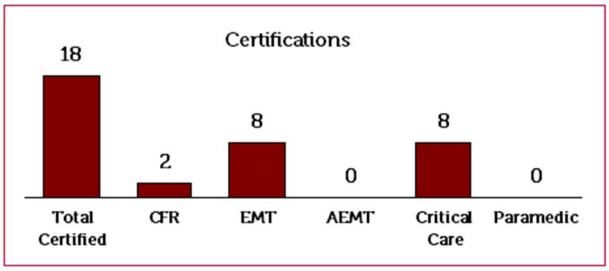
** Times are based on call data provided. Not all fields were completed for each call.*

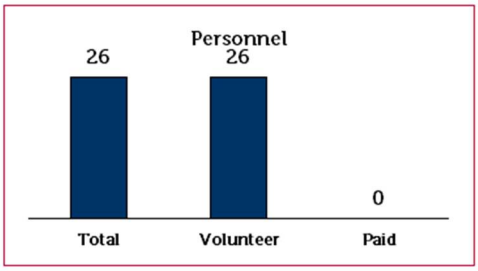
Willsboro-Essex EMS

Willsboro-Essex EMS is new non-profit volunteer, independent ambulance that was formed in February 2016. Previously, the Willsboro and Essex Fire Departments each operated ambulances. The agency is supported by a newly formed special ambulance district that covers both of the towns as well as by billing for transports.

Willsboro-Essex EMS

Service Area	Towns of Willsboro and Essex	Agency/Org Type	Nonprofit, Private
		Org Structure	Board of Directors
Bills for Service?	yes	Staff Type	Volunteer
Level of Service	AEMT-CC	Membership Trend	stable





# EASVs or First Response Vehicles	1	# Ambulances	3								
Cardiac Monitor Type(s)	LP	Stretcher Type(s)	Stryker Power								
Defib/PAD	x	EpiPen	x	Albuterol	x	Glucometry	x	Naloxone	x	CPAP	x

Population of Service Area (POSA)	2,696	Sq. mi. of Service Area	74
% POSA >= 65	22.7	% POSA >= 85	2.2

Total Calls Reported by Agency: 403

Service Times (hh:mm)	Chute	On Scene	Transport	Total Call
Median	0:07	0:11	0:31	1:50
80th Percentile	0:10	0:16	0:37	2:09
90th Percentile	0:12	0:19	0:40	2:19
Count* (n)	399	399	323	397

** Times are based on call data provided. Not all fields were completed for each call.*

The agency has just begun billing for services and looks to reduce the tax burden in the future.

The agency has about 40 volunteers. But only 8 are EMTs and 8 more are AEMT-CCs. In recent years, the number of volunteers has been stable, but the volunteer staff is aging. Additionally, a very small number of EMS certified volunteers (about 6) handle the vast majority of the calls, with only 3 regularly available during business hours.

The crews are assembled using a scramble method and a web based coordinating program. However, crews that are generally available during the day will coordinate in an unofficial manner to ensure coverage. One person typically has the first response vehicle during the days and will use it to go directly to calls while awaiting a driver and ambulance.

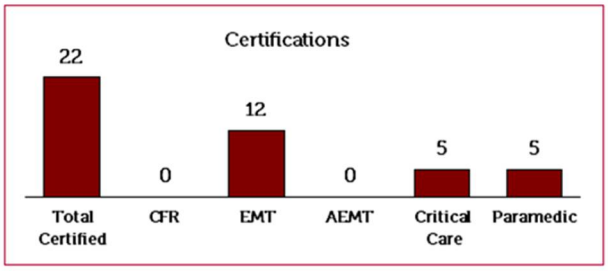
The agency operates their three ambulances and single first response vehicle out of the two fire stations. They pay rent to each department for the space for the ambulances and a small administrative office. Both fire stations have adequate space that could support EMS training.

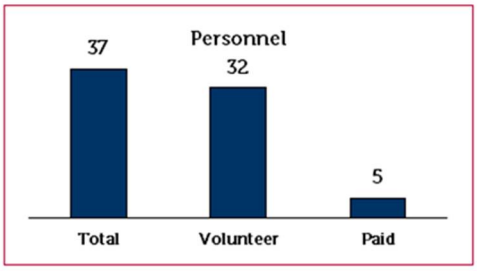
Town of Wilmington Ambulance Services

The Town of Wilmington Ambulance Service is a collaboration between the town and the Wilmington Fire Department. The town has the operating certificate for the ambulance. The town employs a full time AEMT-CC to staff the ambulance during daytime hours. The town bills for transport of patients. The ambulance is stationed at the fire department and is staffed by volunteer members of the fire department to either complete the crew or as a full crew in the evenings and overnights.

Town of Wilmington Ambulance Service

Service Area	Town of Wilmington	Agency/Org Type	Municipal, Town
		Org Structure	Co-operative w/ Fire Dis
Bills for Service?	Yes	Staff Type	Combo
Level of Service	Paramedic	Membership Trend	





# EASVs or First Response Vehicles	0	# Ambulances	2						
Cardiac Monitor Type(s)	Zoll	Stretcher Type(s)	Stryker Power						
Defib/PAD	x	EpiPen	x	Albuterol	x	Glucometry	x	Naloxone	x	CPAP	x

Population of Service Area (POSA)	1,253	Sq. mi. of Service Area	65
% POSA >= 65	13.9	% POSA >= 85	1.4

Total Calls Reported by Agency: 191

Service Times (hh:mm)	Chute	On Scene	Transport	Total Call
Median	0:05	0:11	0:24	1:53
80th Percentile	0:09	0:17	0:35	2:15
90th Percentile	0:11	0:21	0:41	2:34
Count* (n)	187	143	150	188

** Times are based on call data provided. Not all fields were completed for each call.*

The crews are assembled using a scramble method when calls are received. This includes the paid personnel that have other responsibilities for the town. There are 25 volunteer members of the fire department. There are 13 certified providers, including the full time employee, including 1 paramedic and 2 AEMT-CC. It is reported that only about a third of the volunteers handle the majority of the calls. Only 3 of the volunteers are reported to be younger than 45. There are no designated shifts or duty times for the crews. In some situations, employees of the town highway department will assist to drive the ambulance or the agency will work out a crew share arrangement with Ausable Forks.

The fire department station does not have space for training, but adequately serves to house the two ambulances and the EMS staff.

Whiteface Mountain

During the peak ski months of January, February and March, the Olympic Regional Development Authority (ORDA) leases an ambulance to be stationed at the Whiteface Ski Area on weekends and other days with peak volume. The ambulance is staffed by fully qualified EMS employees of ORDA, including paramedics that transport patients that have been injured at the ski area. The town then bills for the transports performed using the ambulance. Whiteface is the primary source of calls in the town.

Other Services

Keeseville Fire Department

The Keesville Fire Department is located in Clinton County. It responds to all EMS calls in the town of Chesterfield. The Keeseville Fire Department provides ALS transport service to the entire Ausable-Chesterfield- Keeseville Joint Fire District. The fire department was not included in the information request or interviews because it has very limited interaction with the rest of county.

Olympic Regional Development Authority

The Olympic Regional Development Authority (ORDA) is responsible for providing EMS staffing at five venues in Essex County. The venues include the ice rinks in Lake Placid the bobsled/luge runs and ski jumps in North Elba, and Whiteface Mountain, The EMS staffing is all paid providers at the EMT level except for some AEMT-CCs that work on the leased ambulance from Wilmington at the Whiteface Ski Area.

ORDA is not a recognized EMS agency because they do not transport patients or staff response vehicles, but they are one of the larger employers of full and part time EMS providers in the county. Most of the full time EMT providers have collateral duties at

their work locations, but their position description is primarily related to being an EMT. They have four full time EMTs and a full time coordinator for EMS services. All the employees and their operations are funded through the ORDA budget. Any transports are handled by the appropriate EMS agency, typically Lake Placid or Wilmington.

North Country Life Flight

North Country Life Flight is a non-profit, combination service that provides medical staffing for the New York State Police helicopters that are stationed at the Adirondack Regional Airport north of Saranac Lake. This service has been operating for more than twenty years from donations and using the in kind services of the NYSP aviation units.

According to publically available financial records, the organization had revenue of $212,486 and expenses of $201,237 in 2014. 65 percent of the expenses were for salaries and wages.

The agency declined to answer questions about its operations including call volume, staffing models and equipment. The Essex County EMS estimates that the agency may have 20 requests for service in the county each year. There is no fee for the service but donations are solicited and it is supported by New York State revenues.

Lifenet of New York

Lifenet of New York began operating a helicopter service, known as LifeNet 7-13, out of the Ticonderoga Airport in October, 2016. The service operates a Bell 407 GXP helicopter with capability of transporting a single patient. The helicopter can cruise at 133 knots. It has a service area that includes all of Essex County.

The private organization declined to answer questions about staffing and finances for the new base or its whole operation. Lifenet is an accredited provider by the Commission on Accreditation of Medical Transport Services. All providers are certified paramedics. There is a fee for transport, but rates have not been made available to Essex County EMS.[4]

[4] A 2015 article in the New York Times reported that Air Methods, the parent organization of LifeNet, charges an average of $40,000 per transport. That same article indicated that the cost for a flight was between $9,000 and $10,000 as reported by an industry group. (http://www.nytimes.com/2015/05/06/business/rescued-by-an-air-ambulance-but-stunned-at-the-sky-high-bill.html)

Calls for Service in 2015

The data regarding the EMS calls for services in Essex County was requested from each of the 13 ambulance services that provide substantial EMS transport in the county. The agencies were requested to submit 25 common data points (see list in Appendix 1) for each call that they responded to during 2015. All agencies completed an excel spreadsheet and submitted at least partial data for the calls. 4,128 calls for service were reported by the agencies indicating that there are about 11 calls per day on average in Essex County.

Calls per 1,000 Residents

The table below shows the rate of EMS calls per 1,000 residents. For the county, there was an average of about 135 calls per 1,000 residents. The variation by community can be partially explained by the presence of seasonal visitors, healthcare or senior living facilities and response to areas outside their community.

Call Rate per 1,000 Residents

	2015 Calls	Pop	Rate Per 1,000
Ausable	405	2,506	161.6
Etown-Lewis	214	2,545	84.1
Keene	64	550	116.4
Keene Valley	74	550	134.5
Lake Placid	1,071	7,500	142.8
Minerva	168	809	207.7
Moriah	411	4,800	85.6
Newcomb	73	436	167.4
Schroon Lake	298	1,894	157.3
Ticonderoga	429	5,042	85.1
Westport	150	1,312	114.3
Willsboro-Essex	403	2,700	149.3
Wilmington	191	1,253	152.4

Agency Distribution of Calls

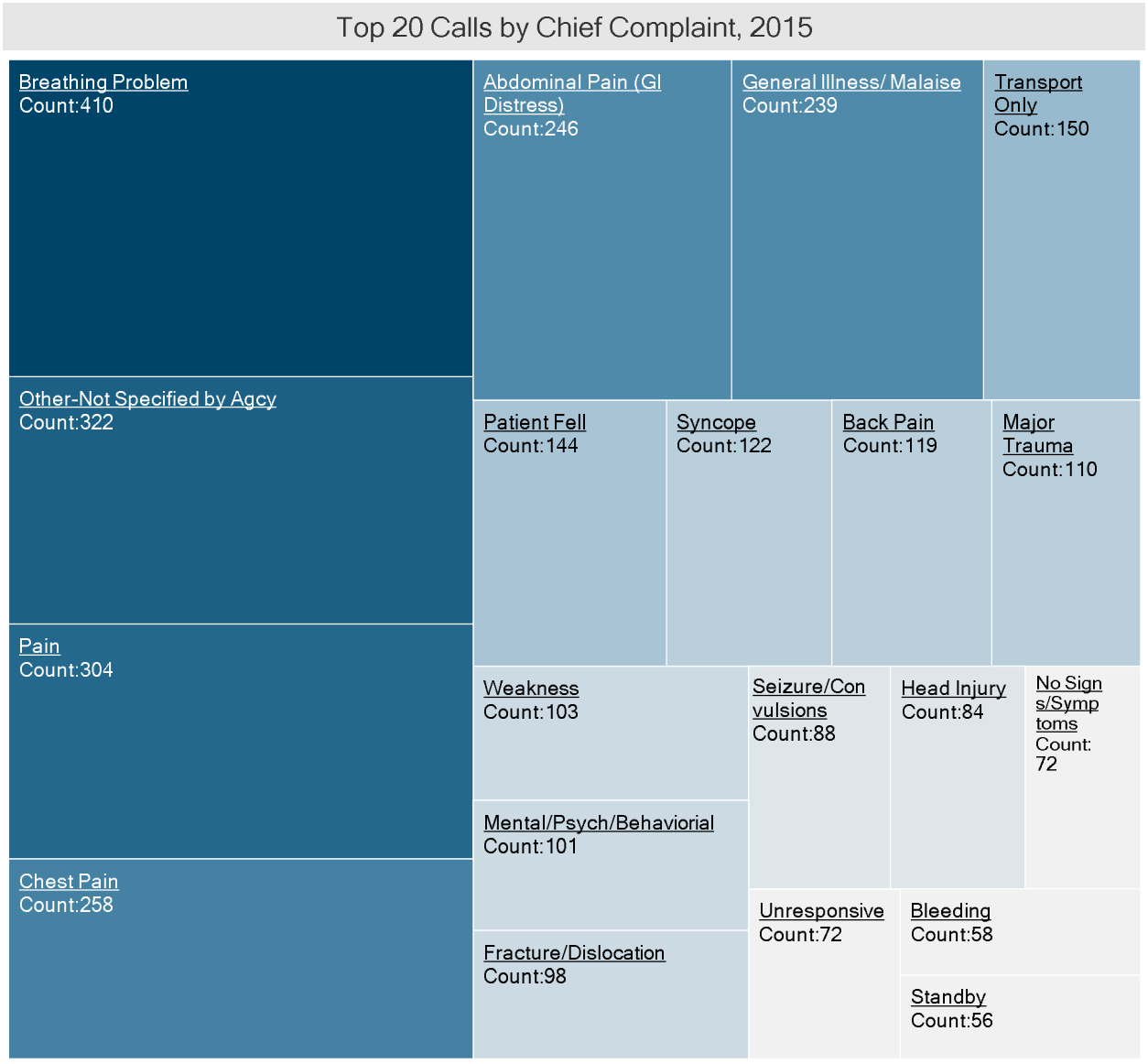
There is a noticeable variation of calls in the community depending on the time of year. For nearly all communities, the volume of calls increases in the summer months when compared to the spring and fall. Several communities also have an increase in volume during the winter months. Lake Placid is the busiest ambulance company with more than a quarter of calls for service. A substantial portion (35 percent) of their calls are related to transfers from the free standing emergency department in the village to the hospital in Saranac Lake. The call volume in Wilmington in January, February and March was triple the average call volmue for the rest of the year. 50 percent of their calls occurred in just those three months. Also, the calls for Lamoille were only emergency calls in the county, they do not include their interfacility transports.

Calls by Month by Agency

Agency	Grand Total	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
AuSable	405	44	38	39	29	30	24	41	29	31	29	36	35
Etown-Lewis	214	11	20	21	10	16	27	15	22	18	26	18	10
Keene	64	5	9	9	2	2	6	8	8	4	2	5	4
Keene Valley	74	6	8	6	2	6	8	10	11	4	5	4	4
Lake Placid	1,071	100	89	100	58	62	72	133	94	102	73	77	111
Lamoille	177	3	14	8	14	20	16	30	18	16	16	9	13
Minerva	168	19	17	12	13	17	12	16	21	13	7	6	15
Moriah	411	32	37	35	27	37	34	31	42	47	37	19	33
Newcomb	73	7	5	2	6	9	7	11	13	3	4	2	4
Schroon Lake	298	27	26	16	20	27	24	35	34	24	25	16	24
Ticonderoga	429	48	35	43	40	33	21	49	38	27	25	29	41
Westport	150	8	13	13	5	10	12	15	16	12	13	19	14
Willsboro-Essex	403	34	26	19	27	35	37	50	46	29	34	36	30
Wilmington	191	30	40	30	6	8	11	12	6	12	12	13	11
Grand Total	4,128	374	377	353	259	312	311	456	398	342	308	289	349

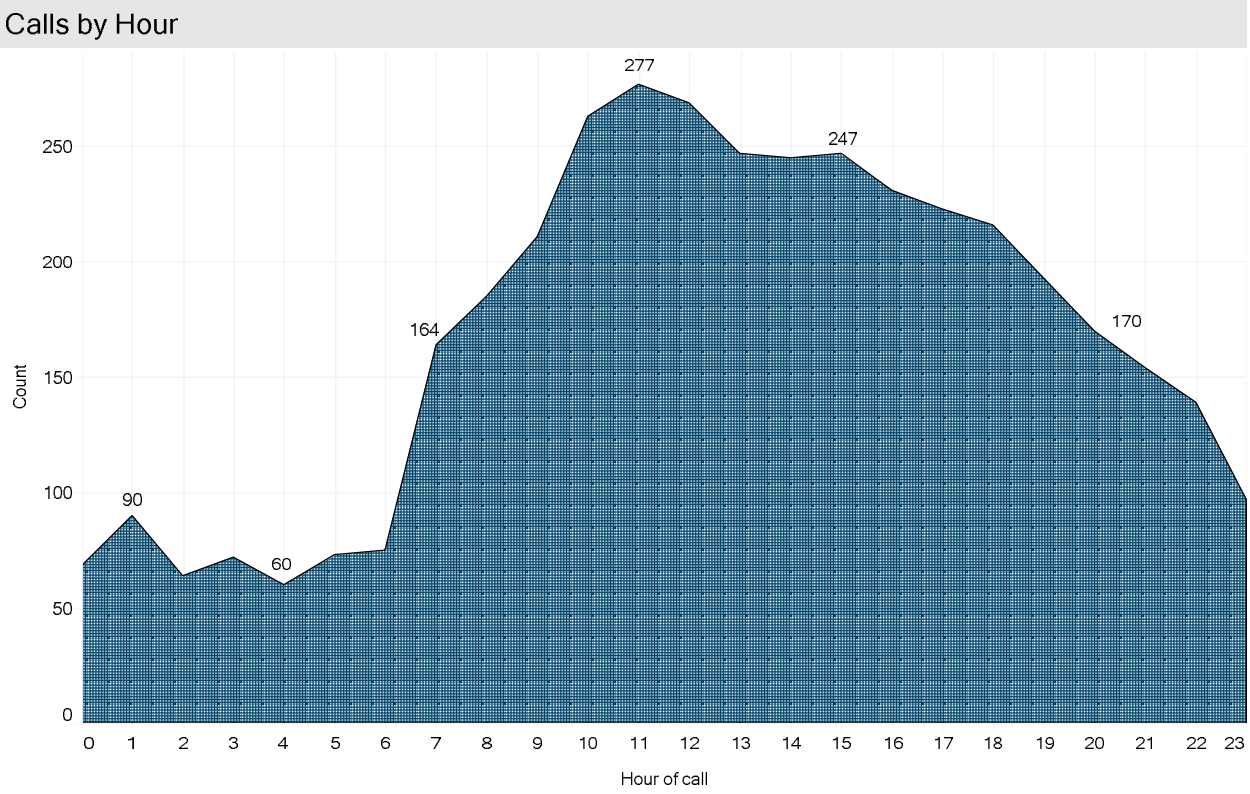
Top Calls by Chief Complaint

The top 20 calls by chief complaint accounted for 76 percent of the calls that were reported by the agencies. These are the complaints specified by the agency at time of transport and may not reflect the final outcome of the patient. More than 20 percent of calls had chief complaints of breathing problems, chest pains, major trauma, seizures, and unresponsiveness that likely would benefit from advanced life support. Other calls list pain and fracture/dislocations as a chief complaint that might benefit from pain management from ALS providers.



Distribution of EMS Calls by Time of Day

About 69 % of EMS calls occur between the hours of 7 am and 7 pm. The rate of calls per hour is substantially lower on the overnight hours with the hours between midnight and 7 am accounting for only 12% of calls. The busiest hours are between 10 am and 3 pm with those 5 hours accounting for 32 % of calls.



Distribution of EMS Calls by Hour of Day and Day of Week

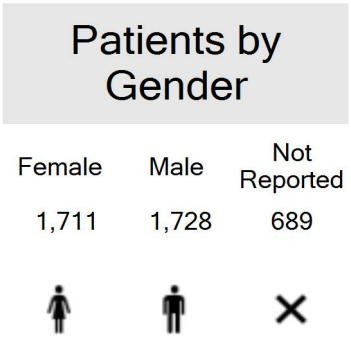
Saturday is the busiest day of the week for the EMS system in Essex County, accounting for 16 % of calls while Wednesday accounts for only 13.4 %. The distribution is different from many communities where the call volume drops on the weekend.

Calls by Hour by Weekday								
Hour of call	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Grand Total
00:00-00:59	17	8	5	7	8	12	11	68
01:00-01:59	7	18	14	11	12	12	16	90
02:00-02:59	7	9	9	9	11	5	14	64
03:00-03:59	13	11	10	6	12	5	15	72
04:00-04:59	9	8	4	9	7	13	10	60
05:00-05:59	14	13	5	9	10	9	13	73
06:00-06:59	8	6	18	11	9	12	11	75
07:00-07:59	25	25	25	18	25	26	20	164
08:00-08:59	26	29	24	32	23	26	25	185
09:00-09:59	29	34	37	34	24	26	27	211
10:00-10:59	30	39	53	37	38	30	36	263
11:00-11:59	28	39	42	35	36	49	48	277
12:00-12:59	48	43	27	37	42	30	42	269
13:00-13:59	48	34	23	34	31	42	35	247
14:00-14:59	34	32	33	33	41	39	33	245
15:00-15:59	39	45	21	35	27	33	47	247
16:00-16:59	34	25	42	27	36	39	28	231
17:00-17:59	37	28	20	26	28	36	48	223
18:00-18:59	35	28	31	25	31	26	40	216
19:00-19:59	26	27	31	25	19	27	38	193
20:00-20:59	33	17	22	26	21	27	24	170
21:00-21:59	18	15	21	21	21	25	33	154
22:00-22:59	26	18	19	18	21	21	16	139
23:00-23:59	7	17	13	17	13	16	14	97
Grand Total	598	568	549	542	546	586	644	4,033

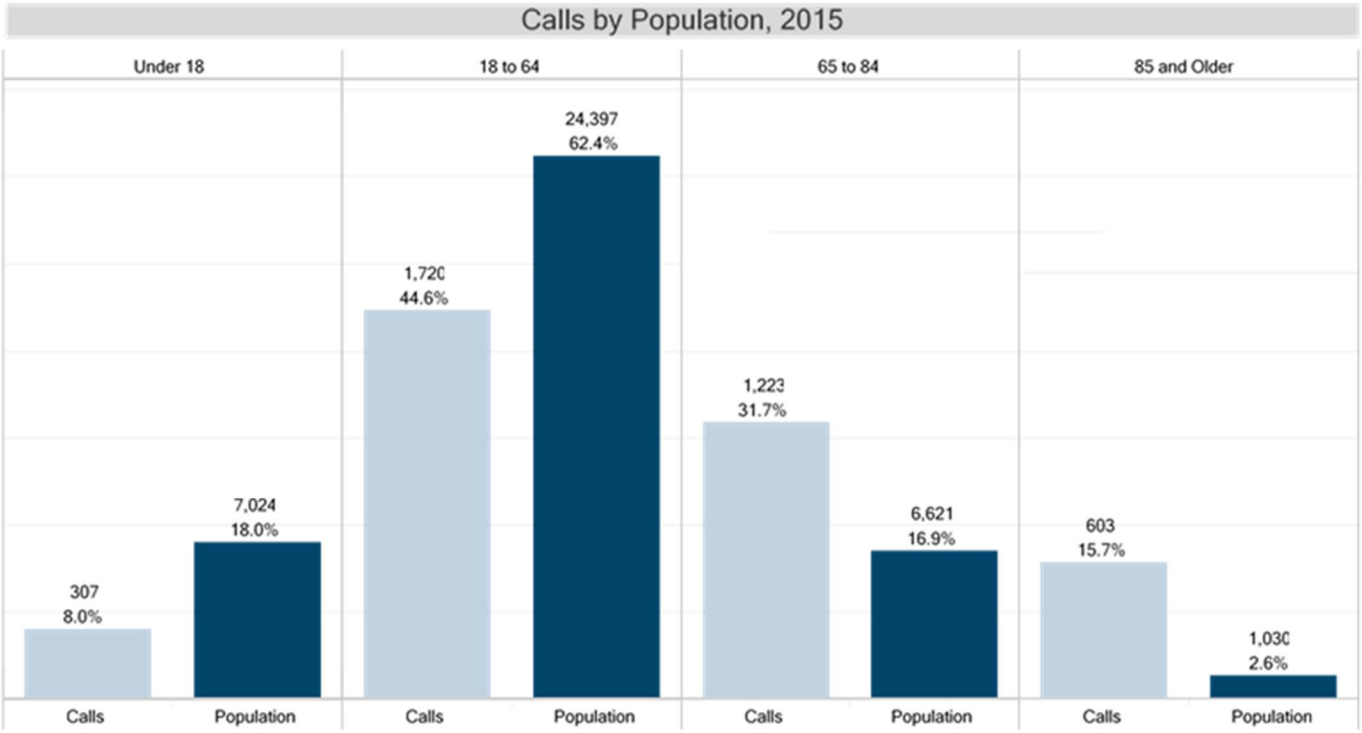
Call Use by Population Segment

The genders use EMS at essentially the same rate in Essex County. However, different age groups use EMS services at a different rate. Age data was available for over 90 percent of patient contacts.

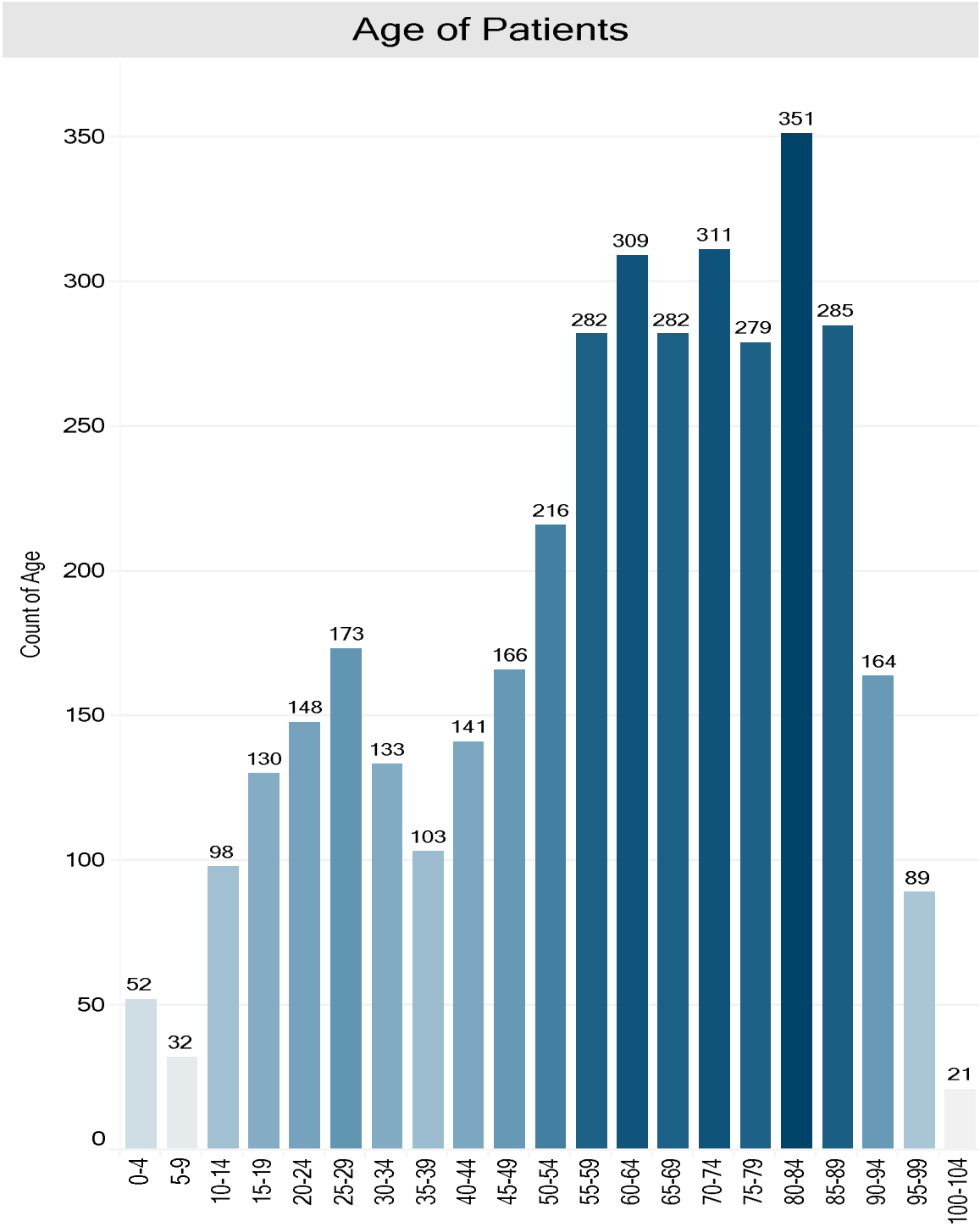
In Essex County, the elderly population uses EMS at a rate more than nine times greater than younger adults. In 2015, the EMS use rate was 43 calls per 1,000 residents under the



age of 18, 70 per 1,000 for ages 18 to 64, 203 calls per 1,000 residents ages 65 to 84 and 600 per 1,000 for ages 85 and older. This disproportionate use of EMS services will have a profound impact on the volume of calls as the number of residents over 65 continues to climb in the county.



The following table shows the distribtuion of the pateints age for those that were transported by Essex County EMS agencies. Again, the chart shows that there were more older patients than there were younger patients.

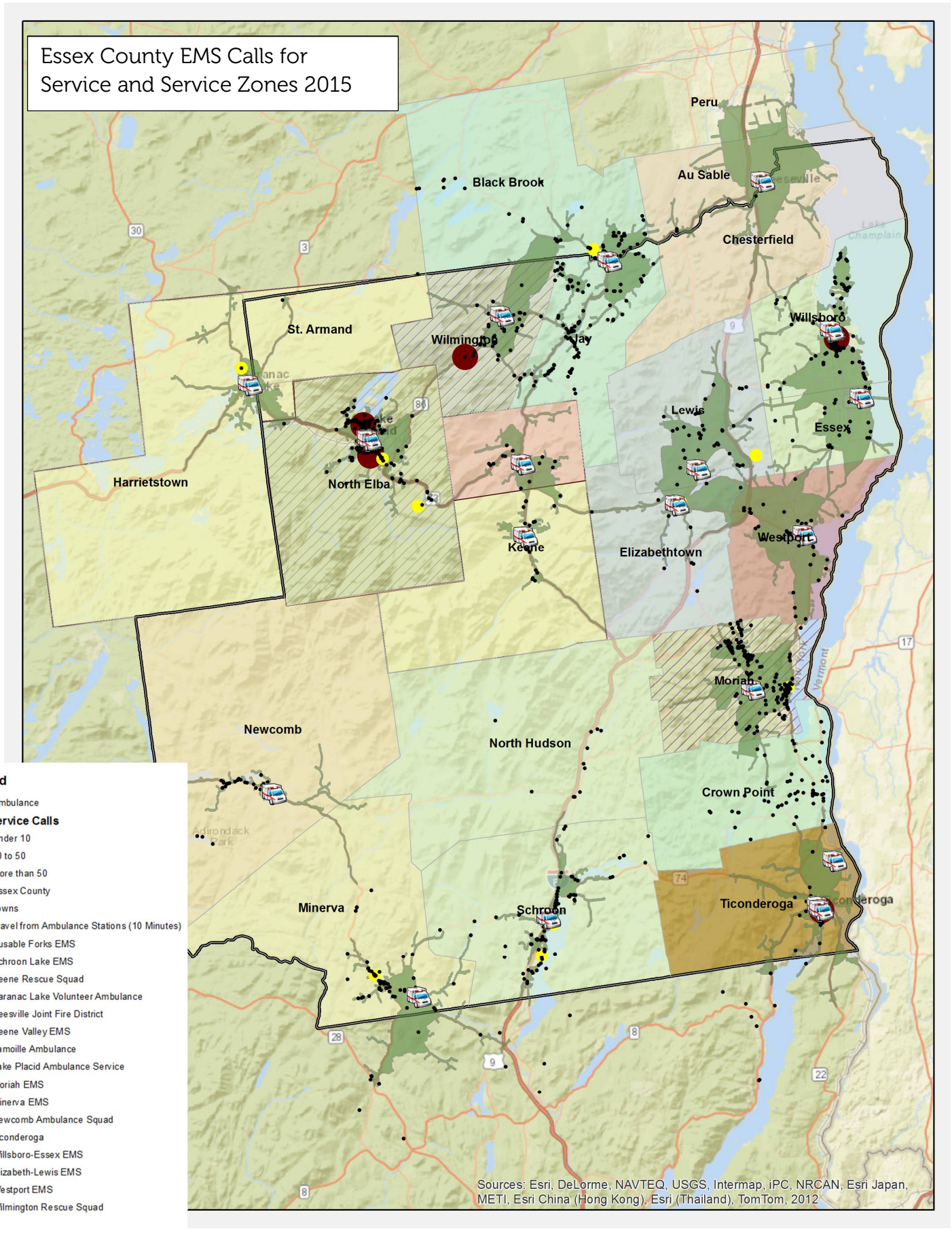

Age of Patients
Count of Age
0
50
100
150
200
250
300
350
52
32
98
130
148
173
133
103
141
166
216
282
309
282
311
279
351
285
164
89
21
0-4
5-9
10-14
15-19
20-24
25-29
30-34
35-39
40-44
45-49
50-54
55-59
60-64
65-69
70-74
75-79
80-84
85-89
90-94
95-99
100-104

Geographic Call Distribution

CGR used information from the agencies to plot the location of calls in Essex County. The following map shows the approximate location of all EMS calls in the county in 2015. The map shows the location of the EMS stations, the areas that can be driven to within 10 minutes (at 45 miles per hour in normal traffic and weather)[5], and locations of calls. The locations of calls are shown as dots of different size and color depending on how many events occurred at those locations.[6] Calls from Keeseville EMS and Saranac Lake EMS were not provided for the study, but their stations and drive time areas are included as they provide service to the county.

78 percent of calls occur within a ten minute drive of one of the existing EMS stations. Areas that have multiple calls outside that range include the towns of Crown Point and North Hudson, but in other towns there are few calls outside the drive time. All locations with more than 10 calls during 2015, except for Whiteface Mountain, were within a 10 minute drive time of an EMS station.

[5] Drive times are not shown for International Paper, Elizabethtown Hospital or LaMoille ambulance.
[6] Ticonderoga EMS did not provide addresses for their calls, so all calls in their jurisdiction are shown as occurring at their base.


Essex County EMS Calls for Service and Service Zones 2015
Peru
Au Sable
Black Brook
Chesterfield
Willsboro
St. Armand
Wilmington
Jay
Lewis
Essex
Harrietstown
North Elba
Keene
Elizabethtown
Westport
Moriah
Newcomb
North Hudson
Crown Point
Minerva
Schroon
Ticonderoga
Legend
Ambulance
2015 Service Calls
Under 10
10 to 50
More than 50
Essex County
Towns
Travel from Ambulance Stations (10 Minutes)
Ausable Forks EMS
Schroon Lake EMS
Keene Rescue Squad
Saranac Lake Volunteer Ambulance
Keesville Joint Fire District
Keene Valley EMS
Lamoille Ambulance
Lake Placid Ambulance Service
Moriah EMS
Minerva EMS
Newcomb Ambulance Squad
Ticonderoga
Willsboro-Essex EMS
Elizabeth-Lewis EMS
Westport EMS
Wilmington Rescue Squad
Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2012

Call Time Intervals

CGR calculated some key time intervals for each agency. The intervals were shown in the agency descriptions earlier in the report (p. 10). On the following table, the times are presented for the county as a whole. An important caveat is that not all data was provided for each call. Also, a missing data piece is the call processing time from when the call is answered at the 911 center to when it is assigned to the agency. For EMS calls, it routinely takes 1.5 to 2 minutes from the time of answering the call to the time it is assigned to the agency.

Chute Time: Across the county, the median chute time is 5 minutes and the 90th percentile chute time is 11 minutes. The Mountain Lakes Region has established a target of 10 minutes or less for this time interval. Five agencies (AuSable, Keene, Lake Placid, LaMoille, and Newcomb) meet this target and only one of them (Keene) relies primarily on volunteer responders.

Response Time: Response times are a frequent measure of EMS performance, but full context is needed to use that measure properly and full context is not available from the agencies. The key piece that is missing is the call type at time of dispatch. It is common practice in EMS to not respond to with lights and sirens to routine calls such as transports between facilities or minor medical problems as identified through the dispatch triage process. The information on call type was not available for this analysis. The median response time in the county is 10 minutes and the 90th percentile is 21 minutes. Some agencies with larger service areas (Schroon Lake and LaMoille) have longer 90th percentile response times, while Lake Placid and its dense call distribution has the shortest 90th percentile time. This time interval includes the chute time.

Transport Time: The transport time is the time interval from when an agency begins transporting to when they arrive at the hospital. While the median time for transport is only 20 minutes in the county, that time is lowered by several higher volume agencies with short distances to their hospitals. Minerva, Newcomb, and Schroon Lake all have transport times that exceed a median value of 40 minutes and a 90th percentile of nearly an hour. These long transport times lengthen the total call time and also place a burden on the crews that are on those calls, particularly the volunteers.

Total Call Time: The total call time for agencies indicates how long their ambulance is out of service on the event. The median value of 75 minutes is influenced, again, by the larger agencies with short transport time. The communities with longer transport times (Minerva, Newcomb and Schroon Lake) all have median call times around 2 and half hours with 90th percentile values over an hour longer. These time

intervals don't include the time necessary for crews to prepare for their next call or completing paperwork. For crews in areas with long transports, an EMS call is more than three hours in length when the other routine tasks are taken into consideration. It should also be acknowledged that during the calls in many places, there is not another ambulance available or the crew to staff one if it does exist, therefore there is a gap in EMS coverage.

Call Time Intervals

	Chute Time (hh:mm)			Response (hh:mm)			Transport Time (hh:mm)			Total Call Time (hh:mm)		
Agency	Median	80thP	90thP	Median	80thP	90thP	Median	80thP	90thP	Median	80thP	90thP
Essex County	0:05	0:09	0:11	0:10	0:16	0:21	0:20	0:35	0:45	1:15	2:03	2:35
AuSable	0:03	0:06	0:09	0:10	0:16	0:21	0:35	0:43	0:46	0:39	1:47	2:14
Etown-Lewis	0:08	0:11	0:13	0:15	0:21	0:25	0:08	0:15	0:21	0:50	1:17	1:39
Keene	0:06	0:08	0:09	0:09	0:13	0:20	0:15	0:19	0:21	1:13	1:29	1:49
Keene Valley	0:08	0:12	0:14	0:10	0:17	0:23	0:17	0:21	0:24	1:30	1:48	2:08
Lake Placid	0:03	0:06	0:08	0:07	0:11	0:15	0:18	0:21	0:23	0:57	1:28	1:55
LaMoille	0:05	0:08	0:10	0:15	0:21	0:25	0:12	0:24	0:44	1:04	1:54	2:27
Minerva	0:07	0:09	0:11	0:13	0:17	0:20	0:49	0:54	0:58	2:33	3:11	3:34
Moriah	0:08	0:10	0:12	0:13	0:16	0:19	0:21	0:26	0:28	1:38	1:57	2:10
Newcomb	0:03	0:06	0:07	0:07	0:14	0:20	1:05	1:10	1:17	2:46	3:34	3:46
Schroon Lake	0:03	0:10	0:14	0:12	0:20	0:27	0:44	0:51	0:57	2:25	3:09	3:30
Ticonderoga	0:06	0:09	0:11	0:10	0:15	0:20	0:03	0:07	0:12	0:39	0:55	1:10
Westport	0:07	0:10	0:12	0:12	0:17	0:21	0:12	0:16	0:19	1:29	1:51	2:11
Wb-Esx	0:07	0:10	0:12	0:11	0:16	0:19	0:31	0:37	0:40	1:50	2:09	2:19
Wilmington	0:05	0:09	0:11	0:11	0:17	0:21	0:24	0:35	0:41	1:53	2:15	2:34

EMS Workforce

Essex County's EMS workforce is a combination of volunteers and career providers with training ranging from CPR and first aid to paramedic. The workforce is perhaps the most important part of the EMS system because without their presence, there is no one to respond to calls for service. Using data from the DOH, Essex was compared to its neighboring counties and counties with similar populations across New York. Compared to 12 counties, Essex has the third highest rate of certified EMTs and third highest rate of ALS providers based on county of residence.

County EMS Providers by Population

County	Population	EMT per 1000	ALS per 1000
Clinton	81,251	2.5	1.2
Delaware	47,091	3.8	0.8
Essex	39,072	4.1	1.2
Franklin	51,508	3.1	0.9
Hamilton	4,787	15.7	2.3
Lewis	27,222	3.0	0.8
Orleans	42,524	3.0	0.6
Schoharie	32,087	3.1	0.5
Schuyler	18,518	4.5	0.6
Seneca	35,436	1.9	1.3
Warren	64,688	3.0	1.1
Washington	62,910	2.2	0.9
Yates	25,256	2.2	0.2

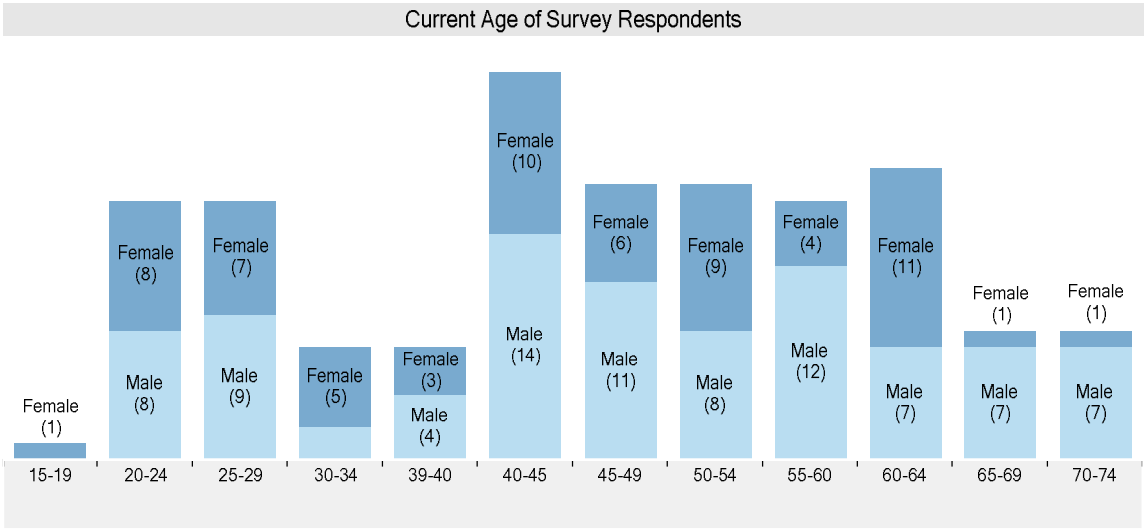
Survey of EMS Workforce

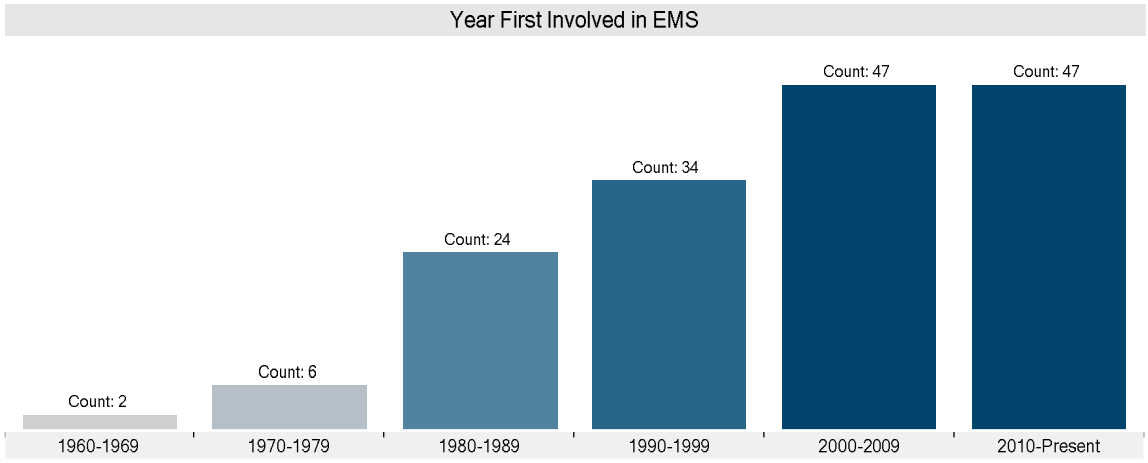
In October of 2016, surveys were electronically distributed[7] to the Essex County EMS community that requested provider data on items such as tenure, volunteer and/or employment commitment levels, certification levels, and agency affiliation. Open-ended questions were included for the respondent to express personal answers to questions regarding training opportunities and solutions to challenges their agency

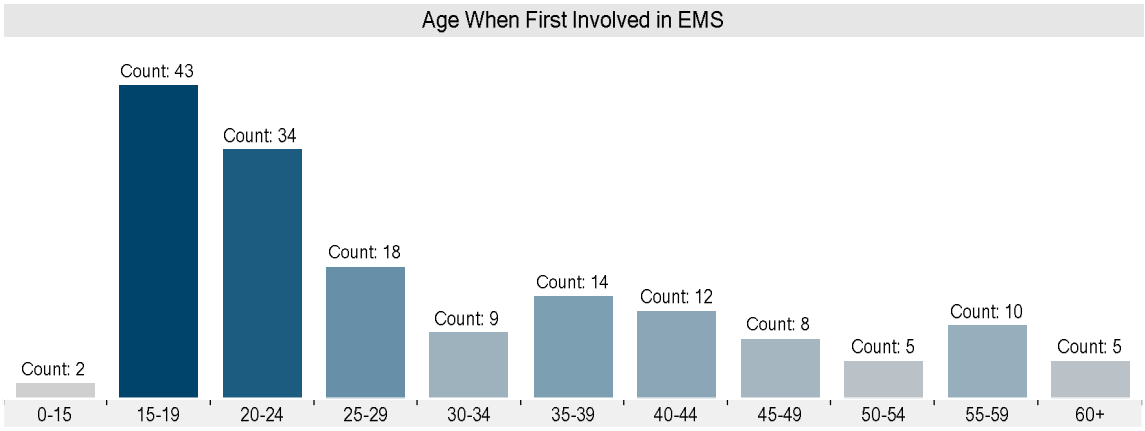
[7] paper copies of surveys were available to those that requested them

may face. The 160 responses received were provided anonymously and no

Essex County EMS Provider Survey - Respondent Information







identifying data was requested. Some of the questions will be used to inform later stages of the project.

Respondent Information

The workforce skews older with 70 % in the decades of forty and above. However, the fact that 20 % of the workforce is in their 20s shows that there are still young people getting involved. 60 % of the current workforce became involved in EMS before their thirtieth birthday. About 42 % of the workforce reports that they are women. In the EMS providers under 40, the rate is 50%.

Current Level of Certification and Activity

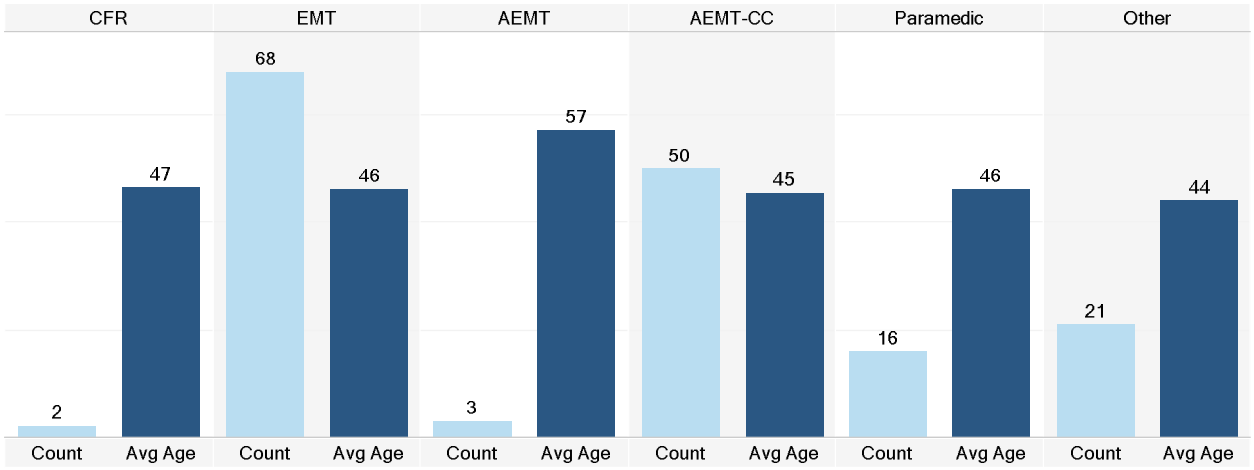
The average age of the EMS provider is consistent across the different levels of training with the exceptions of AEMTs being a decade older on average. The average number of years as an ALS provider is more than a decade which indicates strong experience, but also shows that few are getting involved in the training.

63 EMTs answered questions about frequency of their skill usage in the last year. The table shows that skill usage was limited related to the five areas asked. The two skills relating to using ALS seem to show that ALS is most often not cancelled by BLS providers and also that about 40% of EMTs transported at least one patient where they believed that ALS would have been appropriate, but was not available. The use of AEDs and albuterol nebulizers occurred for the majority of EMTs, but epi-pen auto injectors are rarely used by EMTs.

65 ALS providers were also asked questions about their skills. Nearly all had given IV medication in the last year and all but one had started an IV with most reporting multiple administrations and starts. More than half had performed an intubation and/or other advanced airway technique in the prior year, but very few had performed these interventions more than a handful of times. The skills of chest decompression and synchronized cardioversion were performed by less than a quarter of providers in the last year.[8]

[8] The one provider that indicated they performed more than 20 chest decompressions had either a serious string of trauma calls or checked the wrong box on the survey. The latter is the assumed explanation.

Current Level of EMS Certification and Average Age



Years as ALS

AEMT-CC	10.4
Paramedic	13.1

Avg Age of Cert Level

CFR	46.5
EMT	46.2
AEMT	57.0
AEMT-CC	45.3
Paramedic	46.1
Other	44.0

Frequency of Skill Use - EMT

	Canceled a responding ALS unit that was not needed after I evaluated the patient	Given albuterol via nebulizer	Transported a patient without ALS because no ALS unit was available	Used an AED	Used an epi-pen auto injector
I have not used this skill in the last year	40	30	35	25	44
1 to 3 times	15	21	23	26	8
4 to 6 times	5	6	0	3	0
6 to 10 times	0	1	0	2	0
11 to 20 times	1	0	1	0	0
More than 20 times	0	1	1	2	0
Never performed outside of an educational setting	3	5	4	6	12

Frequency of Skill Use - ALS

	Given an IV medication to a conscious patient	Intubation	Other Advanced Airway	Performed Chest Decompression	Performed Synchronized Cardioversion	Started an IV
I have not used this skill in the last year	2	18	17	32	36	1
1 to 3 times	10	30	34	14	13	9
4 to 6 times	5	10	6	3	1	7
6 to 10 times	10	1	1	0	0	6
11 to 20 times	10	0	0	0	0	6
More than 20 times	27	0	0	1	0	36
Never performed outside of an educational setting	1	6	7	15	15	0

Workforce Participation

The 163 respondents indicated that the fill 275 positions in the EMS workforce in the county. The table below shows the positions that were reported in the survey. Most agencies had participation that was similar to the reported size of the agencies.

Participation by Level and Agency

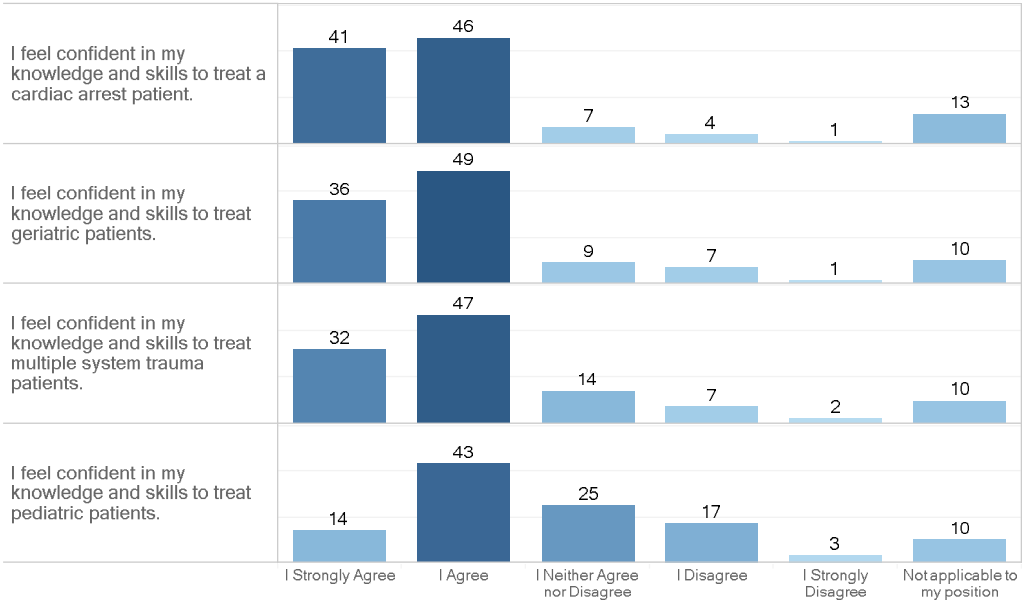
Agency1	FT	PT	Vol	Other	Grand Total
Ausable Forks Volunteer Ambulance Service Corp.	3	9	10	4	26
Elizabethtown Community Hospital Transport	4	9	0	2	15
Elizabethtown Lewis Emergency Squad, Inc.	1	9	12	2	24
International Paper	2	0	0	0	2
Keene Emergency Medical Services, Inc.	0	0	6	0	6
Keene Valley Hose & Ladder Company	0	0	9	3	12
Lake Placid Volunteer Ambulance Service, Inc.	4	11	9	2	26
Lemoille Ambulance Service	5	4	0	1	10
Minerva Volunteer Fire Department and Rescue Squ..	0	0	10	0	10
Moriah Ambulance Squad, Inc.	0	0	2	0	2
Newcomb Volunteer Fire Department, Inc.	1	4	1	1	7
Saranac Lake Volunteer Rescue Squad	5	3	7	4	19
Schroon Lake Volunteer Fire Department, Inc.	0	4	6	1	11
Ticonderoga Emergency Squad, Inc.	0	0	16	0	16
Westport Fire District Emergency Squad	0	0	10	0	10
Willsboro	0	0	11	0	11
Wilmington Ambulance Service	1	4	8	5	18
Other Essex County Agency	1	1	6	0	8
Clinton County, NY	8	2	4	1	15
Franklin County, NY	0	0	0	0	0
Hamilton County, NY	2	2	1	0	5
Warren County, NY	6	6	3	2	17
Washington County, NY	0	0	2	0	2
Vermont, NY	0	1	1	1	3
Grand Total	43	69	134	29	275

More than half (53%) that completed the survey indicated that they are only volunteers, while 30% both work and volunteer. 45% indicate that they are with only one agency. A small share (6%) indicate that they are involved with 5 or more agencies.

Respondents who indicated that they:	
Both VOL and work for PAY	42
Volunteer only	73
Work for Pay only	22
Work/VOL at 1 agency	69
Work/VOL at 2 agencies	35
Work/VOL at 3 agencies	22
Work/VOL at 4 agencies	14
Work/VOL at 5 agencies	5
Work/VOL at 6 agencies	3
Work/VOL at 7 agencies	2
Work/VOL at 9 agencies	1

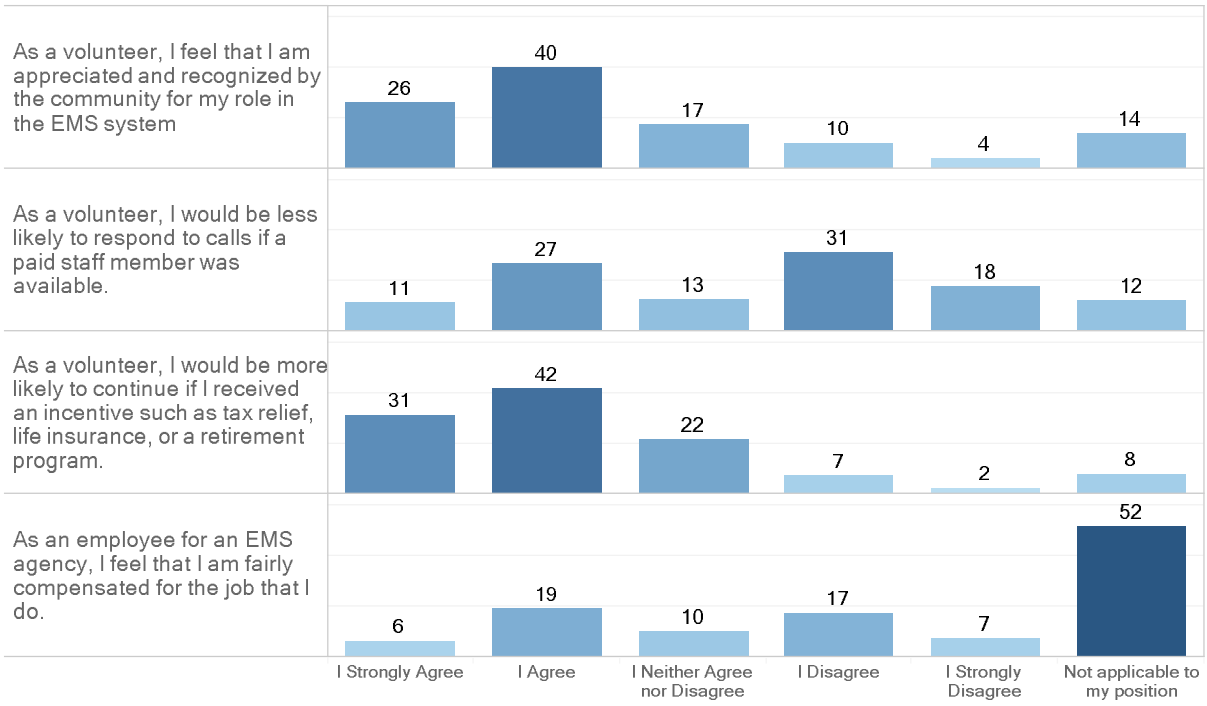
Provider Confidence

111 providers answered questions related to their opinions of the current EMS system. Most of the providers report that they are confident to treat their patients. However, there was a noticeable shift related to the ability to treat pediatric patients where they appeared to be less confident in general.



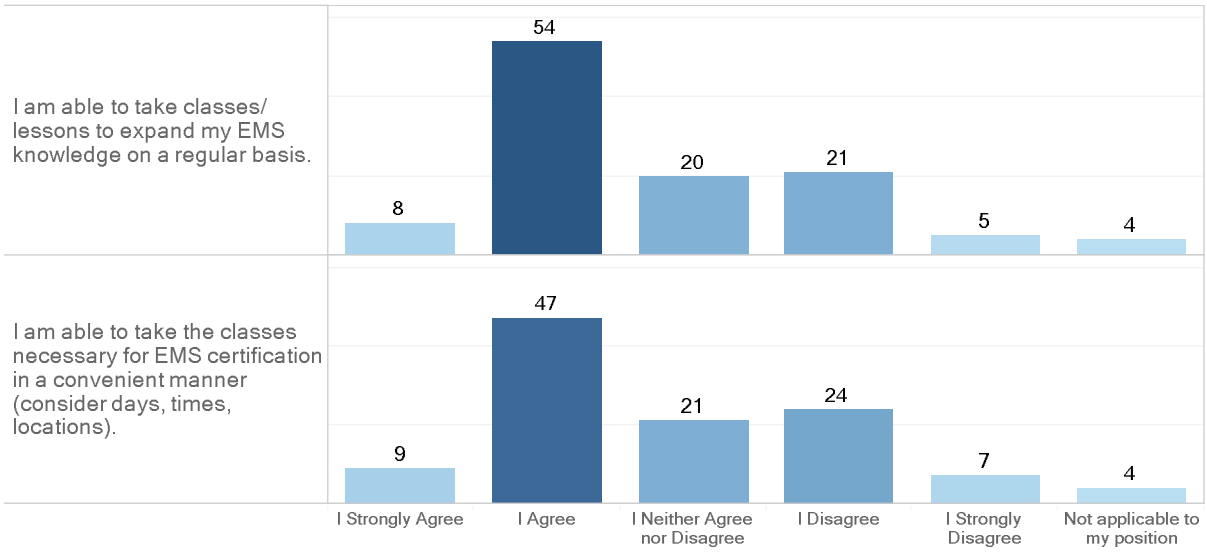
Provider Recognition

The majority of volunteer providers feel that they are appreciated and recognized by their community. They also feel that they would be more likely to continue to volunteer if they received incentives such as tax relief or a life insurance program. The paid EMS providers were split as to whether they were fairly compensated for their job.



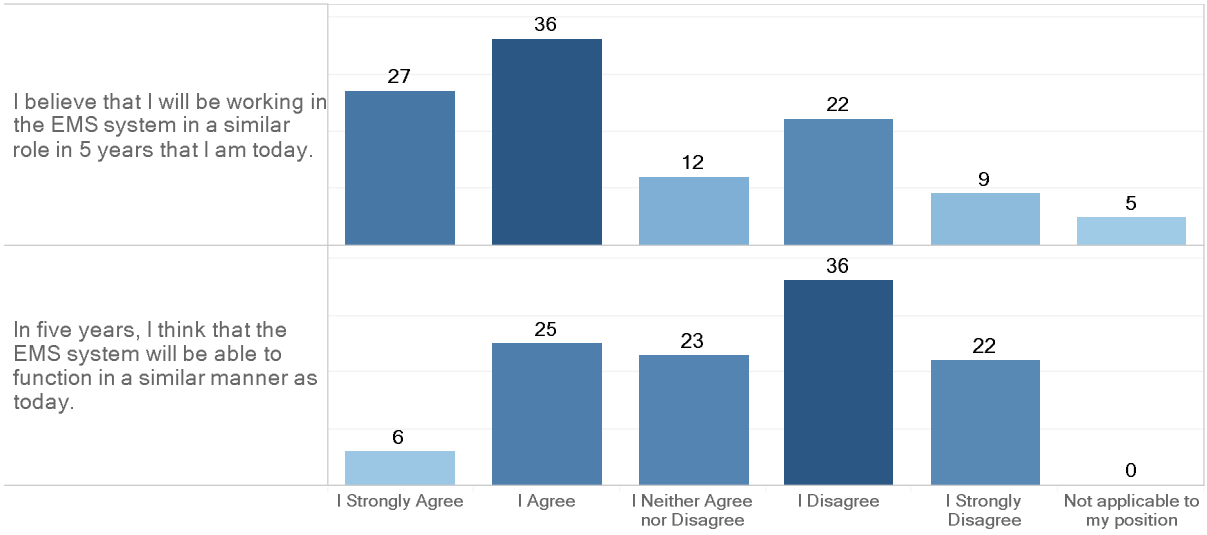
Training Opportunities

While the majority of those who answered the questions related to training felt that they could take their classes on a regular basis and in a convenient manner, about 30 percent disagreed with those statements.



Future of EMS System

While most respondents to the survey feel that they will still be involved in the EMS system in a similar role in 5 years, most believe that the EMS system will not be able to function in a similar manner as it does today.



Baseline Key Findings

- EMS Agency Characteristics
  - There are 18 EMS transport agencies that serve the county. Most are either fire department based (41%) or independent non-profit organizations (30%). In 2015, the independent ambulances responded to about 73% of the calls in the county and fire department ambulances about 18%. The remaining amount were reported being split by the town ambulance and the commercial services' 911 calls. The hospital based systems were excluded.
  - The EMS system responded to 4,128 events in 2015, 11.3 responses per day countywide. Through mid-September 2016, there were 11.7 responses per day. As call volume slows after the summer tourist season ends, response per day is anticipated to finish consistent with 2015.
  - Only the five busiest EMS agencies respond to calls at a rate greater than one call per day and no agency averages more than two calls per day. The five least active agencies responded to fewer than six calls per month.
  - Agencies can assure an adequate EMS response when all resources are available, but second calls or calls when key people are unavailable challenge the system's ability to respond in a timely manner. Nearly all agencies meet the goal of having an ambulance responding to calls in less than 10 minutes 90 percent of the time
  - Nearly all agencies are providing the highest tier of medical care (advanced life support) or have it readily available. ALS is requested by BLS providers as needed, but is not dispatched by protocol.
  - Most of the basic life support ambulances have advanced treatments such as epinephrine injections, albuterol administration and continuous positive airway pressure adjuncts available to them.
  - Advanced life support (ALS) is often available for calls to the larger agencies with some paid staff. Some agencies have very few ALS providers.
  - Anecdotally, patients are harmed from slow EMS response several times a year. This is typically attributed to lack of provider availability. This is not officially reported or reviewed.
  - Community observers report little improvement EMS response times over the last few decades. The lack of historical data will prevent this from being measured.
  - The addition of a full time county EMS coordinator in 2016 is seen as having a positive impact by both EMS providers and outside parties.

- No non-commercial ambulance reports being able to cover all their operational costs based on patient billings. More than half the agencies have a substantial reliance on property tax revenue.

- EMS Workforce
  - Based on 2015 NYS DOH data, there are 215 certified EMS providers living in Essex County. Three are Certified First Responders (CFRs), 159 are Emergency Medical Technicians (EMTs), 5 are Advanced EMTs, 37 are AEMT-Critical Care, and 10 are paramedics. This equates to 4.1 EMTs per thousand residents and 1.2 advanced life support providers per thousand residents. This rate is slightly better than the other four counties in the EMS region (Clinton, Franklin, Warren, and Washington). Additional data is needed to compare against other rural counties and previous years.
  - The EMS system and the individual agencies rely on a small percentage of the certified EMS providers to respond to calls and provide agency leadership.
  - Based on interviews, the share of calls covered by paid staff has increased in each of the previous 5 years.
  - A majority of the key EMS providers are over 50 with a substantial percentage planning to leave the field in the next five to ten years.
  - There is no coordinated effort to develop EMS leaders for the next decade and beyond.
  - There are few paramedics (10) in the county, probably related to the limited educational facilities and lack of career opportunities.
  - Agencies that employ EMS providers report that they have difficulty recruiting both full and part time employees.
  - The majority of agencies that rely on volunteers report that their numbers are down from five years ago, that they rarely have new members join and that the burden of responding is increasingly shifted to a few active members.
  - The expanded EMS Educational curriculum from 2012 improves patient care, but is a barrier to recruiting and retaining EMS providers because of the extended number of hours in the class.
  - EMS providers report difficulty in finding appropriate continuing education and recertification education opportunities.
  - There are only three active Certified Instructor Coordinators (CICs) that are able to teach EMS certification courses and all teach on a part time basis.
  - State law limits EMT certification to individuals 18 and older. The NYS Department of Health takes this one step further by not allowing enrollment in

EMT classes that end before the individual turns 18. This limits the opportunity to work with high schools to develop EMTs and provide valuable vocational training. This could be rectified by a change in DOH regulation to allow EMT students complete the course, then take the certification exam after turning 18.

- Most EMS providers in the county became involved under the age of 30 with a substantial portion getting involved in their early 20s or younger.

- General Observations On Improving the EMS System
  - EMS in Essex County will never match that in an urban or suburban area, however a well-designed system could lead to improvements in response time and level of care.
  - The hospitals in the county will need to participate in any EMS system improvement.
  - The records management system at the 911 center has substantial information on EMS calls, but the data are not extracted and analyzed to improve the system.
  - The aging population will both reduce the number of available volunteers as they become physically unable to perform the work and will increase the volume of calls because older residents use the EMS at a greater rate.
  - The solutions for improving the EMS system could involve partners from neighboring counties and Vermont.

- Unanswered Questions
  - The prevalence and distribution of mutual aid was not able to be answered from the available data.
  - The varied funding sources and opaque financial reports prevented the development of a model for financial operations.
  - The utilization of air medical resources and the impact of the new service could not be analyzed.
  - Historical call data on a county and agency level was not available to evaluate long term trends.

Recommendations for Immediate Action

The following items are based on practices in other EMS systems and could be undertaken with limited additional resources.

- Institute a shorter time interval before mutual aid is requested from neighboring agencies. The home agency could continue to be requested, but help from a neighboring agency should initiated at four minutes if the home agency has not indicated there is a crew available.
- Advanced life support should be assigned to calls using Emergency Medical Dispatching protocols such as all calls categorized "Charlie", "Delta" and "Echo".
- First response protocols for "Echo" calls that involve non-ambulance personnel such as law enforcement and firefighters.
- EMS agencies and the 911 center need to better communicate when there are crews available to respond to calls. This is particularly important for volunteer agencies that rely on scramble crews and have a volume of calls greater than 150 per year.
- The 911 Center and EMS coordinator should develop a series of operational "dashboards" to help manage the EMS system using data from the dispatch system. Data points that should be tracked on a regular basis, by municipality, include: number of responses, type of responses, chute time, response time, utilization of mutual aid, need or availability of ALS and destination hospitals for transport.
- Develop an "incident report" that can be generated by the 911 center to the EMS coordinator to official track key events such as mutual aid, extended response times for serious calls, and unavailability of ALS when requested.
- Develop a process for critical event reviews (including medical direction) at an agency or county level for calls such as cardiac arrests, severe trauma, acute myocardial infarction, stroke and pediatric calls. This should be a "no fault" review targeted at improving the agency response.
- Work with the REMSCO to develop training programs for low frequency skills such as pediatric assessment, epi-auto pens, needle decompression, and synchronized cardioversion.
- Develop a process that neighboring agencies can be "put on alert" when an agency with limited resources (only one ambulance) will be tied up on a call for

transport. Although state law prohibits "staging" in another operating district, this step could reduce response times.

Next Steps

Strategic Planning Process for the county and the agencies will move toward developing specific action plans to address some of the concerns identified in this report. To inform that process, the EMS survey and interviews of the agencies asked questions related to the strengths, weakness, opportunities for improvement and threats to current operations.

CGR will be working with members of the EMS study steering committee and other interested parties to develop key action areas and then work to develop action plans to help the EMS agencies progress into the future.

The goal is for CGR to work with local providers to develop several strategic action plans by May 2017 that can be implemented over the following 18 months.

Appendix: Glossary of Key Terms and Abbreviations

Advanced Life Support (ALS) - The use of specialized equipment such as cardiac monitors, defibrillators, intravenous fluids, drug infusion, and endotracheal intubation to stabilize a patient's condition.[9]

Automated External Defibrillator (AED) - Portable battery-powered devices that recognize life-threatening cardiac arrhythmias (irregular heartbeats) and delivers an electric shock to re-establish a regular heartbeat.

Basic Life Support (BLS) - A level of medical care which is used for victims of life-threatening illnesses or injuries until they can be given full medical care at a hospital. It can be provided by trained medical personnel, including emergency medical technicians, paramedics, and by qualified bystanders.[10]

Emergency Ambulance Service Vehicle (EASV) - Flycar – A non-transporting vehicle dispatched by EMS to quickly assess situations or respond to non-serious injuries. Treatment is usually on the scene and if the patient needs transport to a hospital an ambulance will be called. The use of EASVs/ Flycars was developed to more efficiently allocate resources based on first-responder certification levels and reduce the costly dependence on using ambulances for every call.

Emergency Medical Services (EMS): A group of governmental and private agencies that provide emergency care, usually to persons outside of healthcare facilities; EMS personnel generally include paramedics, EMTs first responders and other ambulance crew.[11]

Emergency Medical Technician (EMT) - A person who is trained and certified to provide basic life support and certain other noninvasive prehospital medical procedures EMTs have greater than 150 hours of initial training.[12]

Paramedic - Persons trained and certified to provide advanced life support. Paramedics have greater than 1000 hours of initial training.[13]

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[10] https://en.wikipedia.org/wiki/Basic_life_support last accessed 7/2016

[11] http://www.caringinfo.org/files/public/ad/Appendix_A_Glossary.pdf last accessed 7/2016

[13] [2] [4] [10] http://emr.emszone.com/glossary.aspx last accessed 7/2016

Public Safety Answering Point – PSAP – The organization and personnel that answer calls to 911 and other requests for emergency services.