Cambridge
CONSULTING GROUP

Emergency Medical Services System Data Collection and Assessment Study

Final Report Published and Released MAY 2025

Report Completed and Issued May 2025 to
The Vermont Emergency Medical Services Advisory Committee

VERMONT
DEPARTMENT OF HEALTH

This is the **Final Report** by

The Cambridge Consulting Group

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Glossary Of Abbreviations

AED	Automated External Defibrillator
AEMT	Advanced Emergency Medical Technician
AVL	Automated Vehicle Location
BLS	Bureau of Labor Statistics
BTC	Basic Telecommunicator
BTV	Burlington International Airport
CAD	Computer Aided Dispatch
CAH	Critical Access Hospitals
CPR	Cardiopulmonary Resuscitation
CTY	County
ECC	Emergency Communications Center
EMD	Emergency Medical Dispatcher
EMR	Emergency Medical Responder
EMS	Emergency Medical Services
EMSAC	Emergency Medical Services Advisory Council
EMSD	Emergency Medical Services Division of the Vermont Department of Health
EMT	Emergency Medical Technician
ePCR	Electronic patient care report
GMCB	Green Mountain Care Board
GPS	Global Positioning Systems
IC	Instructor Coordinator
IFT	Inter-facility medical transportation
MA	Massachusetts
MDT	Mobile Data Computer
MPD	Medical Priority Dispatch
MPDS	Medical Priority Dispatch System
NEMSIS	National EMS Information System
NENA	National Emergency Number Association
NFIRS	National Fire Incident Reporting System
NFPA	National Fire Protection Association
NH	New Hampshire
NHTSA	National Highway Traffic Safety Administration
NREMT	National Registry of EMTs
NY	New York
PD	Police Department
PDAP	Public Dispatch Answering Point
PSAP	Public Safety Answering Point
SIC	Senior Instructor Coordinator
SIREN	Statewide Incident Reporting Network
SO	Sheriffs Office
SSM	System Status Management
TO	Training Officer
VEFR	Vermont Emergency First Responder Vermont
VITL	Health Information Exchange Vermont State
VSP	Police

This report references the Vermont EMS Academy in several places. It should be noted this is a private, non-governmental organization associated with Rescue, Inc.

Executive Brief

The Vermont Emergency Medical Services Advisory Committee retained Cambridge Consulting Group to conduct a comprehensive data collection and analysis of the state's Emergency Medical Services (EMS) system. The goal of this study was to provide a clear understanding of how the system is structured, governed, and operated, and to identify areas of inconsistency, inefficiency or dysfunction. The study deliverables specifically excluded the provision of any recommendations for changes to the system by Cambridge Consulting Group. Therefore, this report focuses solely on findings with the exception of recommendations requested for a data dictionary related to performance and quality indicators.

This assessment examines the legislative framework, operational landscape, and organizational structure that defines Vermont's EMS system. It includes a detailed review of EMS agencies, Emergency Communications Centers (ECCs) and dispatch processes, Public Safety Answering Points (PSAPs), licensing and certification procedures, EMS education, provider agency fiscal conditions and financial sustainability, performance and quality improvement mechanisms, and the broader health and transportation infrastructure that supports emergency response and patient transport.

Findings of the report highlight both strengths and challenges within the system. Vermont has a strong community-based EMS culture, dedicated personnel, and a high density of responders. However, challenges are present and related to overall structure, regional coordination, operational efficiency, dispatch consistency, data collection and interoperability, and long-term workforce and financial sustainability.

The report outlines several areas where targeted changes may improve system performance, equity of access, quality of care, and system sustainability. These include improving statewide coordination of services, modernizing communications processes, supporting and streamlining regionalization efforts, and aligning EMS capabilities with broader healthcare transformation initiatives.

The firm reviewed hundreds of documents, four years of detailed dispatch and operational data, held numerous key individual interviews, facilitated three site visits with agency leaders, analyzed dozens of agency financial records, attended multiple EMS District meetings, and disseminated a dozen distinct and targeted surveys to several stakeholder groups resulting in a substantial response rate.

Previous draft versions of this report were submitted for review of factual accuracy to the EMSD and EMSAC prior to finalization and publication. Based on their feedback, especially concerning discrepancies between perceived and actual data content in SIREN, the firm adjusted its findings from initial drafts to include serious flaws and inconsistencies subsequently identified regarding data entry, collection, uploading, and warehousing.

Cambridge Consulting Group's analysis is intended to support informed decision-making and to serve as a foundation for policy and operational reforms that strengthen the EMS system and better meet the evolving needs of Vermonters.

The firm wishes to thank the EMSAC and the State of Vermont for choosing Cambridge Consulting Group to conduct this important study.

Major Findings

Cambridge Consulting Group's comprehensive review and analysis of the Vermont EMS system concludes with the following major findings.

Vermont's Health Care & EMS System

Vermont ranks among the healthiest states but faces an aging population, EMS workforce shortages, and healthcare costs spent largely on hospital care. EMS lacks coverage standards, relies too heavily on a diminishing group of volunteers, and is strained by rising 911 calls and inadequate, eroding financial support.

EMS Structure and Governance

EMS oversight is decentralized across too many districts with unclear enforcement power and roles. The EMSD is understaffed and underfunded, limiting its ability to successfully complete its mission.

Data Warehouse Flaws & Missing Information

The SIREN data warehouse was found to be missing as much as 15% of an agency's activity, with mis-categorization or inconsistent classification of call types and patient dispositions, incomplete reporting by services, and multiple names for some agencies. This renders reporting from SIREN incomplete, complicated, and error prone.

EMS Operations and Performance

Vermont's EMS system has too many small agencies, uneven call distribution and long response times in some areas. Dispatch is fragmented, technology is underused, the system lacks real-time system status monitoring, and does not have alternative EMS care delivery models.

EMS Financial Status

EMS agencies are significantly underfunded especially compared to fire and police. It is estimated that nearly half operate at an annual deficit relying on eroding reserves. Financial reporting is inconsistent, as many agencies lack administrative capacity and fiscal transparency due to lack of funding.

Interfacility Transport

IFT service availability is limited, expensive, inefficiently coordinated, and contributes to hospital delays and staffing strain. Key data for managing IFTs is missing.

EMS Training Capacity

The state EMS training system is understaffed and underfunded, providing limited oversight, using outdated certification standards, operates with inconsistent training costs, and no formal educator support.

Performance and Quality Improvement

The system lacks sufficient physician medical oversight and assessment due to a lack of funding and support. In addition, missing data on early care response times limits quality assessment. EMS leaders support performance tracking, but they are concerned it may lead to an overburdened workforce.

Detailed Report

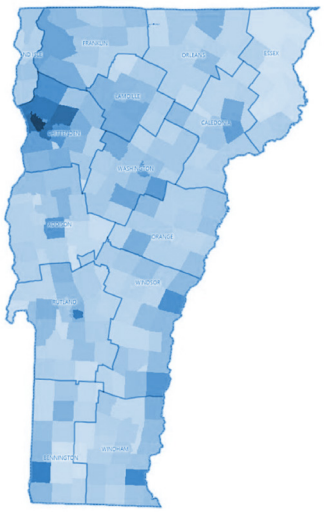
The Geography and Demographics of Vermont

Vermont is a state in the New England region of the northeastern United States. It is bordered on the east by New Hampshire, on the south by Massachusetts, on the west by New York and on the north by the Canadian province of Quebec. The 45th largest state in area in the United States, it covers 9,616 square miles (24,906 km²).

Vermont

The Green Mountains run north-south through the state's center, splitting it into two distinct eastern and western regions. Mount Mansfield, at 4,395 feet (1,340 meters) above sea level, is the state's highest point. Vermont's landscape is home to many lakes and rivers. The sixth largest freshwater body in the United States, Lake Champlain, contributes much of its western border.

Population Density

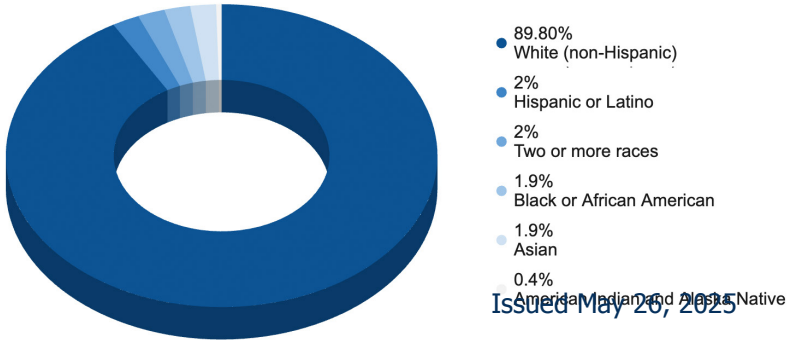


Vermont is a diverse state. In Burlington, home to the University of Vermont, an eclectic younger population benefits from the social, educational, and cultural amenities that are also a significant draw for retirees. Burlington has had a recent wave of refugees who are adding to the diversity of the state. According to the 2020 Census, there were 643,077 people living in Vermont, making it the 2nd least populated state in the US, after Wyoming, with a population density of 67.9 per square mile (26.2/km²). Vermont has the second highest median age in the nation at 42.8 years, trailing only Maine. Rural areas have seen their populations dwindle, while cities like Burlington and surrounding Chittenden County have grown.

Vermont is a racially homogeneous state [see chart below] and its population growth has been relatively modest compared to other states. The state had a population growth of 2.8% from 2010-2020, which was lower than the national average of 7.4% during the same period.

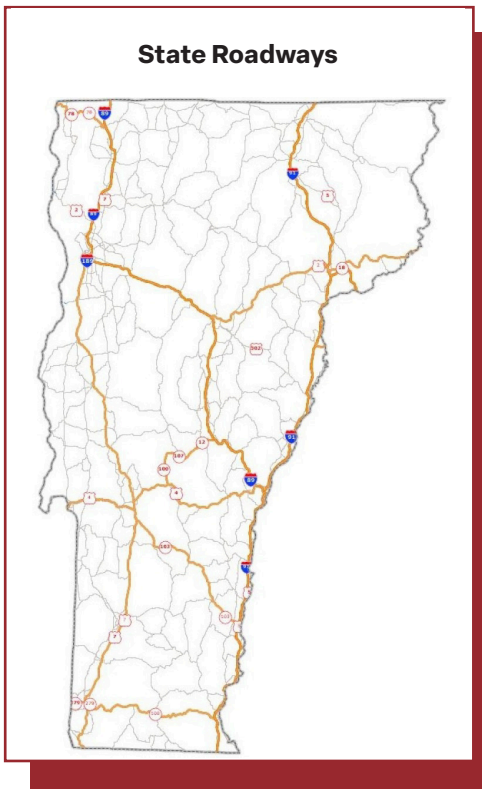
Vermont is known for its independence and high voter turnout in national elections. This evident community pride and enthusiasm have been significant contributors to the growth and volunteer staffing of Vermont's EMS system, however, they can also work against progress when regional collaboration is needed to create a more efficient system.

Vermont's Racial Demographic



Vermont's Transportation System

A state's roadway system is important for EMS as it can easily impact the delivery of service. Not only in terms of rapid response to the scene of emergencies, but in permitting reliable and timely transport of patients to healthcare facilities. Sufficient, well maintained roads improve the ability for EMS vehicles to easily transit their response geography and extends the life of the apparatus.



Vermont's small geographic size belies some of the challenges of transiting the state which is complicated by a large lake and a mountain range, particularly for emergency medical services response and patient transport. However, Vermont's multi-modal, non-medical transportation infrastructure is designed to serve its rural population and its mountainous terrain:

Highway System

The state maintains approximately 2,709 miles of state highways, including 320 miles of interstate highways (I-89, I-91, and I-93)[1,2].

Public Transit

Despite its rural character, Vermont has 12 public transit providers offering fixed-route and demand-response services across the state. These systems collectively provide approximately 4.5 million trips annually (Steadman Hill Consulting).

Rail Service

Amtrak operates two passenger rail services in Vermont: the Vermonter, running from Washington D.C. to St. Albans, and the Ethan Allen Express, connecting Rutland to New York City (Vermont Agency of Transportation)

Air Transportation

Vermont has 16 public-use airports, with Burlington International Airport (BTV) serving as the state's primary commercial airport. BTV offers direct flights to major cities in the eastern United States and handles approximately 600,000 passengers annually[3].

Active Transportation

Vermont has invested significantly in bicycle and pedestrian infrastructure, with over 1,700 miles of designated bicycle routes and multi-use paths, including the Island Line Trail (formerly the Burlington Bike Path), which features unique bike ferry crossing Lake Champlain[4].

1 Vermont Agency of Transportation, "Highway System Status Report," Montpelier, VT, 2023.)

2 Vermont Public Transit Association, "Annual Ridership and Performance Report," 2023.

3 Vermont Agency of Transportation, "State Rail Plan," Montpelier, VT, 2022.

4 Vermont Agency of Transportation, "Bicycle and Pedestrian Program Strategic Plan," Montpelier, VT, 2022.

Vermont's Health Care System

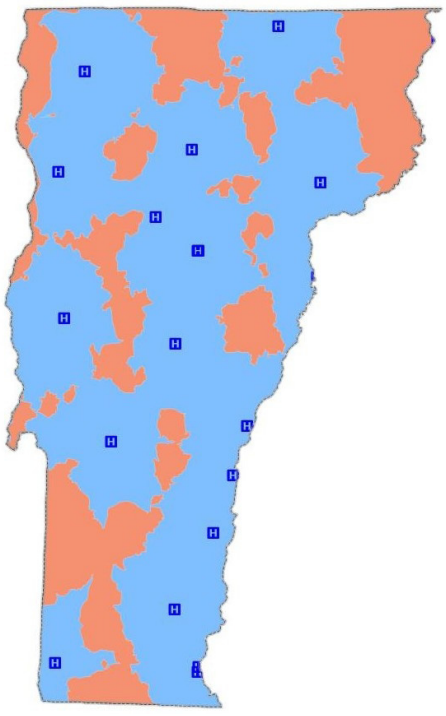
Vermont takes the health of its citizens seriously, focusing on a healthy lifestyle and health prevention. The state has a complex and multifaceted health care system designed to ensure its residents have access to affordable and high-quality care. Vermont consistently ranks among the healthiest states in the nation, with a life expectancy of 79.3 years and lower-than-average rates of obesity, smoking, and preventable hospitalizations.

As of 2020, the state's population aged considerably, with the number of residents aged 65 and older equaling the number of children under 18 for the first time in the state's history. Health care spending totaled approximately $6.37 billion, with 34.5% allocated to hospital care expenditures.

The state is served by 15 non-profit hospitals, including 8 small critical access hospitals, 5 mid-size rural hospitals, and 2 academic medical centers. Significant portions of the state are more than 30 minutes from a hospital. In addition, Vermont has a Veterans Administration hospital and several designated psychiatric inpatient facilities. The health care workforce in the state faces ongoing challenges, especially in rural areas, where workforce shortages can affect access and service delivery.

Vermont is a leader in healthcare reform. The state has undertaken several initiatives aimed at improving health outcomes, better quality of care and curbing rising costs. These efforts consist of legislative changes, participation in the Institute for Healthcare Improvement's Triple Aim initiative, and the formation of accountable care organizations (ACOs). This approach will move the state away from fee-for-service models and toward a value-based care model.

Vermont's Hospitals with 30-min Drive Times



The state also expanded Medicaid under the Affordable Care Act and operates its own version of the program called Dr. Dynasaur, which has provided health coverage to pregnant women and children since 1989. Dr. Dynasaur covers children up to age 19 and pregnant individuals up to 300% of the federal poverty level, helping Vermont achieve nearly universal insurance coverage among children. Vermont's Medicaid program benefits from the Global Commitment to Health waiver, which allows the state flexibility to design and fund health initiatives using federal Medicaid dollars.

But alongside these successes, Vermont faces serious challenges. The price of healthcare is increasing, putting pressure on families, older residents and employers. Such cost pressures may have an impact on the affordability and access of health care, especially in rural communities. Employers may also find that the high cost of health care can be an obstacle to attracting and keeping a stable workforce.

Vermont is recognized for strong public health outcomes and continues to invest in programs that address chronic disease management, preventive care, and health equity. The state has been ranked highly in national health rankings and has implemented initiatives such as the Vermont Child Health Improvement Program to promote better care coordination and healthier populations.

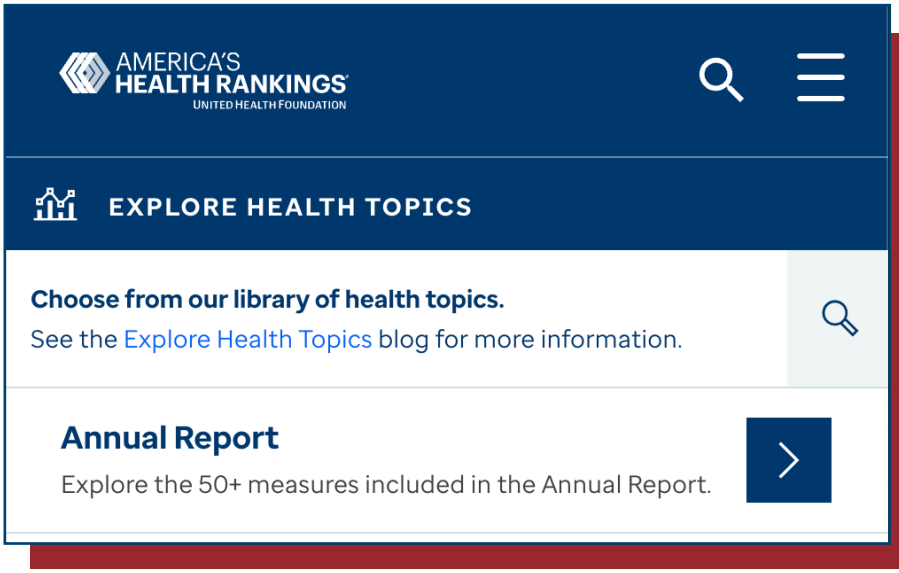
A recent report by the Oliver Wyman consulting firm, provided a detailed assessment of Vermont's healthcare system overall, including a small section on EMS. Act 167 Community Engagement_OW Exec Summary Report_v03.pdf

Health Demographics

Certain demographics have been shown to influence determinants of a population's health[1]. This can impact the demand on the state's EMS system. Therefore, this information can be used for planning purposes and to help determine EMS asset needs for the community.

Vermont has a robust community health assessment process which tracks a wide variety of health conditions, including infectious diseases, substance abuse, risk behavior, school health profiles, tobacco use, health insurance, and environmental health issues. The state health department also maintains an extensive website, providing detailed reports and a wide range of public health data. The accessibility of such information is an excellent resource for EMS systems planning. https://www.healthvermont.gov/environment/tracking/tools-community-planners

According to America's Health Rankings foundation, Vermont ranks 41st in the United Sates for drug deaths (42/100K population), 35th in suicide deaths (20/100K population), 14th in firearms deaths (13/100K population), 12th in cardiovascular disease, and 3rd in adult exercise. These statistics suggest that Vermont has a mixed picture of public health, performing well in physical health, but facing challenges around behavioral health (ie: substance use and suicide).



1 Déziel JD. Emergency Medical Services Demand: An Analysis of County-Level Social Determinants. Disaster Med Public Health Prep. 2022 Apr 11;17:e119. doi: 10.1017/dmp.2022.26. PMID: 35403588.

Vermont's EMS System; An Overview

There has been extensive discussion nationally in recent years about the minimum EMS resources required to appropriately cover rural, suburban, and urban areas. However, no federal standard yet exists. Some states have developed their own standards for specific aspects of EMS systems, examples include response times and the number of units per capita for special events. Currently, the State of Vermont has not established coverage, response, or level of care standards in either statute or regulation.

A statewide analysis of EMS coverage areas was conducted for this study, including a district-by-district review of EMS activity for both first response and ambulance services. Interviews with various Vermont EMS stakeholders, revealed concerns about EMS resource availability in some parts of the state. Stakeholders identified several significant pressures affecting the EMS system including workforce shortages, funding challenges, system fragmentation, and an excessively localized dispatch system.

Delivery Model

In Vermont, EMS is delivered by both First Responder agencies and transporting ambulance agencies. Both agency types fulfill distinct roles within the state's EMS care delivery framework. All agencies are licensed by the EMS Division of the Department of Health and are granted approval to provide care at one of four levels based on their capabilities and practitioner staffing[1].

The four levels of care are EMT, Advanced EMT, Paramedic, or Paramedic with Critical Care Endorsement. Medical care providers are authorized to perform different scopes of practice depending on the level of agency care; these are listed in the adjacent table.

Vermont's EMS system is considered a mixed tier, dual delivery model. Portions of the state receive local first responder service, supplemented by more regional ambulance transporting agencies. Other parts of the state receive solely ambulance service. In 2024, some 90 First Responder licensed emergency medical services entities, staffed almost exclusively by volunteers, respond to

	Level of Agency Service			
Practitioner Scope of Practice Components	**Basic EMT**	**Advanced EMT**	**Paramedic**	**Paramedic w/ Critical Care Endorsement**
Basic Life Support	✓	✓	✓	✓
Use Automatic External Defibrillator	✓	✓	✓	✓
Administer Nebulizer Treatments	✓	✓	✓	✓
Administer EpiPen	✓	✓	✓	✓
Administer Aspirin	✓	✓	✓	✓
Use Advanced Airway Devices except Endotracheal Intubation		✓		
Establish Intravenous Lines		✓	✓	✓
Administer Cardiac Resuscitation Medications		✓	✓	✓
Endotracheally Intubate			✓	✓
Manual Defibrillation			✓	✓
Manual Cardioversion			✓	✓
Administer Medications beyond Cardiac Resuscitation Drugs, But Not Narcotics	✓	✓		
Administer Narcotics			✓	✓
Perform Emergency Tracheostomy			✓	✓
Perform Emergency Chest Decompression			✓	✓
Insert Central Venous Lines			✓	✓
Perform Rapid Sequence Intubation			✓ *(w approved training)*	✓ *(w approved training)*
Infuse Whole Blood			✓	✓
Operate Transport Ventilators		✓	✓	✓
Operate Transport LVADs				✓
Operate Transport Balloon Pumps				✓ *(w waiver)*

1 There are three out-of-state ambulance agencies with primary response zones in Vermont and they are not licensed by the state but do submit patient care data to SIREN.

local incidents (calls in their primary response zone) in about 6.8%[1] of all the state's EMS cases. These first response agencies do not transport patients. They are followed to the scene by more regionally stationed ambulance services who continue treatment and transport the patient to a healthcare facility when needed. These ambulance services are also licensed.

Because they are more locally located, First Responder agencies tend to arrive first to an incident. Slightly more than a quarter (31%) of these agencies can render care at only the basic life support level, while the remainder can provide Advanced EMT or paramedic service. First Responder organizations usually have only one associated ambulance service that is assigned to cover their territory, however, ambulance agencies can have multiple First Responder organizations in their primary zone.

In addition, the same organizations that are responsible for 911 ambulance response and transport, are likely to be the providers of interfacility non-911 medical transport for hospitals and other healthcare institutions. Only 4 ambulance agencies in Vermont concentrate almost exclusively on IFT service and have no primary 911 territory assignment[2]. These four agencies constitute approximately 5% of the ambulance agencies in the state but handle 30% of IFT activity annually. This does, however, cause the other EMS ambulance providers to triage the remaining 70% of IFT requests with their agency's 911 demands, generally resulting in less adequate service for interfacility cases.

Staffing and Sustainability Challenges

Many EMS agencies across the state report ongoing staffing challenges, with particular concern about the long-term sustainability of volunteer-based services. This issue is especially pronounced in rural areas, where volunteer recruitment and retention have become increasingly difficult. Stakeholders express growing worry about whether these agencies can continue operating effectively in both the medium and long term without targeted interventions. Agencies report the inability to maintain the provision of their highest level of care licensure consistently round the clock, because they have insufficient qualified staff. Several agencies have ceased operations altogether in the last few years, primarily due to inadequate personnel. Based on survey responses by Vermont EMS agencies and indepth interviews conducted with agency leaders, this study estimates as many as 50 EMS practitioner positions are chronically vacant throughout the state, diminishing the optimal delivery of services.

Agencies report the inability to maintain the provision of their highest level of care licensure consistently round the clock, because they have insufficient qualified staff.

Interfacility Transports

A range of challenges related to interfacility transfers have emerged. These include long turnaround times for transporting agencies at hospitals, driven by increased transport distances and a persistent lack of available inpatient beds. In addition, insufficient staffing by transporting agencies due to low workforce levels, has limited the number of ambulances available for interfacility patient transfers. These factors combine to create operational strain on ambulance transport services, affecting resource availability for both 911 response and performance of interfacility transfers, and impairing overall system efficiency. Data showed a reduction in interfacility transport volume between 2023 and 2024 of 8%. This decline in activity is not readily explainable, but could easily be due to service enhancements at any number of hospitals, negating the need to transfer certain types of patients they once sent to other facilities. This reduction in IFT volume did not appreciably ease the strain on ambulance transport services since 911 activity rose by a higher amount at the same time.

1 This number is understated due to data issues described later in this report.
2 University of Vermont, Dartmouth-Hitchcock, Lamoille and Garnet.

911 Call Volume

Many districts anecdotally report rising 911 call volumes. Data reviewed corroborated this, showing a 6% increase in 911 activity year over year for 2023 to 2024. It is import to note here that less than 100% reporting by EMS organizations prior to 2023 creates a distortion for data interpretation. In addition, parsing the reported SIREN information between First Responder activity and ambulance transport service volume, to avoid double counting unique EMS incidents, is critical when assessing this data. Despite this increase in 911 volume, key agency response metrics such as out-of-chute times, average response times and mutual aid response times have remained stable. This stability suggests that EMS agencies are maintaining service delivery performance despite higher 911 demand, though the long-term sustainability of this trend remains questionable.

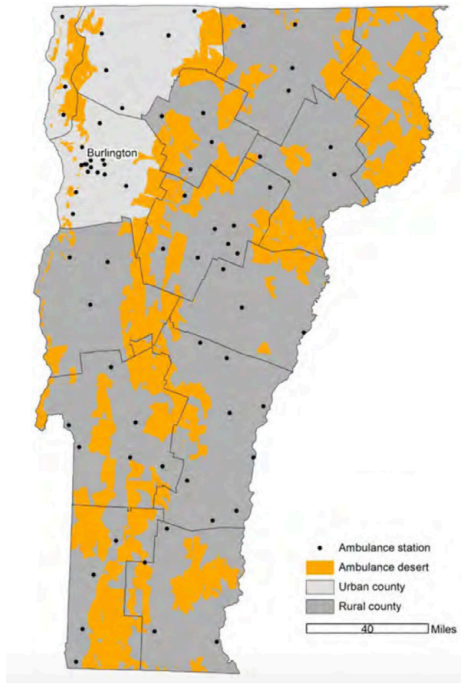
Ambulance Deserts

The term "ambulance desert" is defined as a populated census block with its geographic center more than 25 minutes from the nearest ambulance service area. It was introduced by the Maine Rural Research Center in its 2023 study, "Ambulance Deserts — Geographic Disparities in the Provision of Ambulance Services"[1]. The study examined ambulance deserts across the United States and was later cited in the January 2024 Report to the Vermont Legislature by the Vermont Emergency Medical Services Advisory Committee (EMSAC)[2].

The study specifically found that all 14 of Vermont's counties contain at least one ambulance desert, with 6.4% of the state's population living in these underserved areas. The Maine Rural Research Center produced a map of Vermont depicting its ambulance deserts.

Depending on the reliability of individual EMS agencies to be fully staffed and able to respond to assignments, these ambulance deserts may actually be larger than initially found. If a particular EMS station is understaffed, it likely lacks the appropriate practitioners. This would result, at those times, in the station being out of service and the surrounding territory would become an ambulance desert. Because no statewide tracking of agency availability occurs in Vermont, it is not possible to accurately calculate the full expanse of ambulance deserts in the state.

Ambulance Locations and Deserts



from the Main Rural Research Center
not independently verified by
Cambridge Consulting Group

1 Jonk, Y., Milkowski, C., Croll, Z., & Pearson, K. (2023). Ambulance Deserts: Geographic Disparities in the Provision of Ambulance Services [Chartbook]. University of Southern Maine, Muskie School, Maine Rural Health Research Center.

2 W~Vermont EMS Advisory Committee~EMS Advisory Committee 2023 Report~1-26-2024.pdf

Vermont's EMS System Overview Findings

Vermont's Health Care & EMS System Overview:

1.1 Vermont emphasizes health promotion and disease prevention, consistently ranking among the healthiest states nationally.

1.2 The population is aging, with older adults (65+) nearly equaling the number of children (<18)[1].

1.3 Health care spending is substantial, with hospital care making up a significant portion.

1.4 The state is served by a network of nonprofit hospitals, including rural and academic centers, but workforce shortages, especially in rural areas, affect service delivery.

1.5 Health Care Reform and Medicaid

1.5(a) Vermont leads in health care reform efforts, aiming to improve outcomes and control costs through initiatives like value-based care and ACOs.

1.5(b) The state expanded Medicaid and operates Dr. Dynasaur, offering near-universal child coverage.

1.5(c) Vermont uses a federal waiver to tailor Medicaid initiatives.

1.6 EMS System Overview

1.6(a) No federal or state EMS coverage, response, or performance standards exist; a district-level review revealed resource concerns.

1.6(b) EMS faces pressures from workforce shortages, fragmented systems, inadequate funding, and an excessively localized dispatch model.

1.7 EMS Delivery Model

1.7(a) Vermont operates a mixed tier, dual response model with First Responder and Ambulance Agencies licensed at four service levels.

1.7(b) Most first responder agencies are volunteer-based and cover local incidents, followed by ambulance services as the transporter.

1.7(c) Only a small number of ambulance agencies focus solely on non-emergency interfacility transport (IFT), which strains availability of other ambulance providers for urgent transfers.

1.8 Staffing and Sustainability

1.8(a) Many agencies struggle with staffing and retaining volunteers, leading to service reductions and agency closures.

1.8(b) Numerous EMS positions remain vacant, reducing system effectiveness.

1.9 Interfacility Transports

1.9(a) IFT challenges include long wait times, limited ambulance availability, and staff shortages, affecting both IFT and emergency responses.

1.9(b) There is no centralized or coordinated scheduling process for IFT, impairing the efficient allocation of limited resources.

1. US Census Bureau: https://www.census.gov/quickfacts/fact/table/VT/PST045224. (<18 = 17.7%, 65+ = 22.1%)

1.10 911 Call Volume

1.10(a) 911 calls are rising, though key response metrics have remained stable, raising questions about long-term sustainability.

1.11 Ambulance Deserts

1.11(a) All counties have areas more than 25 minutes from ambulance coverage, affecting 6.4% of the population.

1.11(b) Actual coverage may be worse due to staffing issues and a lack of real-time tracking.

1.12 Data Collection, Warehousing, and Use (SIREN)

1.12(a) Significant amounts of data regarding agency activity is missing from the SIREN data warehouse. Fire-based EMS agencies, including First Responder services, report they do not upload certain calls into the SIREN system, instead reporting them into FEMA's based NFIRS system (to which Cambridge Consulting Group did not have access). These were identified as calls when no patient contact was made (eg: canceled assignments) or when a patient declined to provide information about themselves (eg: name, address, etc.). It is not possible to exactly quantify how many calls of these types are missing from SIREN, but, extrapolating from non-fire department-based cancel rates, it could be as high as 10%-15% of a fire-based agency's total activity.

1.12(b) During the course of this study, at least seven agencies were determined to not have had all their activity uploaded to SIREN (this is in addition to those associated with 1.12(a) above). This was reportedly due to the failure of a third-party contractor to completely process those agencies' call data. It was not possible to accurately quantify the amount of this missing information which is absent from the SIREN data warehouse.

1.12(c) The SIREN data base was also found to use several names for some of the state's EMS agencies, requiring multiple filters and search algorithms to be created and utilized when analyzing each agency's activity. It also required excessive manual validation, substantially increasing the time needed to verify accurate report generation. This greatly complicates analyzing the data, can easily cause errors in reporting, and substantially hampers the user experience making it difficult for the state's EMS agencies to use the data base.

1.12(d) It was also found that numerous SIREN data entries were misclassified or inconsistently classified for certain elements of individual calls. The most problematic fields for these errors were "*Type of Call (eResponse.05)*", "*Incident/Patient Disposition (eDisposition.12)*", and "*Disposition Destination Name Delivered Transferred To (eDisposition.01)*". This may be due to differences in definition interpretation between th EMSD (developer and maintainer of the data base) and EMS agencies or the practitioners (those that input the data). The ePCR entries are the information that constitute the SIREN data base elements. This lack of consistency contributes to erroneous assessment of the data, especially when categorizing or grouping activity.

Structure and Responsibilities

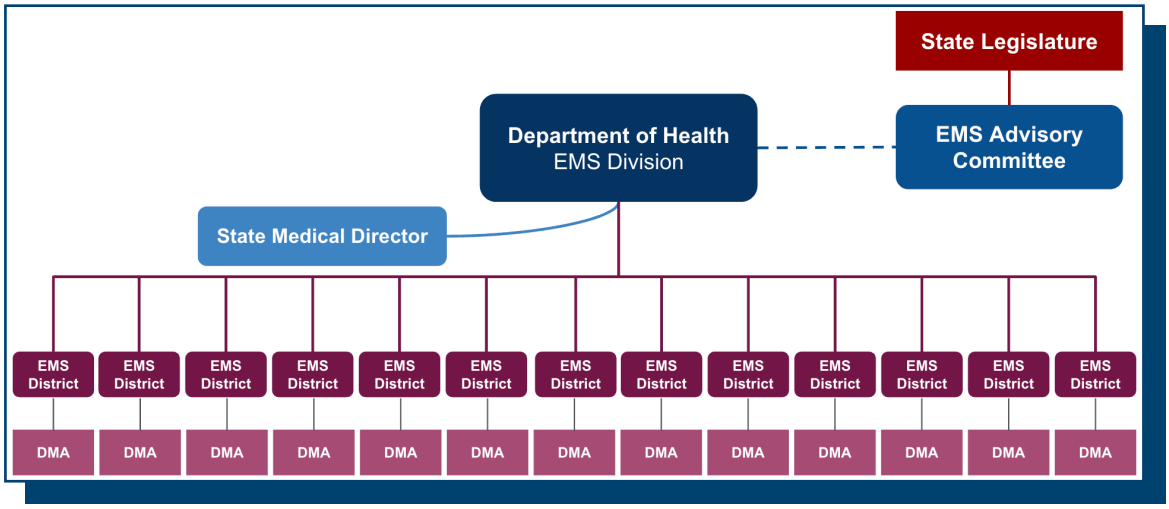
Summary

Vermont's EMS system governance hierarchy is supposed to be structured to ensure coordinated and effective pre-hospital care across the state. The Vermont Department of Health's EMS Division oversees this system, working in collaboration with the EMSAC and 13 regional EMS districts operating across 14 counties.

The EMS Division, operating under the Department of Health, is responsible for regulating and supporting EMS agencies statewide. Its duties include licensing EMS providers, developing statewide protocols, and offering educational resources to enhance the quality of emergency care. By maintaining a comprehensive framework, the division is mandated to ensure that EMS services are delivered consistently and effectively throughout Vermont.

The EMSAC serves as an advisory body to the Commissioner of Health and the State Legislature on matters related to EMS delivery. Composed of stakeholders from various sectors within the EMS community, the committee is statutorily required to develop and maintain a five-year statewide plan for coordinated EMS delivery. This strategic planning aims to address emerging challenges and improve the overall efficiency of EMS operations in the state.

Vermont is divided into 13 EMS districts, generally aligned with hospital service areas. Each district has a Board of Directors made up of representatives from local ambulance and first responder agencies. These boards elect officers, including a Chair, Training Coordinator, and Medical Advisor, to oversee district operations. The districts function as coordinating bodies, purportedly to foster collaboration among EMS agencies and hospitals within their regions to ensure timely and effective emergency medical response



Despite this structured framework, Vermont's EMS system faces several challenges:

Funding Constraints

Many EMS agencies struggle with financial limitations, particularly concerning the recruitment and retention of administrative and clinical staff. The number of volunteer personnel has decreased over the years, leading to increased operational costs as agencies transition to paid staff. This financial strain is exacerbated by limited reimbursement rates for the services provided.

Role Ambiguity

There is significant confusion regarding the specific roles and responsibilities of the EMS districts. While they are established as political subdivisions to coordinate EMS activities, the extent of their authority and the scope of their duties are not always clearly defined, leading to inconsistencies in activity across districts.

Authority Limitations

EMS districts primarily serve in advisory and coordinating capacities for their constituent agencies without direct enforcement power. They monitor EMS activities to varying degrees and can make recommendations to the Department of Health or their member organizations, but they lack the authority to implement changes or enforce compliance by themselves. This can hinder the ability to address issues promptly at the district level.

Essential Service

Vermont has recently enacted legislation that declares emergency medical services as an "essential service" in the state. While this is a positive and significant step in recognizing EMS for its important value to the community, the exact language used in Vermont statute lacks that necessary to mandate needed fiscal and administrative support.

The term "essential service" lacks a standardized or legislated definition in Vermont law. Most legal references to "essential service" in the state arise from tax exemption cases, where courts assess whether non-governmental entities performing governmental functions—such as education, public safety, or cultural preservation—are assuming a portion of the public burden and therefore may be eligible for tax-exempt status. One such in-depth analysis appears in *American Museum of Fly Fishing, Inc. v. Town of Manchester, 151 Vt. 103 (1989)*.[1]

While Vermont statutes do not provide a general definition, **18 V.S.A. § 901(b)(1)** specifically designates EMS provided by ambulance services as an essential service. However, the broader statutory language framing this designation is stated as a policy rather than a mandate. Section **901(c)** outlines the state's policy that all individuals suffering sudden illness or injury should have access to emergency medical services to prevent loss of life, reduce severity, and alleviate suffering.[2] The statute emphasizes that EMS systems should include trained and licensed personnel operating under appropriate medical control and that providers should strive for continual improvement in training, licensure, vehicles, and equipment.

Despite its placement in statute, the use of permissive language ("should have access" rather than "shall have access") makes it clear that there is no explicit legal obligation on the state or municipalities to provide EMS. As such, while EMS is recognized as important—perhaps even vital, it is not legally mandated as a required public service.

This ambiguity is not unique to Vermont. Nationally, the term "essential service" is rarely defined in the abstract and is typically used contextually to describe specific industries or functions, such as water utilities or tax enforcement systems necessary to maintain basic government operations. In this way, EMS may be widely regarded as essential in practice, but its designation as such is often more descriptive than prescriptive, lacking the clear legal authority to ensure consistent funding or delivery across jurisdictions.

1 American Museum of Fly Fishing, Inc. v. Town of Manchester, 151 Vt. 103, 558 A.2d 369 (1989).

2 18 V.S.A. § 901(b)–(c), available at: https://legislature.vermont.gov/statutes/section/18/017/00901.

Detail

State Department of Health; Emergency Medical Services Division

The EMS Division of the Vermont Department of Health is responsible for overseeing and supporting the development, regulation, and improvement of the state's EMS system. Its duties include a wide range of responsibilities aimed at ensuring the quality, coordination, and effectiveness of emergency medical care across Vermont.

The EMS Division establishes minimum training standards for emergency medical personnel at various levels, including basic and advanced life support. It licenses EMS providers based on their training and competence, and sets requirements for continuing education. The Division also certifies EMS instructors at three levels and is supposed to ensure that training opportunities are accessible to volunteers and rural personnel, including through online and regional programs. Special provisions exist for military medics, nurses, and those nationally certified, who may qualify for waivers or direct licensure.

In addition to personnel oversight, the Division sets standards for EMS vehicles, specifying required equipment and vehicle classifications. It is charged with developing and maintaining a statewide EMS system by coordinating planning, monitoring, and evaluation efforts. This includes establishing response time standards for both rural and urban settings and assisting hospitals in improving emergency care within their facilities.

Medical oversight is another key function. The Division is supposed to ensure that EMS services are delivered under appropriate medical control, particularly for advanced life support. This includes requiring written protocols with hospitals, promoting direct communication between EMS providers and physicians, and limiting advanced procedures to those certified and authorized to perform them.

The EMS Division is also responsible for data collection and analysis to evaluate emergency care outcomes. It defines license levels for EMS personnel, including EMTs, AEMTs, paramedics, and first responders, aligning these roles with national standards such as those from the National Highway Traffic Safety Administration (NHTSA). Scopes of practice are defined by license level and must align with the medical direction of local EMS districts.[1]

Cambridge Consulting Group requested a self-assessment from the EMSD. Their report underscores the firm's findings (see appendix for full self-assessment).

Emergency Medical Advisory Committee

The EMSAC serves as an advisory body to the Vermont Department of Health on matters related to the delivery and improvement of emergency medical services across the state. Its primary responsibilities include developing a five-year statewide EMS plan, evaluating system performance, identifying resource needs, and supporting licensure and training standards for EMS personnel.

1 18 V.S.A. § 909. Duties of the Department of Health; Emergency Medical Services System. Vermont Statutes Annotated. Accessed March 2025. https://legislature.vermont.gov/statutes/section/18/017/00909

The Committee is composed of a wide range of stakeholders to ensure balanced and statewide representation. Membership includes one representative from each of Vermont's EMS districts, appointed by the respective district EMS Boards. Additional members represent key stakeholder organizations such as:

- Vermont Ambulance Association
- University of Vermont's Initiative for Rural Emergency Medical Services
- Professional Firefighters of Vermont
- Vermont Career Fire Chiefs Association
- Vermont State Firefighters' Association
- Vermont Association of Hospitals and Health Systems

The Commissioner of Health or a designee serves as a member, as does a local government representative not affiliated with EMS, fire, or hospital services, appointed by the Vermont League of Cities and Towns.

The Committee selects a chair from among its members, provided that the individual is not a state employee. It receives administrative, legal, and technical assistance from the Agency of Human Services. The Committee is required to meet at least quarterly, with no more than two meetings per year held in the same EMS district. One meeting each year must take place at the Vermont EMS Conference to encourage statewide engagement.

Among its key duties, the Committee is responsible for developing and maintaining a five-year statewide plan for coordinated EMS delivery. This plan, updated annually, includes specific service delivery goals, timeframes for achievement, cost data, and performance standards. By December 15 each year, the Committee submits an annual report to the Commissioner of Health and the General Assembly that reviews progress toward these goals and outlines objectives for the year ahead.

Additionally, the Committee is supposed to gather information about EMS resources and needs in each district and share this data with the Green Mountain Care Board to inform revisions to the state's Health Resource Allocation Plan. From its membership, the Committee also establishes the EMS Education Council, which may sponsor training programs required for EMS licensure and advise the Department of Health on licensure standards and potential improvements to those standards.[1]

EMS Districts

Vermont's EMS system is organized into districts established under Title 24, Chapter 71 of the Vermont Statutes (§2651-§2689). These districts are political subdivisions created to facilitate the provision of pre-hospital emergency medical treatment within specific geographic areas. The Department of Health has the authority to determine the number, size, and boundaries of these districts, typically aligning them with hospital service areas.[2]

Each EMS district is governed by a board of directors composed of representatives from medical facilities, ambulance services, and first responder services operating within the district. These representatives are appointed by their respective agencies for two-year terms, with no statutory term limits. The board elects officers, including a chairperson, vice-chairperson (if desired), clerk, and treasurer. Notably, the clerk and

1 **18 V.S.A. § 909.** EMS Advisory Committee; EMS Education Council. Vermont Statutes Annotated. Accessed March 2025. https://legislature.vermont.gov/statutes/section/18/017/00909

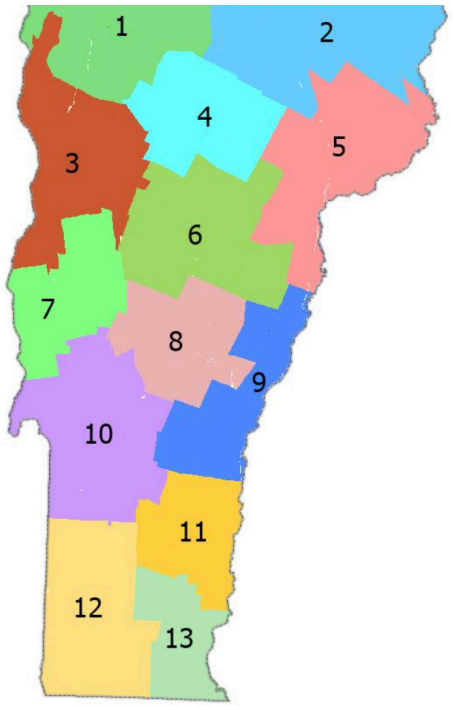
2 Vermont Statutes Annotated, Title 24, Chapter 71, §§ 2651–2657.

treasurer may be selected from the general membership and do not possess voting rights as directors. A majority of directors constitutes a quorum for conducting business.

The statutory mandate of EMS districts is to "foster and coordinate" EMS within their respective areas. Their powers include acquiring equipment, applying for financial assistance, entering into contracts, appointing personnel, imposing service fees, monitoring EMS provision, collaborating with municipal officials on response plans, sponsoring educational programs, establishing medical control with physicians and medical facilities, assisting in licensing tests, and developing response time protocols. Despite these responsibilities, the authority of EMS districts is primarily advisory; they monitor EMS activities and make recommendations to the Department of Health but lack direct enforcement capabilities.

A significant challenge facing Vermont's EMS districts is financial sustainability. Many districts lack dedicated funding for administrative staff and operations, relying heavily on volunteers. This reliance is increasingly unsustainable due to declining volunteerism and rising call volumes. EMS agencies have reported financial strains exacerbated by reimbursement models that do not cover the full cost of services, particularly in rural areas where resources are more limited. For instance, some agencies have had to request additional funding from member towns to remain operational.[1]

Vermont's EMS Districts



Moreover, there is ambiguity regarding the exact number of EMS districts and their specific roles, leading to inconsistencies in their service delivery and oversight.[2] While the Department of Health has the discretion to define district boundaries, the absence of a clear, standardized framework contributes to operational confusion. Additionally, the districts' authority is not clearly delineated, further complicating governance and coordination efforts.

Vermont's EMS districts should play a crucial role in coordinating emergency medical services across the state. However, they face significant challenges related to financial sustainability, administrative support, and clearly defined authority. Addressing these issues is essential to ensure the improved effectiveness and reliability of EMS delivery in Vermont.

Vermont is currently organized into 13 EMS districts, each loosely built around a hospital catchment area.

Legislation Impacting EMS

In 2022, the Vermont legislature enacted the S.285 (Act No. 167) to require the Green Mountain Care Board (GMCB), in collaboration with the Agency of Human Services, to develop and conduct a data-informed, patient-focused, community-inclusive engagement process for Vermont's hospitals. The goal was to reduce inefficiencies, lower costs, improve population health outcomes, reduce health inequities, and increase access to essential services.

1 Hewitt, E. (2024, February 20). Vermont EMS providers have largely professionalized — but the system has not.

2 Vermont Department of Health. (n.d.). Emergency Medical Services in Vermont.

The Oliver Wyman consulting firm, on behalf of the Green Mountain's Care Board conducted this study. The intent of the project was to engage diverse stakeholders to better understand their interactions with the health system and their needs in order to overcome barriers to equitable access and outcomes. Because their recommendations included a substantial healthcare transformation such as "move all care possible out of hospitals," the implementation of the recommendations could have significant implications for the future of Vermont's emergency medical services system.

Examples on transformative recommendations which could result from the Oliver Wyman Report that may affect EMS, include:

Approval of funding for EMS improvement transformation

Development of professional licensure and practice scope for nurses, paramedics, EMTs and pharmacists

Facilitation and funding for EMS regionalization and HIE integration, including wireless broadband access for EMTs.

Regional Specialty Centers for Care Supported by regionalized and full time medical transportation.

Professional EMT/paramedics to deliver home based care.

Anticipated challenges to the expected recommendations are:

Lack of coordination with caregivers and community services

Anticipated population decrease except in Burlington HAS

Complexities related to the logistics of training and licensing

Long waits for ambulance and emergency room service

Inequity in access and treatment experience

Medicaid Tax

The Medicaid Provider Tax (MPT) is a state-imposed tax on the revenue of health care providers. States may choose to implement this tax voluntarily, and it is commonly applied to entities such as hospitals, clinics, and EMS providers. Medicaid itself is funded through a federal-state partnership, in which states administer the program under federal oversight. While general taxes such as income, sales, and property taxes fund a large share of Medicaid, special revenue sources, like the MPT, also play a crucial role.

The MPT is not directed to a state's general fund, but instead functions as a special revenue stream to support the state's share of Medicaid expenditures. This mechanism operates under the logic that industries benefiting from Medicaid reimbursement should contribute to funding it. In Vermont, provider taxes account for approximately 25% of the state's Medicaid funding obligations. EMS providers are taxed at a rate of 3.3% of their total revenue under state tax law.[1]

Importantly, increasing the state's share of Medicaid spending through taxes such as the MPT also increases the federal Medicaid match. Vermont, like many states, has pursued this strategy to make Medicaid reimbursement more comparable to Medicare rates, as Medicaid traditionally pays substantially less for equivalent services.

At the federal level, the Medicaid provider tax is currently allowed but regulated. It must be applied uniformly across provider classes, though not all classes need to be taxed. Federal regulations define 19 permissible provider classes, including emergency ambulance services.[2] However, a state cannot "hold the provider harmless," meaning it cannot ensure that a provider will recover the full value of the tax paid through Medicaid reimbursements. This rule has led to legal disputes. In one notable case, the federal Department of Health and Human Services sided with providers against Medicare intermediaries who argued that tax burdens were offset by Medicaid payments[3].

However, recent initiatives by Congress may eliminate this revenue source. In addition, Vermont Senators Thomas Chittenden and Russel Ingalls introduced Senate Bill No. 31 on January 29, 2025. The bill proposes suspending the ambulance agency provider tax for fiscal years 2026 through 2028 and replacing that revenue with a transfer from the PILOT Special Fund to the General Fund.

1 Vermont Department of Health Access. (2023). Global Commitment Register, Provider Tax Summary. Retrieved from https://dvha.vermont.gov

2 42 C.F.R. § 433.56 – Classes of health care services subject to provider taxes.

3 Provider – Ober Kaler 2005 & 2006 Illinois Provider Tax Groups, et al., v. Intermediary – BlueCross BlueShield Association, 2010 WL 1484201 (Provider Reimbursement Review Board).

Structure and Responsibility Findings

EMS System Structure and Responsibilities

2.1 EMS oversight falls under the Department of Health with input from the EMS Advisory Committee and 13 regional districts coordinating services.

2.2 While districts foster coordination, they lack enforcement authority and face role ambiguity and funding limitations.

2.3 District Governance

2.3(a) EMS districts are governed by a board representing local agencies, but unclear roles and limited authority complicate operations.

2.3(b) Financial sustainability is a major concern, especially in rural areas. The Districts are essentially staffed by volunteers.

2.4 District Analysis

2.4(a) Some Districts are more active than others, but most are concentrated on coordinating training classes. None seem to have achieved their legislative intent.

2.5 Legislative Developments

2.5(a) Act 167 mandates a health system transformation process emphasizing community engagement, access, and equity.

2.5(b) Recommendations could impact EMS through initiatives like regionalization, expanded scopes of practice, and funding improvements.

2.5(c) Implementation may face logistical and coordination challenges.

2.6 Medicaid Provider Tax (MPT)

2.6(a) Vermont funds part of its Medicaid obligation through a provider tax, including a levy on EMS agencies.

2.6(b) A bill proposes suspending the EMS provider tax to ease financial burdens. However, this may result in less Medicaid matching funds from the federal government for EMS.

2.7 EMS Advisory Committee

2.7(a) This committee develops statewide EMS recommendations, submits annual reports to policymakers, and is obligated to produce a 5-year plan for EMS.

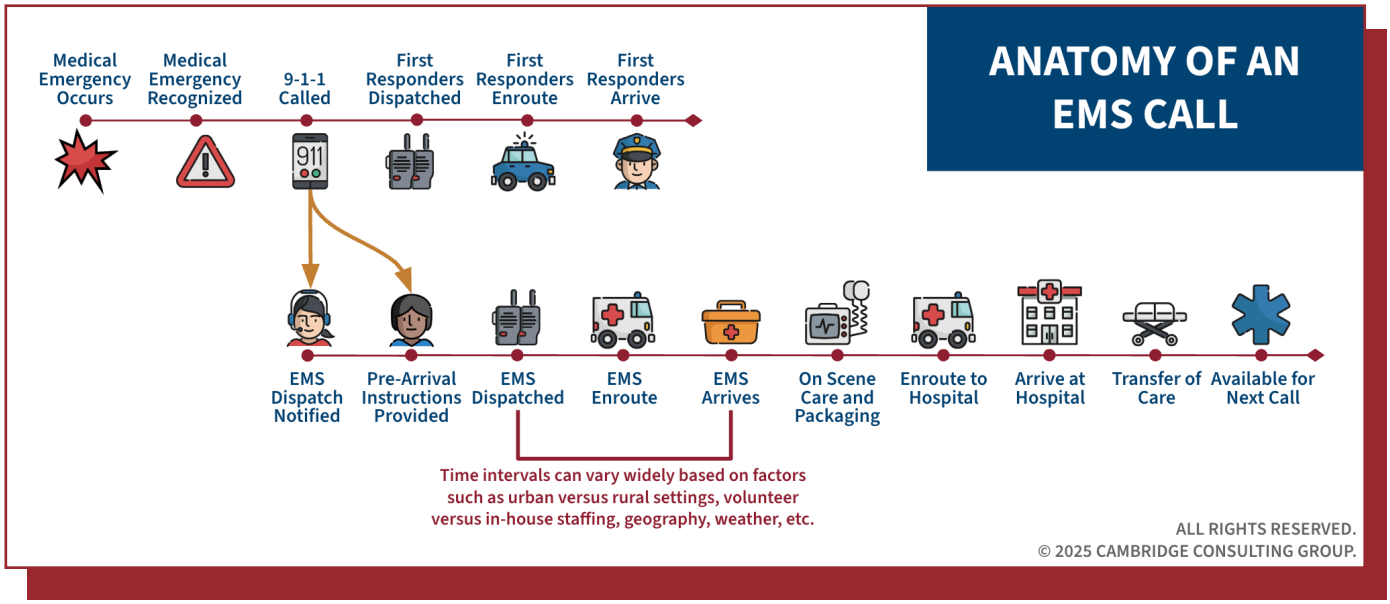
2.7(b) Membership includes district reps and key health organizations, supporting oversight and planning.

EMS Delivery

Description of an EMS System

Anatomy of EMS Calls

Ensuring that Vermonters and Vermont visitors receive appropriate care when they are sick or injured involves a pre-planned system that begins when a medical emergency occurs. The "Anatomy of an EMS Call" (below) depicts a typical request for help, although patients also "self-deliver" to the emergency department or enter the EMS system by other methods.



The Call Answering & Dispatching Process

Throughout the United States, a request for EMS and the dispatch of needed EMS assets in response, is a mixture of process models that vary significantly in effectiveness. However, with decades of research and development, a standard within the EMS industry has surfaced: *screen, triage & prioritize 911 calls then send the closest, appropriate EMS unit(s), dispatching the most serious calls first.*

Public Safety Answering Points (PSAP)

In many states, there exist multiple PSAPs that typically receive all 911 calls for police, fire, and EMS response. The PSAP is responsible for determining if the caller requires law enforcement, fire service, or medical assets. These PSAPS are typically regionalized, based on influences like "home rule", and more objective measures such as cost, geography covered, and technological capability. Because of today's technology, PSAPs can be physically located almost anywhere and still adequately serve any region. A PSAP is typically staffed by Basic Telecommunicators (BTC) who complete a standardized course that teaches the 911 operator to appropriately control the caller, attain necessary information quickly through specific interrogation techniques, and process the true nature and urgency of the call. The BTC course trains the emergency operators to work in an unpredictable environment and yet maintain a consistent performance and reassuring voice in any emergency.[1]

1 https://www.fcc.gov/general/9-1-1-master-psap-registry

While some PSAPs continue to operate in small geographical regions with low call volume, it is believed that exposure to high levels of activity with standardized screening, triaging and dispatching protocols, results in the most efficient use of EMS resources. Standard procedures and adequate volume of activity enhances proficiency of telecommunicators[1], improving call disposition rapidity and reducing errors.[2] However, too much volume per telecommunicator can adversely affect patient outcomes, especially in out of hospital cardiac arrests (OHCA).[3]

Public Dispatch Answering Points (PDAP)

also known as Emergency Communications Centers (ECCs)

Depending on the region, in addition to the PSAP, a Public Dispatch Answering Point (PDAP), also called an ECC, may receive information about the emergency from the PSAP and assume responsibility for dispatch. The PDAP may be responsible for multiple agencies; police, fire and EMS, or limited to one municipality or agency for the same services. In many areas, the PSAP will transfer the caller to the more local PDAP to continue call screening and begin providing pre-arrival instructions to the caller, while dispatching resources. This allows for the PSAP to answer a greater number of calls into 911 but increases the total time to process a call and can delay the dispatch of emergency resources.

The geographical area covered by the PDAP and the assets it manages, may determine how efficient and productive the system is. Using computer aided dispatch (CAD) applications, status management and orchestration of EMS assets is more manageable. A PDAP may be staffed by Emergency Medical Dispatchers (EMD) who take a standardized course that teaches them how to manage resources within an EMS system, best practices in dispatching those resources, and how to assist resources in responding and transporting efficiently.

Medical Priority Dispatch System

A Medical Priority Dispatch System (MPDS) is a routinized, standardized process in handling and prioritizing 911 calls and optimizing resource allocations. If MPDS is used, based on information gathered by the BTC and the EMD, its algorithm determines the appropriate EMS level of care response to send and the urgency with which to send it.

The MPDS system allows for efficient use of resources and can identify EMS calls that may safely be held in queue, pending availability of resources. This can help to economize EMS systems, reducing per unit and per case costs. It also allows for lower urgency response of EMS units, helping to reduce the use of red lights and sirens.This enhances safety for the public and the responding practitioners.

Pre-Arrival Instructions

PSAPs and ECCs using EMD are generally considered to also be responsible for providing direction to the 911 caller on what to do while waiting for emergency units to arrive. BCTs and dispatchers are resources for the person requesting EMS services. They can act to provide instructions to callers, before the arrival of EMS or First Responder personnel, on what immediate care to provide to the patient. This

1 https://www.npstc.org/download.jsp?column=217&id=4121&tableId=37&utm_source=chatgpt.com

2 Cone DC, Galante N, MacMillan DS. Can emergency medical dispatch systems safely reduce first-responder call volume? Prehosp Emerg Care. 2008 Oct-Dec;12(4):479-85. doi: 10.1080/10903120802290844. PMID: 18924012.

3 Kim TH, Sohn Y, Hong W, Song KJ, Shin SD. Association between hourly call volume in the emergency medical dispatch center and dispatcher-assisted cardiopulmonary resuscitation instruction time in out-of-hospital cardiac arrest. Resuscitation. 2020 Aug;153:136-142. doi: 10.1016/j.resuscitation.2020.05.036. Epub 2020 Jun 2. PMID: 32502575.

intervention by the communicators/dispatchers can improve patient survival and overall outcome.[1] National standards have been established by the two leading PSAP/ECC accreditation agencies for EMS pre-arrival instructions.[2]

Deployment Models

How a system utilizes its units and resources not only depends on the EMD, but is also driven by how a system deploys its resources. Agencies utilize two distinctly different deployment models called Static and Dynamic. With Static Deployment, a unit is housed at a station and remains in station until it is dispatched to an emergency. When that emergency is over or the patient has been transported to a hospital, the unit returns to their original station. In this deployment model, there is minimal opportunity to utilize resources based on demand of the system. This is how most fire services operate. With call volumes much lower than EMS, fire apparatus are usually in station awaiting an emergency.

In a Dynamic Deployment model, although stations do exist, each unit may start their shift at a particular facility but will be repositioned throughout the shift to reduce response times to emergencies based on projected call volume and location. Additionally, EMS units may be moved far away from their original station to adequately cover the entire response region. All high performance EMS systems utilize the Dynamic Deployment model, in addition to prioritizing more acute medical and trauma emergencies through MPDS.

System Status Management

In any given system with multiple EMS units and a defined geography to cover, a dispatch center may utilize System Status Management (SSM). SSM is a system that uses historical data to determine where ambulances should be posted or stationed in anticipation of future calls and is adjusted in real time through situational awareness. Although SSM is typically part of the CAD system, it also can be manually augmented by dispatchers in response to occurring incidents, threats, weather, or traffic conditions.

The historical data used in an SSM plan usually allows for mapping and post assignments that change based on time of day, day of week, seasonal variations, holidays' effect. Often, real-time heat maps that depict where requests for EMS are most likely to occur in the immediate future are generated by the SSM program, providing a visual presentation of anticipated activity, enhancing the dispatcher's ability to relocate EMS units.

GPS/AVL

For an EMD in a PDAP, rapidly determining which EMS unit is best for a response in a large or busy region can be a challenge. Additionally, keeping track of all the units within a region and comparing an incoming call location to the location of each unit, can easily become overwhelming. Ambulances and other EMS response vehicles should be equipped with Global Positioning Systems (GPS) and Automated Vehicle Location (AVL) capability that is integrated with the CAD system. This eliminates guesswork and allows for the closest available, appropriate EMS assets to be identified for dispatch. Dispatchers use this information to send the necessary resources to each incident.

1 Fukushima H, Kawai Y, Asai H, Seki T, Norimoto K, Urisono Y, Okuchi K. Performance review of regional emergency medical service pre-arrival cardiopulmonary resuscitation with or without dispatcher instruction: a population-based observational study. Acute Med Surg. 2017 Apr 2;4(3):293-299. doi: 10.1002/ams2.273. PMID: 29123877; PMCID: PMC5674464.

2 EMD Program - APCO International, https://www.emergencydispatch.org/home.

Mobile Data Computer

To reduce radio traffic, speed dispatch of units, and enhance the exchange of information, the use of a Mobile Data Computer (MDC) in EMS vehicles, improves the dispatching process. An MDC in an EMS vehicle will receive the dispatch information from the dispatch center electronically, giving the street address, cross street, type of emergency, and other information (some products also provide routing instructions). MDCs allow for push button status changes throughout an assignment, promoting accurate time stamping, expediting information flow, and limiting disruptions in the dispatch center, reducing dispatcher workload.

Response Times & Performance Indicators

Many EMS agencies and the municipalities they serve, focus on response times of EMS units to the scene of calls as the primary measure of quality. However, response times are no longer considered the main, or even most important, criterion upon which to judge an EMS service.[1] Although studies have shown that in a certain limited number of medical or traumatic emergencies time does matter, other metrics can better determine an EMS agency's level of service.[2,3] Therefore, other standardized performance measures and benchmarks should be established for every EMS system and agency.[4] They should be focused on the clinical care rendered to patients and proficiency of clinicians, among other things. It is important that dispatch centers and EMS agencies report out key performance indicators on a regular basis to the governing entities, those that regulate them and to the general public.

Data/Report Management

Assessing an EMS service's response and patient care data is important to continually analyze. According to the National EMS Information System (NEMSIS), effective use of EMS data leads to better patient outcomes and more efficient resource utilization. A portion of that data relates to the times which key elements of an EMS call transpire. Collecting and making this data available to researchers, system designers and service providers is critical to improving the delivery of EMS.

Patient Care & Transport

Upon arrival at the scene of a 911 call, EMS personnel assess and treat the patient. In some cases, however, the responding units will find no one at the scene, perhaps the patient has left or the alarm was false. In other cases, the patient may refuse care, or the EMS practitioners will be able to resolve the emergency with treatment at the scene, negating transport of the patient to a healthcare facility. But in about three-quarters of all EMS calls in Vermont, the patient is transported. Typically, if transport occurs, the patient is moved to the closest hospital emergency department. However, in some distinct cases, such as those meeting pre-determined trauma diversion protocols, the patient will be transferred directly from the scene to a designated Trauma Center, even if it is farther away than a local hospital. In these cases, this routing to a specialty center improves the survival rate of severe trauma patients.

1 Al-Shaqsi SZ. Response time as a sole performance indicator in EMS: Pitfalls and solutions. Open Access Emerg Med. 2010 Jan 8;2:1-6. PMID: 27147831; PMCID: PMC4806820.

2 Lee DW, Moon HJ, Heo NH; KoCARC. Association between ambulance response time and neurologic outcome in patients with cardiac arrest. Am J Emerg Med. 2019 Nov;37(11):1999-2003. doi: 10.1016/j.ajem.2019.02.021. Epub 2019 Feb 16. PMID: 30795948.

3 Holmén J, Herlitz J, Ricksten SE, Strömsöe A, Hagberg E, Axelsson C, Rawshani A. Shortening Ambulance Response Time Increases Survival in Out-of-Hospital Cardiac Arrest. J Am Heart Assoc. 2020 Nov 3;9(21):e017048. doi: 10.1161/JAHA.120.017048. Epub 2020 Oct 27. PMID: 33107394; PMCID: PMC7763420.

4 Kupas DF, Zavadsky M, Burton B, Decker C, Dunne R, Dworsky P, Ferron R, Gerard D, Grover J, House J, Jarvis J, Murphy S, Overton J, Redlener M, Solomon GW, Stephen A, Strozyk R, Trimble M, Wieczorek T, Wire K. Joint Position Statement on EMS Performance Measures Beyond Response Times. Prehosp Emerg Care. 2024;28(8):1068-1069. doi: 10.1080/10903127.2024.2375739. Epub 2024 Oct 1. PMID: 39058371.

Vermont's EMS System

Calls For Service

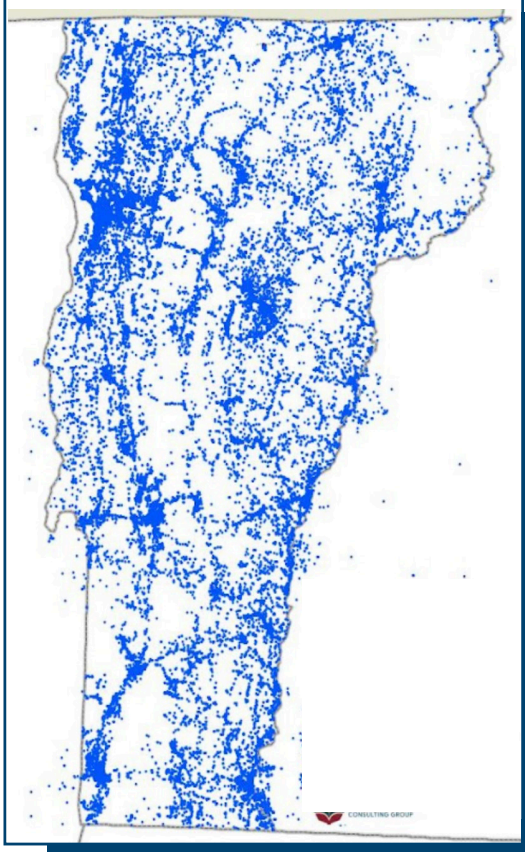
As of 2024, Vermont utilized approximately 165 ambulance and first responder agencies, staffed by about 3,000 licensed EMS practitioners and over 400 certified Vermont Emergency First Responders.[1]

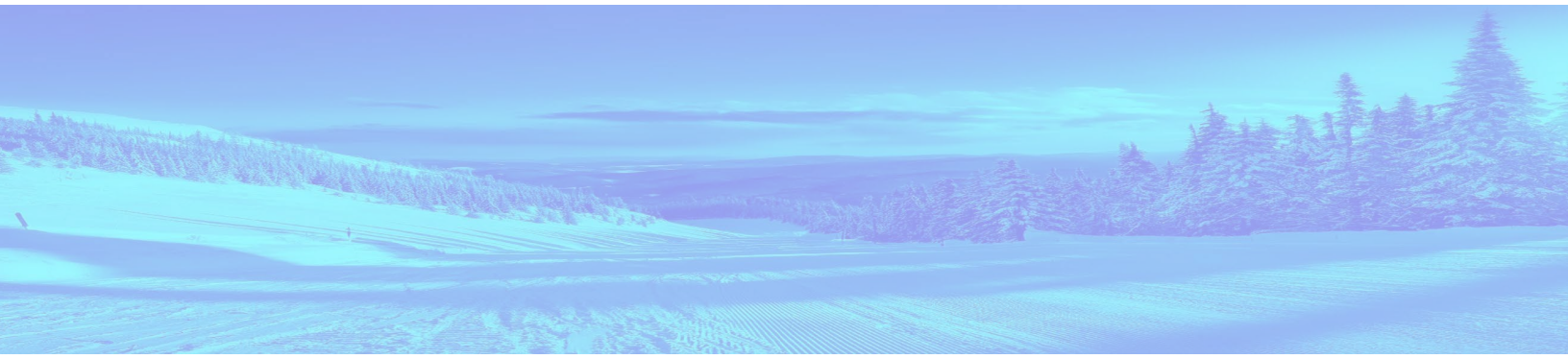
The volume of emergency calls for service varies significantly by region, depending on factors such as population density, agency structure, and geographic isolation. For example, Saint Michael's Fire and Rescue (an ambulance service), one of the busiest volunteer EMS services in the state, responds to nearly 3,000 emergency calls annually.[2] In contrast, Hinesburg, a smaller community, sees approximately 350 medical 911 calls each year.[3]

Vermont's EMS system, like many rural systems nationwide, faces challenges including low call volumes in some areas, which affects operational funding and makes it difficult to justify full-time staffing.[4] Many agencies still rely heavily on volunteer EMS personnel. However, a statewide decline in volunteerism, combined with increasing call volumes and the growing complexity of medical emergencies, has put added strain on these systems.

To address these issues, Vermont continues to implement strategies such as expanding training programs, exploring new EMS delivery models, and supporting recruitment and retention efforts for volunteers and career staff. These efforts are aimed to strengthen system resiliency and ensure timely access to emergency medical care across the state.[1]

Vermont's EMS Distribution





1 Vermont Department of Health. (2024). Emergency Medical Services Overview. Retrieved from https://www.healthvermont.gov/emergency/emergency-medical-services

2 Saint Michael's College. (n.d.). Emergency Medical Services. Retrieved from https://www.smcvt.edu/academics/majors-minors-and-curriculum/emergency-medical-services

3 Ryan, C. (2003). Emergency Medical Services in Hinesburg, Vermont. University of Vermont. Retrieved from https://www.uvm.edu/~clryan/rescue/EMS-inHinesburgVT.pdf

4 Health Resources and Services Administration (HRSA). (2016). Access to Emergency Medical Services in Rural Communities. Retrieved from https://www.hrsa.gov/sites/default/files/hrsa/advisory-committees/rural/access-to-ems-rural-communities.pdf

Vermont's EMS Workforce

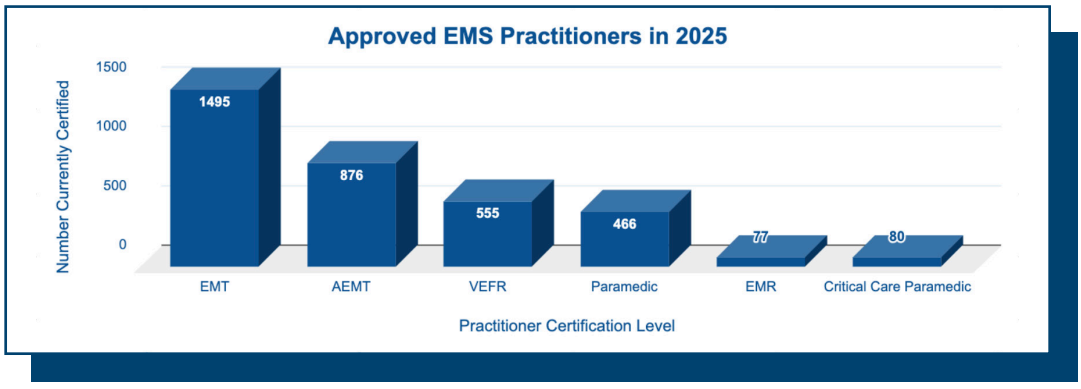
The U.S. Department of Labor, Bureau of Labor Statistics (BLS) indicates that 750 of the 1,404 Emergency Medical Technicians, and 190 paramedics of the 456 currently certified in Vermont, are employed. Unfortunately, the BLS classifications do not specifically break out the AEMT personnel category, of which Vermont has 751 currently licensed. It is likely, however, that BLS includes them in their EMT designation. These employment figures from the Bureau also may not account for those individuals that are categorized as providers employed with hospital or Fire Department based EMS services.

Regardless, there may be as many as 63% of the state's EMTs and 58% of its paramedics that volunteer for EMS agencies. In addition, there are another 602 emergency first responders and emergency medical responders who likely volunteer as well. This is a substantial number and percentage of the EMS workforce that volunteer their services.

A cross-sectional evaluation of a cohort of the national EMS workforce by Cash, et. al.[1] in 2023 concluded the mean density of EMS practitioners was 233 per 100,000 population among the nine states studied, which included Vermont.[2] This study did not include VEFRs or EMRs. Based on this information, Vermont should have approximately 1,503 EMTs and paramedics which is 43% fewer than reported by the state. The density of EMS providers varies dramatically through the whole country from a low of 116 per 100,000 population in Mississippi, to 683 for every 100,000 residents in North Dakota.[3] Vermont's density level is 441 placing it as the 9th most EMS provider concentrated state in the country.

This study of EMS practitioner density showed that, in unadjusted models, there was a significant association between the increase in EMS personnel per 100,000 of population and an increase in the life expectancy at each percentile reviewed, a decrease in all-cause mortality at each reviewed percentile, and a decrease in cardiac arrest mortality at the 50th and 90th percentiles. However, these associations were not statistically significant when the model was controlled for population characteristics and other factors. While further examination of this is needed, these results point in the direction that EMS practitioner density serving a community may be a determining factor in patient outcome.

As of the first quarter of 2025, Vermont reported the following numbers of approved EMS practitioners, ranked by number certified:

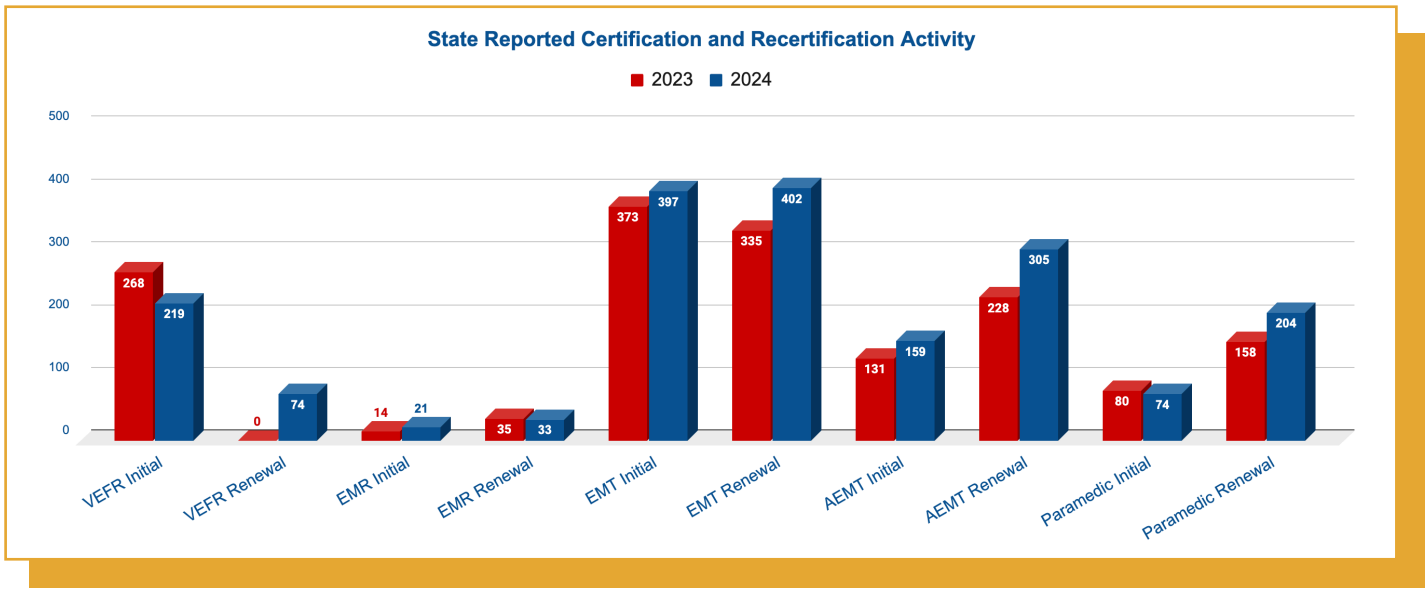


1 Cash RE, Goldberg SA, Powell JR, Peters GA, Panchal AR, Camargo CA Jr. Association between EMS Workforce Density and Population Health Outcomes in the U.S. Prehosp Emerg Care. 2024;28(2):291-296. doi: 10.1080/10903127.2023.2166175. Epub 2023 Jan 24. PMID: 36622774.

2 Vermont was one of nine states included

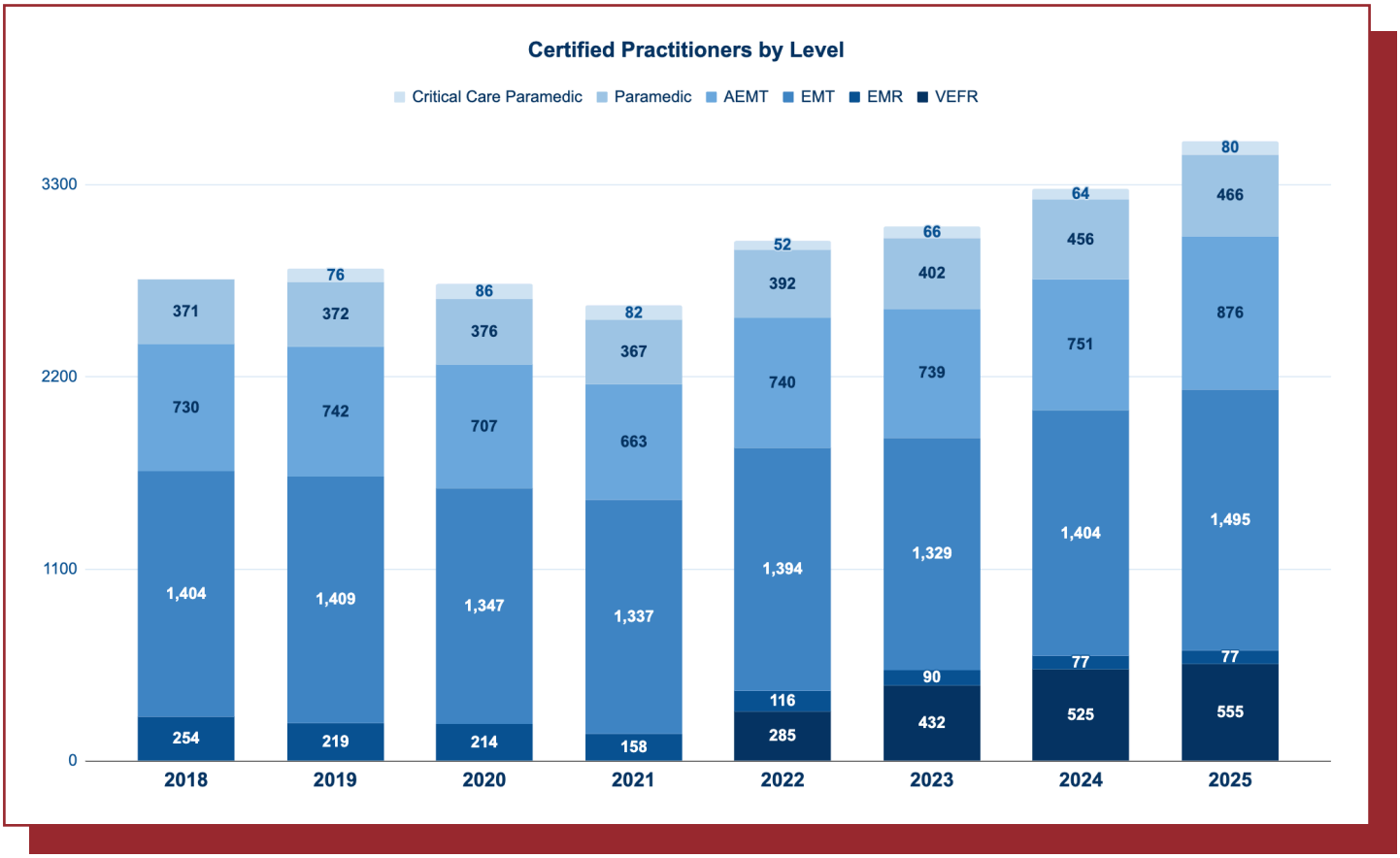
3 National Association of EMS Officials 2020 National EMS Assessment report compiled with US Census 2020 population data.

Recent Two Year Snap Shot of Certification and Recertification Activity:



The review of initial and renewal EMS practitioner certification activity between 2023 and 2024 in Vermont indicates a net increase in renewals, except for EMRs. Although both Paramedic and VEFR initial certifications were down year over year. Historical data from 2018 to 2024, of total certified providers, shows:

- VEFRs steadily increasing from 285 in 2022 to 525
- EMRs declining by 69%; 254 in 2018 to 77
- EMTs remaining flat; 1,404 in 2021 to 1,404, with fluctuations of as much as 11% during that period.
- AEMTs increasing slightly from 730 in 2018 to 751 (3%).
- Paramedics relatively slow but steady increase from 371 in 2018 to 456 (23% increase).
- And Paramedics with Critical Care Endorsement declining from 76 in 2019 to 64 (15% reduction).



Historical Data from the BLS

The most recent detailed data from the BLS (May 2023) reports that the median annual wage for emergency medical technicians nationally was $38,930.[1] The lowest 10 percent earned less than $29,910, and the highest 10 percent earned more than $59,390.

Annual salaries for EMTs by the industry: The median annual wage for paramedics was $53,180 in May 2023. The lowest 10 percent earned less than $38,520, and the highest 10 percent earned more than $79,430.

Most EMTs and paramedics work between 36 and 48 hours per week while the American standard is 40, so adjustments need to be made when calculating annual salaries for comparison purposes.

Annual salaries for EMTs by the industry 2023	
Outpatient care centers	$65,660
General medical and surgical hospitals; private	$41,690
Local government, excluding education and hospitals	$39,270
General medical and surgical hospitals; local	$38,410
Ambulance services	$37,620

Source: US Dept of Labor, Bureau of Labor Statistics; 2025

Annual salaries for EMTs by the industry 2023	
Outpatient care centers	$65,660
General medical and surgical hospitals; private	$41,690
Local government, excluding education and hospitals	$39,270
General medical and surgical hospitals; local	$38,410
Ambulance services	$37,620

Source: US Dept of Labor, Bureau of Labor Statistics; 2025

1 Median wage is the wage at which half the workers earned more than that amount and half earned less.

Research from 2025

Cambridge Consulting Group researched hourly wages and salaries through multiple on-line employment sites and information reported through various sources. These are estimates based on information available at the time of research and are not categorized into industry or type of employer.

As of April 2025, Emergency Medical Technicians (EMTs) in Vermont are estimated by CCG to receive an hourly wage of approximately $21.69 which is slightly higher than the estimated national average of $21.02 per hour.

Estimated EMT wages 2025				
	Annual Salary	Monthly Pay	Weekly Pay	Hourly Wage
National Average	$43,721	$3,643	$840	$21.02
Vermont	$45,125	$3,760	$867	$21.69

Annualized, this equates to around $45,125 in Vermont, compared to approximately $43,721 nationally. However, figures can vary depending on the source; for instance, Salary.com reports an average annual salary of $37,775 for EMTs in Vermont.

Salaries within Vermont also differ by location. For example, posted EMT positions in Vermont at the time of this study ranged from $19.33 per hour to $22.50 depending on the region of the state.

As of April 2025, the average hourly wage for paramedics in Vermont is estimated at $28.03, higher than the estimated national average of $26.12 per hour.

Annualized, this equates to about $54,326 nationally, with Vermont's annual salary at $58,300.

Estimated Paramedic wages 2025				
	Annual Salary	Monthly Pay	Weekly Pay	Hourly Wage
National Average	$54,326	$4,527	$1,044	$26.12
Vermont	$58,300	$4,858	$1,121	$28.03

It's important to note once again, that these figures can vary significantly based on factors such as experience, specific employer, and location within the state. For instance, some job postings for paramedics in Vermont, report higher average wages of $35.37 per hour.

Living Wage Calculation for Vermont

The Living Wage Calculator was developed by Dr. Amy K. Glasmeier, professor of Economic Geography and Regional Planning at MIT's Department of Urban Studies and Planning (DUSP),and Dr. Tracey Farrigan, a graduate student at the time. It estimates the hourly rate that an individual in a household must earn to support themselves and/or their family, working full-time (2080 hours per year). The calculator features geographically-specific costs for food, childcare, health care, housing, transportation, other basic needs, like clothing, personal care items, and broadband, among others, and taxes at the county, metro, and state levels for 12 different family types.

The poverty wage and state minimum wage are used for reference purposes. Poverty wage estimates are sourced from the Department of Health and Human Services' Poverty Guidelines for 2025 and have been converted from an annual value to an hourly wage for ease of comparison. The state minimum wage data is sourced from the Labor Law Center and includes the minimum wage in a given state as of January of that year.

Living Wage Calculator - Counties and Metropolitan Statistical Areas in Vermont

1 ADULT				
	0 Children	1 Child	2 Children	3 Children
Living Wage	$23.95	$47.29	$63.91	$80.30
Minimum Wage	$14.01	$14.01	$14.01	$14.01
Poverty Wage	$7.52	$10.17	$12.81	$15.46
2 ADULTS (1 WORKING)				
	0 Children	1 Child	2 Children	3 Children
Living Wage	$34.11	$41.10	$45.47	$52.07
Poverty Wage	$10.17	$12.81	$15.46	$18.10
2 ADULTS (BOTH WORKING)				
	0 Children	1 Child	2 Children	3 Children
Living Wage	$17.06	$26.26	$34.47	$41.87
Poverty Wage	$5.08	$6.41	$7.73	$9.05

The Living Wage Calculator; MIT

Comparing the estimated average wages for EMS clinicians in Vermont with the Living Wage Calculator reveals that EMTs earn just below the living wage and Paramedics just above it.

EMT						
	National Mean	Vermont Average	Living Wage (No Children)	Living Wage (1 Child)	Minimum Wage	Poverty Wage
2023	$18.72					
2025	$21.02	$22.88	$23.95	$47.29	$14.01	$7.52
Paramedic						
	National Mean	Vermont Average	Living Wage (No Children)	Living Wage (1 Child)	Minimum Wage	Poverty Wage
2023	$25.57					
2025	$27.55	$26.24	$23.95	$47.29	$14.01	$7.52

The Living Wage Calculator; MIT

This information shows that EMT and paramedics in Vermont, while earning slightly higher than the national average, are barely meeting the living wage in the state. This may account for some of the inability to fill persistently vacant positions in agencies.

A comparison of estimated annual salaries between EMTs and Paramedics, and Police Officers and Firefighters in Vermont was conducted.

	Position			
	EMT	Paramedic	Police Officer	Firefighter
Est. 2025	$45,125	$58,300	$64,400 - $70,826	$51,783 - $72,084
BLS 2023- North VT			$64,020	$47,740
BLS 2023- South VT			$64,020	$42,970

Research as of the publication of this report, found the following results for current annual salaries for police officers and firefighters in Vermont.

Police Officers in Vermont

- **Indeed:** Reports an average salary of $70,826 per year for police officers in Vermont. Job Search | Indeed
- **Salary.com:** Lists an average salary of $64,400 per year, with most professionals earning between $60,100 and $70,100. Salary.com
- **ZipRecruiter:** Indicates an average annual salary of $66,079 for police officers in Vermont. Salary.com
- **Vermont State Police:** A newly hired trooper starts at $71,108.30, increasing to $74,672.50 after six months, and reaching $77,634.30 upon completing probation at the end of the first year. The top salary for a trooper position with no rank is $102,793. vsp.vermont.gov

Firefighters in Vermont

- **Indeed:** Reports an average salary of $72,084 per year for firefighters in Vermont. Job Search | Indeed
- **ZipRecruiter:** Indicates an average annual salary of $57,059 for firefighters in Vermont. ZipRecruiter
- **Salary.com:** Lists an average salary of $51,783 per year for a Fire Fighter I in Vermont, with most professionals earning between $43,635 and $60,837. Salary.com
- **Talent.com:** Reports an average firefighter salary of $55,020 per year in Vermont. Talent.com

Summary

Occupation	Average Annual Salary (Range)
Police Officer	$64,400 – $70,826
Firefighter	$51,783 – $72,084

These figures represent averages and can vary based on factors such as experience, location within the state, and specific departmental roles.

Data Disclaimer:

Cambridge Consulting Group based its analysis and findings for this report on six main sources: 1) publicly available research (eg: IRS data, Bureau of Labor Statistics reports, agency websites, municipal, county and state publications), 2) survey responses from agencies and pertinent system representatives, 3) interviews with stakeholder organizations and individuals, 4) customized reports from organizations such as the Green Mountain Care Board, 5) the NEMSIS data base, and, 6) four years of information from the SIREN data base warehouse.

Of special note regarding information from the SIREN data base:

Some data received was attributable to agencies that no longer exist or that provide EMS services. Therefore, some information referenced in this report may include those defunct organizations.

Some agencies cover small, specific venues, such as a ski resort or fairground. While they are part of the overall EMS system, their impact on the system as a whole is de minimis, and their data may be excluded to avoid confusion.

In addition, some fire department-based EMS agencies indicated they do not report incidents resulting in canceled calls or patient refusals to the SIREN data base, if there was not treatment provided. Instead, they report some call details to the NFIRS data base.

Also, some agencies are listed under multiple names in the SIREN data base, complicating calculation of activity.

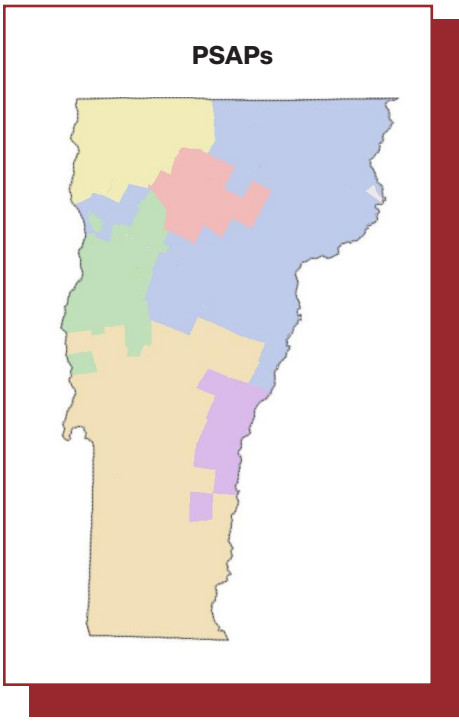
Furthermore, there is a general lack of consistency with the classification of calls in some data fields, such as "Patient Disposition" and "Type of Call". This makes categorization of data into groups such as "EMS" versus IFT" or "transported" versus "not-transported", challenging and error prone.

Lastly, the EMSD reports that not all agencies, especially First Responder services are compliant with reporting into SIREN.

Therefore, the data used for this report is underreported, lacking an unknown amount of EMS incidents, and includes misclassification of some call elements, impairing the accuracy of some report details. CCG could only analyze the data provided. Regardless, the firm believes the assessment and conclusions of this report are still essentially reliable.

Dispatching

In Vermont, when someone calls 911 by phone or by activating it via other electronic methods, the call is answered by trained dispatchers at one of Vermont's 6 PSAPs. The PSAP either directly dispatches the appropriate emergency responders or transfers the call to one of Vermont's more than 30 dispatch agencies.[1] The PSAP provides pre arrival instructions[2] to the caller (although the consistency of their delivery is uncertain.) While the majority of PSAPs provide pre-arrival EMS instructions to callers, this practice is not yet universal across all centers.



The PSAPs cover 14 counties. The Vermont State Police (VSP) provide the largest 911 answering points in the state with Westminster-VSP covering the southern portion of the state and Williston-VSP covering the northern portion. The remaining 4 PSAPs are:

- St. Albans PD that covers the northwest corner of the state
- Shelburne PD covering a small portion of the central western line of the state
- Lamoille County Sheriff's Office located in the north central part of the state covers the 10 towns in Lamoille County and 2 towns (Hardwick and Greensboro) just outside the county
- Hartford PD that covers the central eastern line of the state.

There are 31 PDAPs serving Vermont. For most EMS agencies, these PDAPs are the entity that notifies the EMS crew of the assignment and then follows them through the phases of the call. The EMS crews will continue to communicate with these PDAPs until they have completed their call and are secure in station.

Most of these PDAPs are located in public safety agencies, but at least 1 is located in a private home. The sheer number of dispatch agencies complicates the dispatch process.

PSAP & PDAP Entities

PSAP and Dispatch	Dispatch Only
Hartford PD (PSAP)	Barre City PD
Lamoille Cty SO (PSAP)	Bennington PD
Shelburne PD (PSAP)	Brattleboro PD
St Albans PD (PSAP)	Burlington City PD
Westminster VSP (PSAP)	Colchester PD
Williston VSP (PSAP)	Essex PD/Williston PD
	Ludlow PD
	Mad River Valley Ambulance Service
	Manchester PD
	Middlebury Regional EMS
Out of State	Montpelier PD
Colebrook PD, NH	Newport PD
Grafton County SO, NH	Rutland City PD
Hanover PD, NH	South Burlington PD
SW Fire Mutual Aid, NH	Springfield PD
N Adams PD, MA	St Johnsbury PD
Washington Cty Dept of Public Safety, NY	St Michaels Rescue
	UVM PD
	Windham Cty SO
	Winooski PD
	Woodstock PD
	Dover PD
	Middlebury PD
	Randolph PD
	Wilmington PD

1 25 of these ECCs/PDAPs are based in Vermont and 6 are out-of-state entities.

2 ***Pre-arrival instructions*** means telephone rendered, medically approved written instructions read by emergency medical dispatchers to callers, which help provide aid to the victim and control the situation prior to patient access by pre-hospital care providers. (https://www.lawinsider.com/dictionary/pre-arrival-instructions)

PSAPS

PSAPs in Vermont have standard operating procedures and reportedly provide pre-arrival instructions to the caller. However, local dispatch centers are typically the entity that dispatches the emergency responder units directly. The data provided to CCG (shown in the table below) indicates that the initial call pick-up time (time from first telephone ring until the call is answered) by the several PSAPs, is within standard.[1] There is a notable, substantial delay in transferring the call to the dispatching PDAP. An average of 1.5 minutes per call is spent for information to be transferred from the PSAP to the PDAP, before EMS assets are dispatched. Today's technology allows for most CADs to electronically transfer emergency call data to other CADs in real time, negating the need for phone calls. This reduces call processing time dramatically.

The recently released report "Vermont Public Safety Communications System: Options & Plan Recommendations Draft Report, Version 2" by the MissionCriticalPartners consulting firm, discussed the need for a reduction of regional dispatch centers in parallel with the alignment of PSAPs under a non-law enforcement authority:

"The challenge, therefore, is to encourage agencies to set aside political considerations and focus on potential benefits rather than hypothesizing on losses. By shifting the focus to the collective gains, agencies can work together to achieve regionalization that enhances the effectiveness and efficiency of emergency communications services delivered across the state…there is a need for consistency in operations that goes beyond the communications centers. It is essential to have interoperability between first responder agencies and SOPs to ensure first responders can communicate across jurisdictional boundaries and access the information they need when they need it to coordinate these complex technologies.

There are a large number of ambulance districts, ambulance services and first responder services whose dispatch is complicated by over thirty local dispatch centers whose protocols, equipment, dispatcher qualifications and education vary statewide. One challenge identified by MissionCriticalPartners is a "strategically phased reduction of regional dispatch centers in parallel with alignment of PSAPs under a non-law enforcement authority." [1]

Performance Activity of Vermont's PSAPs & PDAPs
as reported by the Vermont Enhanced 911 Board

Average Ring Time	90th Percentile Ring Time	AVG Time to Transfer	90th Percentile Trans Time	AVG Time For Transfer	90th Percentile For Transfer
0:00:05	0:00:08	0:00:59	0:01:38	0:00:09	0:00:13

Source: Vermont Enhanced 911 Group

PSAP	Average Ring Time	90th Percentile Ring Time	AVG Time to Transfer	90th Percentile Trans Time	AVG Time For Transfer	90th Percentile For Transfer
Williston	0:00:05	0:00:08	0:01:01	0:01:40	0:00:10	0:00:13
Westminster	0:00:05	0:00:08	0:00:51	0:01:23	0:00:09	0:00:13
Lamoille	0:00:07	0:00:09	0:01:02	0:01:42	0:00:10	0:00:14
Saint Albans	0:00:06	0:00:08	0:01:29	0:02:23	0:00:09	0:00:13
Hartford	0:00:05	0:00:07	0:00:58	0:01:35	0:00:09	0:00:14
Shelburne	0:00:06	0:00:08	0:01:02	0:01:38	0:00:09	0:00:13
Montpelier	0:00:05	0:00:07	0:01:07	0:01:44	0:00:10	0:00:14

Source: Vermont Enhanced 911 Group

1 NFPA 1225 calls out two time-standards for dispatch: 1) Answer requests for emergency assistance within 10 seconds 90% of the time, 2) Process the request for emergency assistance within 60 seconds 90% of the time. NENA sets the standard for 9-1-1 call-answering times at 90% of all 9-1-1 calls within 15 seconds and 95% answered within 20 seconds.

2 VT Public Safety Communications Task Force, "Vermont Public Safety Communications System: Options & Plan Recommendations, Draft Report, V. 2", 2025

Local Dispatch Center Call Process

As stated previously, if the 911 call is not directly dispatched to an EMS provider by the PSAP, it is handed off to one of more than 30 local dispatch centers. These dispatch centers then assign calls to an array of responders (law enforcement, fire service, EMS First Responders, Ambulance Service or other EMS units) depending on the nature of the emergency. EMS First Responder Agencies are dispatched simultaneously with the ambulance organization servicing that area.

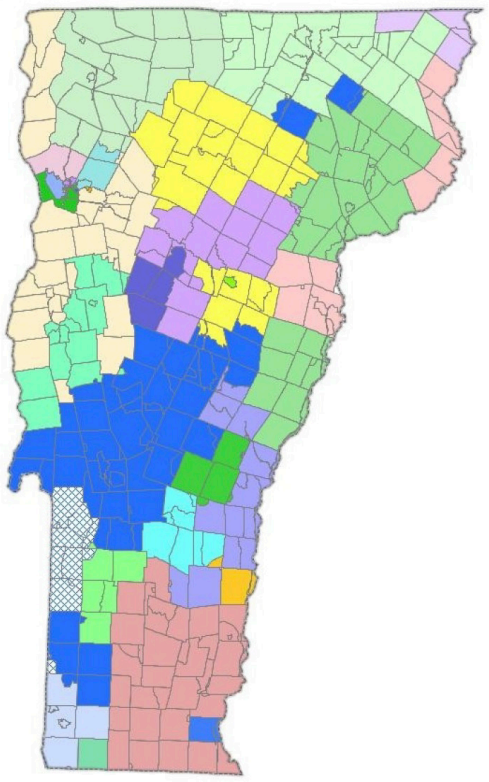
Percent PSAP Directly Dispatches Agencies

- Hartford 52.01%
- Lamoille 37.80%
- St. Albans 32.14%
- Shelburne 42.77%
- Westminster 73.38%
- Williston 74.56%

However, there are also 7 more, sub-PDAP, dispatch points. A sub-PDAP dispatch point is an entity that receives the request to dispatch an EMS unit from a PDAP, and then actually performs the dispatch instead of the PDAP. These are typically larger EMS agencies that manage their own EMS assets. This adds additional time to the dispatching process.

The Vermont EMS dispatch operation is fragmented with many inconsistencies across the state. There are too many PSAPs for the volume of activity associated with EMS and far too many PDAPs. While sub-PDAP dispatch points may have efficacy for their operating EMS agency, they lend to a fragmented system. If the current PSAP/PDAP structure were dramatically consolidated and updated, especially to include statewide use of GSP/AVL for EMS units, the need for the sub-PDAP dispatching points would likely be eliminated.

Dispatch Centers



None of the PSAPs or PDAPs report dispatch information, specifically important time stamp data regarding initial receipt of call and dispatch of EMS units, into the state's patient care record system. This lack of data integration with SIREN, dramatically hampers the ability to perform clinical quality assessment of Vermont's EMS system, or to analyze the overall performance of individual agencies.

If Vermont maintains its current array of PSAP and PDAPs (and sub-PDAP dispatch points) the best, single mechanism to improve operations and reduce processing time for calls is to standardize all centers onto a common, unified CAD system. A unified CAD gives the capability to monitor the status and location of all EMS assets and activity, with synchronized timestamping. It provides every dispatcher in every center an awareness of local, regional and statewide activity and resource level. It also allows for the introduction of a centralized IFT scheduling and coordination center. A unified CAD would also be extremely effective during a mass casualty incident or statewide response.

Survey Respondent Comments Regarding the Current Dispatching Model & Process

Based on 67 respondents (40% response rate):

- The majority of PDAPs do not take into consideration the urgency level of the emergency when the call is transferred over to them.
- In most cases, the dispatch center dispatches an EMS unit on a first call first serve basis when the request comes into the dispatch center.
- The majority of EMS agencies and dispatch centers do not use GPS/AVL to track where an ambulance is located upon dispatch, or have the ability to follow that ambulance during the course of an assignment.
- The majority of dispatch agencies operate within a static deployment model with very few units posted, reposted or moved based on call volume or asset depletion.
- Almost every dispatch center fails to routinely provide any type of dispatch reporting to the EMS agency.[1]

Dispatch Prioritization	
Dispatch assigns calls on a first-come, first-served basis only	85%
Dispatch doesn't prioritize calls but Agency prioritizes and redirects based on priority	3%
Dispatch actively prioritizes calls, dispatching more serious cases first but does not redirect once dispatched	4%
Dispatch actively prioritizes calls, dispatching more serious cases first AND redirects EMS units from lower priority calls to higher priority calls when resources are limited.	1%
Unknown	6%

Deployment Model Utilized by Agency	
Static (Units remain in station until dispatched)	91%
Hybrid (Units are located at stations for part of the shift and sent to posts for other parts of the shift)	4%
Move-Up (Units remain in station until dispatched, but are relocated to other stations when necessary to cover for other units that are busy)	3%
Dynamic (Units are sent to posting locations throughout the shift to await assignments)	1%

1 Most, if not all, will provide specific information on individual case, when requested.

Dispatch Services that are reported to actively prioritize EMS calls for dispatching:

- **Lamoille Dispatch**
- **Montpelier Police Department**
- **Capitol Dispatch**

Does the EMS agency receive regular reports from your Dispatching Service:	
The agency receives no reports from the Dispatching Service	**63%**
Activity/volume of dispatches only	**10%**
Activity/volume of dispatches & response times for assignments, and Dispatching Service's "processing time" *	**15%**
The Agency has access to the CAD and retrieves dispatching data themselves	**1%**
The Agency accesses dispatching data through Image Trend® or SIREN	**1%**
Dispatch Service provides data as needed/requested	**9%**

79% of reporting EMS agencies indicate they pay another entity a fee for receiving dispatching services.

First Responder Agencies

According to SIREN data, First Responder Agencies are the initial units dispatched to an emergency scene in about 6.8% of all EMS cases in Vermont. Their primary function is to provide immediate, on-site medical care to stabilize patients until an ambulance arrives for further treatment and transport. These agencies may operate independently or as part of fire departments, police departments, or other emergency services. Personnel often include Vermont Emergency First Responders (VEFRs) and Emergency Medical Responders (EMRs), trained to perform basic interventions such as cardiopulmonary resuscitation (CPR), automated external defibrillator (AED) usage, bleeding control, and assistance with certain medications. EMRs possess additional skills, including oxygen administration and vital sign assessment. Both VEFRs and EMRs may serve as drivers or support personnel within ambulance crews. These agencies may also be staffed with EMTs, AEMTs and even paramedics. First Responder Agencies are particularly valuable in rural areas and allow the provision of emergency medical care prior to the arrival of the ambulance that have extended response times.

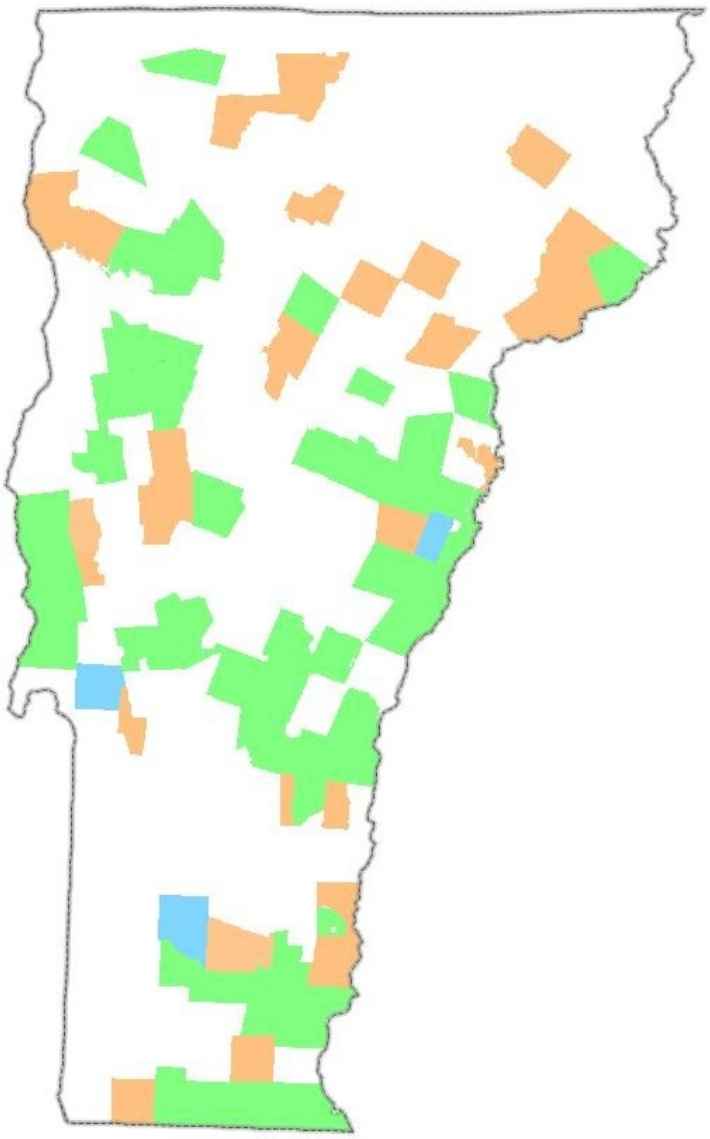
Various EMS and First Responder agencies advised Cambridge Consulting Group of issues related to reporting data through the survey tool and to SIREN. For example, when fire department based First Responder units arrive on scene and the patient refuses care without providing their name and other information. the agency does not generate an ePCR (SIREN) report. They do complete a NFIRS report. Likewise, if the responding unit is canceled before arriving, only a NFIRS report is generated.

There are 90 First Responder Agencies currently active in Vermont. Twenty-eight (31%) of these organizations are licensed at the EMT level of care, three (3%) at the paramedic level, and the remainder (66%) at the Advanced EMT level.

In 2024, these 90 First Responder agencies were sent on 6,514 EMS cases in their primary emergency zones (6.8% of all EMS requests in Vermont) and 61 times as mutual aid assistance to another zone (1% of all responses). This is a decline of 12% from 2023 and may be partially attributable to several agencies ceasing operations. EMS transporting agencies were also dispatched to all these incidents.

The busiest First Responder agencies are listed in the Table on the next page.

First Responder Agencies by Level of Care



LEGEND

- FR-E-Bakersfield D1
- FR-E-Bellows Falls D11 1117
- FR-AE-Bradford D-9 901
- FR-PC-Castleton (DIV Regional) D10
- FR-AE-Corinth D6 612
- FR-AE-Global Foundries D3 342
- FR-P-Hartland D9 910
- FR-E-Jamaica D13
- FR-E-Lincoln D7 726
- FR-AE-Newbrook D12-13 1304
- FR-E-Peacham D5
- FR-AE-Pomfret D9 905
- FR-E-Ripton D-7 721
- FR-AE-Shoreham D7 707
- FR-AE-Town Line D-7 714
- FR-E-Vershire D-9 925
- FR-AE-Wardsboro D12-13 1307
- FR-E-Westminster D11 1113
- FR-AE-Whitingham D12-13 1221
- FR-E-Woobury D4 631
- FR-E-Colchester 347
- FR-AE-Essex Fire 334
- FR-AE-Fairlee 903
- FR-AE-Gilman-Lunenburg 506
- FR-AE-Guilford 1315
- FR-E-Ira 1019
- FR-AE-Monkton 727
- FR-AE-New Haven 723
- FR-E-Newbury 528
- FR-AE-Plainfield 621
- FR-E-Proctorsville 1131
- FR-E-Rockingham 1120
- FR-E-South Hero 343
- FR-AE-Starksboro 708
- FR-AE-Huntington 330
- FR-E-Walden 529
- FR-E-Waterford 519
- FR-E-West Weathersfield 1129
- FR-AE-Williamstown 632
- FR-AE-Barnard D8
- FR-AE-Benson D-10 1013
- FR-AE-Bridgewater D9 914
- FR-AE-Chittenden D-10 1003
- FR-E-Cornwall D-7 711
- FR-AE-Groton-Ryegate D-5-6 517
- FR-AE-Hinesburg D3 332
- FR-AE-Killington D-10 1015
- FR-E-Marlboro D13 1317
- FR-AE-Orwell D7 706
- FR-AE-Pittsford D10
- FR-AE-Putney D13 1314
- FR-AE-Saxtons D-11 1118
- FR-AE-Strafford D8 916
- FR-AE-Underhill-Jericho D3 345
- FR-AE-VT ANG D3 328
- FR-P-West Fairlee D-9 927
- FR-E-Whiting D7 725
- FR-P-Winhall D12 1217
- FR-AE-Cavendish 1110
- FR-E-Concord 525
- FR-AE-Essex Junction 333
- FR-AE-Georgia 119
- FR-AE-Granville 807
- FR-E-Hyde Park 421
- FR-E-Middlesex NL
- FR-E-Montgomery 127
- FR-E-Newark 524
- FR-AE-Norwich 923
- FR-AE-Plymouth 922
- FR-AE-Reading 918
- FR-AE-Sheldon 118
- FR-E-Stamford 1216
- FR-AE-Thetford 913
- FR-AE-Vernon 1319
- FR-AE-Washington 614
- FR-AE-West Dummerston 1310
- FR-AE-West Windsor 917
- FR-AE-Worcester

FR	First Responder Agency	**P**	Paramedic Level Service
EMS	Ambulance Transport Agency	**PC**	Paramedic/Critical Care
E	EMT Level Service	**D#**	EMS District
AE	Advance EMT Level Service	**####**	EMSD License Number

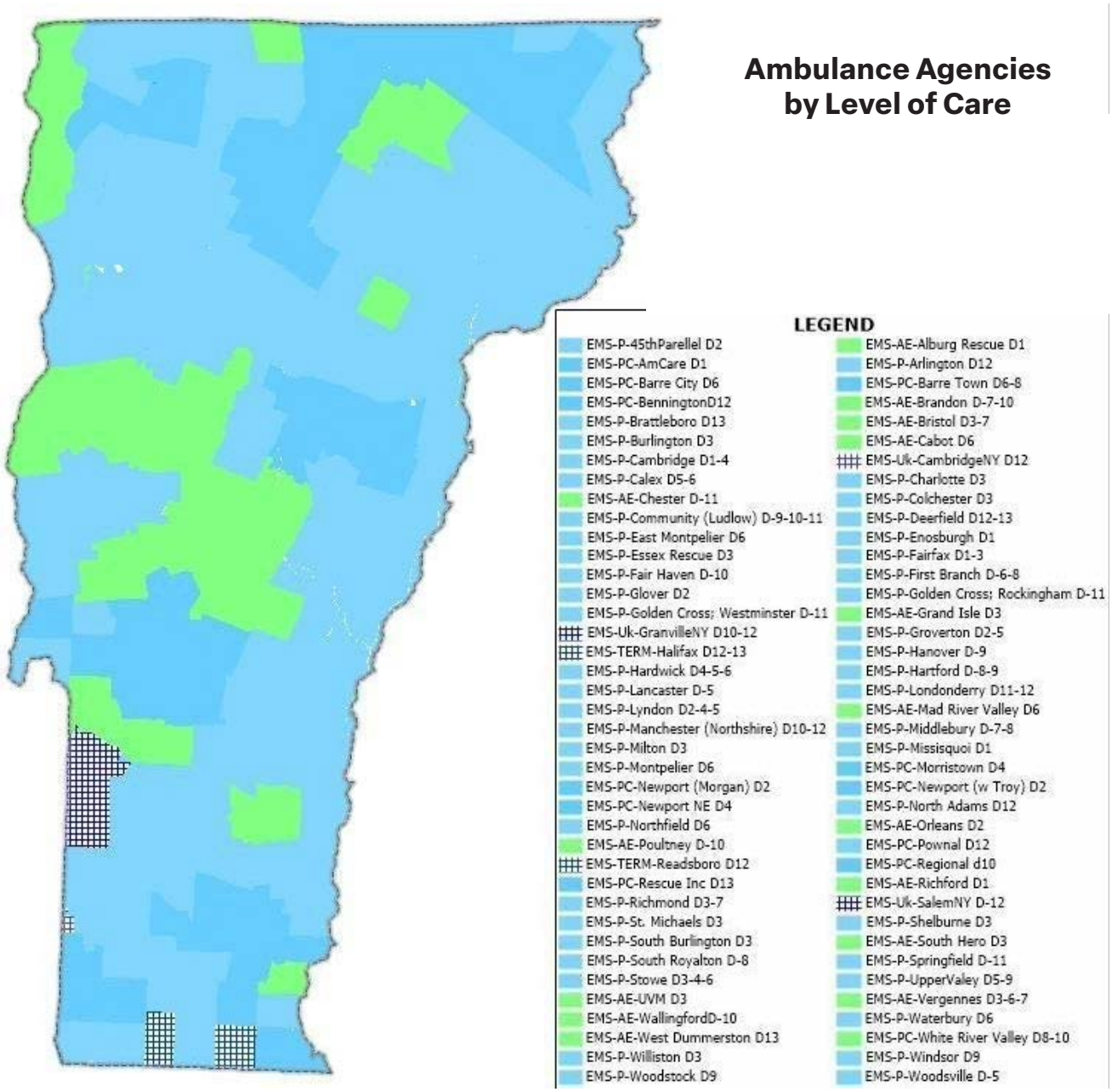
Busiest First Responder Agencies

First Response Agency	2024 EMS Volume	Provided Mutual Aid
MT MANSFIELD SKI PATROL	768	0
ESSEX FIRE DEPARTMENT	698	0
UNDERHILL JERICHO FIRE DEPARTMENT	516	0
ST. JOHNSBURY FIRE DEPARTMENT	379	0
HINESBURG FIRE DEPARTMENT	315	2
NEWBURY EMS	285	6
GROTON-RYEGATE EMS	241	1
KILLINGTON FIRE AND RESCUE	225	0
VT AIR NATIONAL GUARD FIRE DEPT	200	27
PITTSFORD FIRST RESPONSE SQUAD, INC.	177	3

Ambulance Agencies

Ambulance Agencies, in contrast, are responsible for assuming on-scene care and transporting patients to medical facilities while delivering ongoing treatment during transit. They are staffed by the higher-level practitioners (EMTs, AEMTs, and Paramedics). These professionals provide a broader range of medical interventions, from administering medications to advanced airway management. Ambulance agencies may be operated by private, non-profit entities, for-profit organizations, hospitals, or municipal services, and they often collaborate with first responder agencies to ensure comprehensive emergency care.

All of Vermont is covered by a primary ambulance agency and all are licensed to at least the AEMT level of care.



EMS Activity

Agency Size/Activity Level

In 2024, the 75 current EMS transporting agencies in Vermont responded to 95,873 911 calls in their primary response zones (6% increase from 2023) and another 3,536 mutual aid assistance requests (a 2% decrease from 2023). In 6.8% of those cases a First Responder agency was also sent. In addition, these agencies also provide interfacility transportation and handled another 23,740 transfers during the year, a decline of 11% from 2023.

Cambridge Consulting Group has reviewed the activity level of each agency in Vermont and categorized them by volume. There are 48 reporting Ambulance agencies (65% of all EMS transporting organizations in the state) with fewer than 1,200 calls a year. Additionally, almost every First Responder agency fell below the 1,200 per year call threshold.

EMS Agencies in General

Caution is warranted regarding any EMS agency, First Responder or Ambulance, that responds to fewer than about 1,200 calls a year[1], especially those staffed by volunteers. This is due to the lack of experience individual practitioners are able to attain in organizations with such low activity levels. Too few patient encounters results in excessive and accelerated skill degradation and erosion of proficiency.

Emergency Medical Services Ambulance Agencies Category by Annual Volume				
Category 1	Category 2	Category 3	Category 4	Category 5
1-104	105-365	366 - 1,200	1,201 - 5,000	> 5,000
6	15	27	24	2

Emergency Medical Services First Responder Agencies				
Category 1	Category 2	Category 3	Category 4	Category 5
1-104	105-365	366 - 1,200	1,201 - 5,000	> 5,000
61	19	5	1	0

1 1,095 calls per year is 3 a day, while 1,200 is generally considered the least volume necessary for minimal financial viability and the threshold when use of some paid staff is possible.

Statistics

Certain critical 911 cases are sensitive to the time it takes trained medical personnel to begin treating the patient. As an example, shorter response times equate to better patient outcomes in severe trauma and cardiac arrest cases.[1] [2] The use of First Responder EMS agencies with shorter response times to augment ambulance transport services with longer response times can improve patient outcomes.[3]

CCG conducted an analysis of available Vermont SIREN ambulance response time data to assess the reliability of EMS responses. 2024 response time data was reviewed for 69 transporting ambulance services.[4] The unweighted mean of the combined agencies' average emergency call response time was 9 minutes and 19 seconds statewide.[5] For comparison purposes, the national immediate emergency call response time average in the NEMSIS database is 7.6 minutes (7:36) and the NHTSA Region One (ME, MA, NH, RI, VT) average is 5.9 minutes (5:54).

Vermont agency data was further analyzed by agency size to differentiate relationships to the mean and significant variation was noted.

Response time should be expected to be higher in rural communities with large areas and small population density. However, lengthy response times can also be indicative of delays in care for persons with potentially emergent circumstances and inadequate EMS agency coverage.

Analysis does reveal some regional differences in the state. There are districts with a higher percentage of agencies with longer response times:

- The majority of agencies in districts 1, 3, 6, and 7 have response times less than the state average
- The majority of agencies in districts 4, 5, 8, 9, 10 have response times greater than the state average
- The agencies in districts 2, 7, 11, and 12 have mixed response times

Vermont's community-based first response agencies have response times that will frequently place them at the scene faster than transporting agencies. The presence of first response agencies that are more locally based may provide faster, initial care while an ambulance is in route. This may act to ease the negative impact of longer ambulance response times. However, stakeholder interviews reveal a stressed first response system with first response agencies relying on an aging and shrinking number of volunteer responders.

During the course of this study, CCG discovered a significant discrepancy between the reported volume of some agencies through surveys and the data provided from the SIREN system. The EMSD verified this issue and following investigation identified the following agencies as showing missing data in SIREN:

AMCARE AMBULANCE SERVICE

BAKERSFIELD FIRST RESPONSE

BENNINGTON RESCUE SQUAD, INC

BURLINGTON FIRE DEPT. AMBULANCE

RESCUE INC.

SPRINGFIELD FIRE DEPT. AMBULANCE

TOWN OF STOWE - EMERGENCY MEDICAL SERVICES DEPT.

WILLISTON FIRE DEPARTMENT

While the differences were significant, the issue is now reported as resolved. Because the total missing volume is likely less than 10% of the total SIREN data, CCG believes our basic findings remain valid.

1 Stoesser CE, Boutilier JJ, Sun CLF, Brooks SC, Cheskes S, Dainty KN, Feldman M, Ko DT, Lin S, Morrison LJ, Scales DC, Chan TCY. Moderating effects of out-of-hospital cardiac arrest characteristics on the association between EMS response time and survival. Resuscitation. 2021 Dec;169:31-38. doi: 10.1016/j.resuscitation.2021.10.014. Epub 2021 Oct 19. PMID: 34678334.

2 Nasser AAH, Nederpelt C, El Hechi M, Mendoza A, Saillant N, Fagenholz P, Velmahos G, Kaafarani HMA. Every minute counts: The impact of pre-hospital response time and scene time on mortality of penetrating trauma patients. Am J Surg. 2020 Jul;220(1):240-244. doi: 10.1016/j.amjsurg.2019.11.018. Epub 2019 Nov 16. PMID: 31761299.

3 Park JH, Song KJ, Shin SD, Hong KJ. Does second EMS unit response time affect outcomes of OHCA in multi-tiered system? A nationwide observational study. Am J Emerg Med. 2021 Apr;42:161-167. doi: 10.1016/j.ajem.2020.02.018. Epub 2020 Feb 20. PMID: 32111405.

4 Data was not available for four transporting agencies and 2022 data was substituted for two agencies without 2023 data.

5 This average response time represents all EMS activity, including First Responder agencies, and all responses, including mutual aid.

The table below reflects the Chute, Response and Task times at the average and 90th percentiles for ALL EMS agencies, First Responder and Ambulance combined.

All Agencies Type of Response	EMS-911 FR & Ambulance	Mutual Aid FR & Ambulance	IFT Ambulance
Chute Time; Average	2:38	2:30	5:47
Chute; 90th	6:00	5:00	18:29
Response Time; Average	9:19	12:25	22:42
Response Time; 90th	18:00	23:00	1:08:00
Task Time; Average	52:02	53:36	2:21:02
Task Time; 90th	1:35:00	1:49:56	4:30:21
Percent of All Cases	71%	3%	18%

Chute Time is the time from dispatch to movement of the vehicle toward an assignment

Response Time is the time from dispatch to arrival of the unit at the scene

Task Time is the time from dispatch to the unit becoming available for the next assignment

Stakeholder interviews also reveal a lack of confidence in timely response when mutual aid is required as nearest neighbors often have limited capacity and when that capacity is used for mutual aid, the primary (home) territory is left uncovered.

While data on response times is not conclusive of system reliability, the difference between Vermont response times and national and regional averages is substantial. Although response time is only one measure of system performance and capacity, extended response times are indicative of a system in need of improvement.

Many other factors, such as use of EMD by PSAPs and PDAPs and inappropriate decisions by the general population to use EMS, influence individual agency performance. However, the distribution and number of EMS resources in Vermont does not currently provide for optimal system effectiveness of operation, patient care, or outcomes.

A "2024 Joint Position Statement on EMS Performance Measures Beyond Response Times"[1] by a variety of national stakeholder organizations provides an excellent set of performance considerations. An additional and important inference in this position statement is the impact of increasing call volume[2] on system performance.

The aging of Vermont's population is likely to contribute to additional increases in EMS call volume, as the elderly are the highest users of EMS services. 16.4% of EMS patients nationwide were over the age of 80 in 2023. (NEMSIS Summary of 2023).[3]

Data released by the Vermont Legislative Joint Fiscal Office[4] shows the fastest growing segment of the Vermont population is over the age of 65. The number of Vermonters aged 80 and above increased by 9.7 percent between 2020 and 2023.

1 Kupas, D. F., Zavadsky, M., Burton, B., Decker, C., Dunne, R., Dworsky, P., ... Wire, K. (2024). Joint Position Statement on EMS Performance Measures Beyond Response Times. Prehospital Emergency Care, 28(8), 1068–1069. https://doi.org/10.1080/10903127.2024.2375739

2 https://www.naemt.org/docs/default-source/advocacy-documents/positions/kupas---with-logos---joint-statement-on-ems-performance-measures-beyond-response-times---final-approved-by-named-associations-clean-4-30-24.pdf?sfvrsn=8b8cf093_1

3 https://nemsis.org/wp-content/uploads/2025/02/NEMSIS-Annual-Public-Data-Report-2023_.pdf

4 https://ljfo.vermont.gov/assets/Publications/Issue-Briefs/Issue_Brief_VT_Demographics_in_2023.pdf

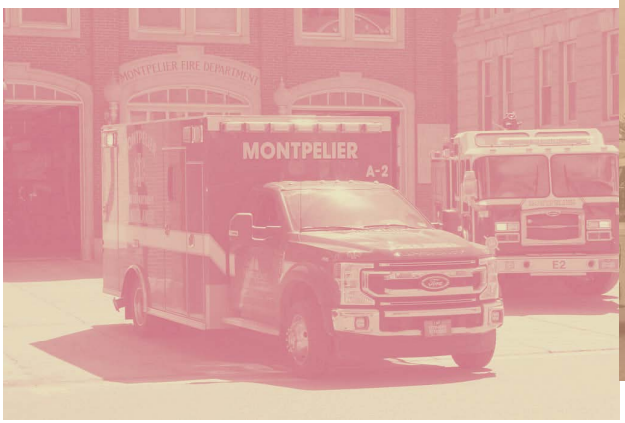
Stakeholder interviews conducted by CCG also indicated upward pressure on EMS volume due to homelessness. The Vermont Housing Finance Agency Housing Needs Assessment[1] reported that 2023 was the second year in a row in which Vermont had the second highest rate of people experiencing homelessness of all states. EMS stakeholders indicated this was most acute in communities that housed government services that were available to sheltered and unsheltered homeless individuals.

Stakeholders also mentioned the burden of substance abuse disorder on EMS operations in Vermont. Data on fatal drug overdoses in Vermont indicates a significant increase in overdose deaths in 2020 that continued through 2023.[2] Comparative CDC National Center for Health Statistics data indicates that Vermont was ranked ninth in drug overdose deaths per 100,000 total population in 2022.[3] While fatal overdoses do not directly equate to EMS responses, it is reasonable to infer that the prevalence of substance abuse disorder requiring EMS response shares a similar pattern. Data on the Vermont Substance Abuse Dashboard indicates the counties which have the highest rates of EMS calls involving naloxone administration per 10,000 residents, ie: Windham, Bennington, Rutland, Windsor, and Franklin Counties.[4]

With the workforce challenges outlined in other sections of this report, the impact of an aging population, and the prevalence of homelessness and substance abuse disorder, requests for ambulance responses are likely to continue to increase each year.

This performance discussion supports a finding that the current operational configuration and geographic distribution of ambulances in Vermont is suboptimal for peak system response and performance. Response time will grow if ambulance resources remain static and the number of ambulance requests grows. This will increase reliance on already strained mutual aid responses and dwindling First Responder tier. A lack of alternatives to ambulance transportation to the hospital emergency department such as treat-in-place, alternate destinations, and community paramedicine is also evident, leaving Vermont without these meaningful options.

Against this backdrop it is important to reiterate that the response and performance data sources currently available lack the depth to provide consistent, fully participatory, and real-time evidence-based information on response time and other operational performance metrics for all agencies.



1 Vermont Housing Needs Assessment | Agency of Commerce and Community Development

2 https://www.healthvermont.gov/sites/default/files/document/dsu-fatal-opioid-overdoses-2023.pdf

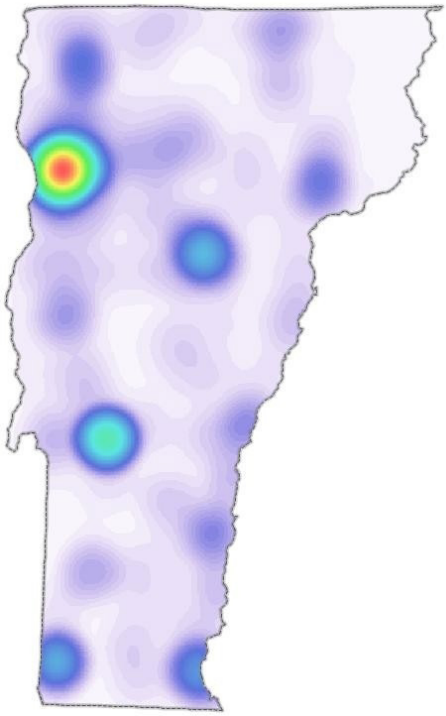
3 https://www.cdc.gov/nchs/pressroom/sosmap/drug_poisoning_mortality/drug_poisoning.htm

4 https://www.healthvermont.gov/alcohol-drugs/substance-use-data-reports/substance-use-dashboard

25 Ambulance agencies (33% of total) handled 67% of all EMS activity

Top 25 EMS Agencies by EMS Volume Response EMS Agency Name	Level	EMS Dispatches	EMS Transports
REGIONAL AMBULANCE SERVICE	Ambulance	9,266	6,161
BURLINGTON FIRE DEPT. AMBULANCE	Ambulance	7,003	5,538
BENNINGTON RESCUE SQUAD, INC	Ambulance	4,546	3,130
ESSEX RESCUE, INC.	Ambulance	3,429	1,935
SOUTH BURLINGTON FIRE DEPARTMENT	Ambulance	3,372	2,846
Golden Cross Ambulance Inc	Ambulance	3,247	2,182
SAINT MICHAEL'S COLLEGE FIRE & RESCUE, INC.	Ambulance	3,128	2,137
Amcare Ambulance Service	Ambulance	3,009	2,089
BARRE TOWN EMS	Ambulance	2,880	1,932
NEWPORT AMBULANCE SERVICE, INC.	Ambulance	2,715	1,766
CALEDONIA ESSEX AREA AMBULANCE SERVICE, INC.	Ambulance	2,557	1,594
MIDDLEBURY REGIONAL EMS	Ambulance	2,256	1,544
COLCHESTER RESCUE	Ambulance	2,062	1,291
HARTFORD FIRE DEPARTMENT	Ambulance	2,009	1,211
BARRE CITY FIRE AND AMBULANCE	Ambulance	1,997	1,392
Springfield Fire Department Ambulance	Ambulance	1,993	1,334
Rescue Inc.	Ambulance	1,787	1,214
WILLISTON FIRE DEPARTMENT	Ambulance	1,731	1,129
BRATTLEBORO FIRE DEPARTMENT	Ambulance	1,701	1,193
UPPER VALLEY AMBULANCE, INC	Ambulance	1,609	1,054
SHELBURNE - RESCUE DEPARTMENT	Ambulance	1,502	835
WHITE RIVER VALLEY AMBULANCE	Ambulance	1,468	938
RICHMOND RESCUE, INC.	Ambulance	1,448	859
MILTON RESCUE	Ambulance	1,447	961
MONTPELIER AMBULANCE SERVICE	Ambulance	1,440	934

EMS (911) Activity Heat Map; 2024

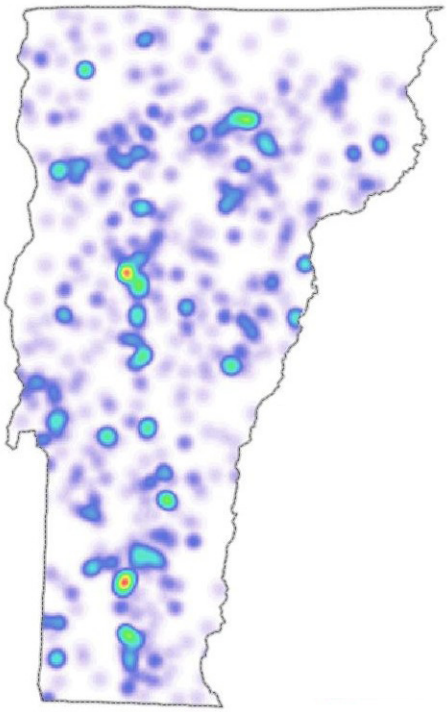


CCG plotted the locations of all 911 activity and produced a heat map indicating the concentration of volume throughout the state. In addition, the firm identified the busiest agencies in Vermont providing EMS services.

Average Daily Volume of EMS Activity by Hour of Day with Associated Average Response Time in 2024

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
HOUR	Vol	AVG RT	Vol	AVG RT	Vol	AVG RT	Vol	AVG RT	Vol	AVG RT	Vol	AVG RT	Vol	AVG RT
0	3.8	0:09:30	4.1	0:11:10	3.4	0:09:19	3.2	0:09:21	3.3	0:10:01	3.5	0:09:42	4.4	0:09:46
1	4.6	0:09:46	3.2	0:09:50	3.4	0:09:29	3.4	0:12:16	2.8	0:11:10	3.1	0:10:46	3.9	0:10:25
2	3.4	0:09:39	2.7	0:10:37	2.5	0:10:30	2.9	0:11:04	2.7	0:11:00	2.6	0:10:05	3.8	0:11:23
3	3.3	0:10:45	3.0	0:11:21	2.6	0:11:16	2.7	0:10:38	3.2	0:10:44	2.2	0:11:23	2.7	0:10:20
4	3.2	0:10:30	3.1	0:10:47	2.3	0:09:51	2.8	0:10:38	2.5	0:10:30	3.3	0:10:49	2.9	0:09:25
5	3.6	0:10:58	3.5	0:10:10	3.1	0:10:25	3.8	0:10:23	3.3	0:11:02	3.3	0:10:38	3.5	0:09:44
6	3.5	0:10:15	4.8	0:10:19	4.5	0:11:01	4.1	0:10:02	4.3	0:11:00	4.1	0:10:53	3.2	0:10:13
7	4.8	0:10:17	6.2	0:09:15	6.4	0:10:34	5.9	0:09:56	5.5	0:09:28	5.4	0:09:36	4.9	0:09:41
8	6.5	0:09:56	8.0	0:08:41	7.3	0:09:25	8.0	0:08:51	7.1	0:09:18	7.5	0:08:51	5.8	0:08:59
9	7.6	0:09:27	8.8	0:09:24	8.2	0:08:09	8.9	0:08:39	8.3	0:08:50	7.9	0:09:49	6.5	0:09:04
10	7.5	0:08:57	9.2	0:08:56	9.7	0:09:08	9.6	0:08:23	8.8	0:09:27	8.2	0:08:45	7.7	0:10:31
11	7.8	0:09:30	9.8	0:09:10	10.7	0:09:06	8.4	0:09:22	9.5	0:08:38	9.1	0:08:55	7.8	0:09:50
12	8.9	0:09:40	9.4	0:09:16	9.4	0:09:04	9.5	0:08:55	9.6	0:08:47	9.0	0:08:44	8.3	0:09:28
13	7.4	0:10:12	9.4	0:08:52	8.5	0:09:15	9.5	0:08:56	8.2	0:08:55	8.8	0:08:55	7.8	0:09:26
14	7.6	0:09:24	9.4	0:08:35	9.2	0:09:02	9.1	0:09:07	8.9	0:08:47	9.3	0:09:28	8.7	0:09:04
15	7.4	0:09:49	8.7	0:08:21	8.8	0:08:23	8.0	0:08:37	8.5	0:09:31	8.4	0:09:06	7.9	0:09:16
16	7.8	0:09:27	9.0	0:08:34	9.3	0:09:06	8.9	0:08:32	8.5	0:08:59	8.2	0:08:41	7.4	0:09:19
17	7.3	0:09:06	8.5	0:08:26	8.6	0:08:57	8.5	0:08:22	7.6	0:08:50	8.5	0:09:24	8.1	0:09:29
18	7.6	0:10:03	7.1	0:08:33	8.2	0:08:47	7.4	0:09:00	7.7	0:08:55	7.4	0:09:29	7.8	0:09:37
19	7.7	0:09:27	7.3	0:09:36	7.4	0:08:51	7.1	0:08:49	7.1	0:08:27	7.1	0:08:36	7.2	0:09:12
20	5.9	0:08:52	6.6	0:09:21	6.5	0:09:17	6.3	0:09:21	6.2	0:09:05	7.0	0:09:30	6.7	0:09:22
21	6.1	0:10:15	5.8	0:09:28	6.1	0:09:31	5.0	0:09:33	6.2	0:09:34	5.9	0:09:43	6.2	0:10:25
22	4.5	0:11:19	5.4	0:09:27	4.8	0:09:04	4.6	0:10:18	4.6	0:09:08	5.6	0:09:06	5.5	0:09:25
23	4.2	0:09:31	4.0	0:10:43	3.7	0:09:12	4.2	0:09:54	3.9	0:09:39	4.4	0:10:49	4.5	0:09:37

Over 30 Minute Response Time Heat Map; 2024



Data revealed that response times exceeded 15 minutes in 13% of all EMS dispatches and 30 minutes in 1% of cases, CCG plotted the location of these excessive responses.

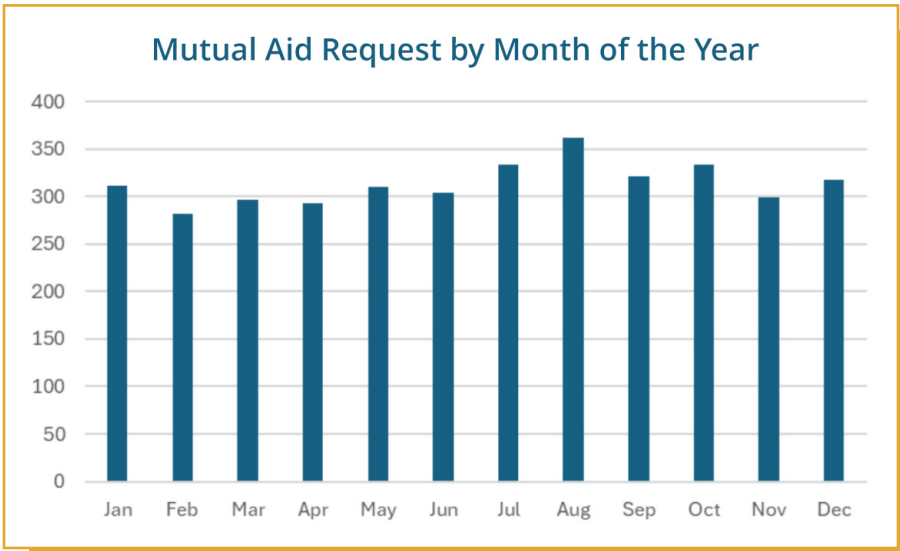
Mutual Aid

It is evident that responding to mutual aid requests makes up a significant portion of the call volume for several agencies. At present, there is no general standard nationwide or local standard regarding how much mutual aid an agency should be prepared to provide. In the absence of a mutual aid response, requests for service are unanswered or response is delayed until local resources become available.

Data analysis indicates that statewide, EMS agencies average 4.4% of their volume providing EMS ambulance mutual aid services. However, this ranges from dozens of agencies that reported responding to no mutual aid requests, to one agency reporting the majority of its responses are mutual aid.

- From the 2024 data available, 94,476 ambulance responses included 4,207 mutual aid incidents.
- 8 agencies with EMS volume greater than 500 cases per year reported 5% or more of the volume was due to providing mutual aid.
- Considering all agencies, regardless of call volume, 36 agencies reported 2% or more of their EMS volume was providing mutual aid, with 20 agencies reporting 5% or more of their total volume was providing mutual aid. The agencies with >5% had total call volume ranging from 4,452 to 56 total responses, with the mutual aid component ranging from 1,514 to 3 responses.
- 91 agencies reported fewer than 500 EMS responses per year and 63 of the 91 reported providing no mutual aid assistance.

July, August and October are the highest months for mutual aid requests.



Taken together, these findings suggest that mutual aid plays a critical role in Vermont's EMS system, particularly for mid-sized and larger agencies, while smaller, low-volume agencies are less likely to provide assistance to others. The variability in mutual aid contributions also underscores regional disparities in capacity and interdependence, which may have implications for statewide EMS planning, resource allocation, and staffing strategies.

Mutual aid is generally understood to be the cooperative sharing of resources and personnel outside of a community, usually to a neighboring community, when the receiving community's demand for resources exceeds its capacity to respond to an emergency. The federal Emergency Management Agency (FEMA) National Incident Managment System (NIMS) Guidelines for Mutual AId describes Mutual Aid in the context of prearranged agreements between parties to share resources during incidents with extraordinary demand for service.

Public expectation is that planning is done by anticipating the community demand for emergency medical service and allocating resources accordingly. When the demand exceeds the resources available, mutual aid assistance is requested. In the context of EMS, the need is often immediate, with a time sensitive component. Provided the neighboring agency has surplus capacity or a minimal demand for resources, mutual aid can be provided without detriment to the providing community. This is often not the case.

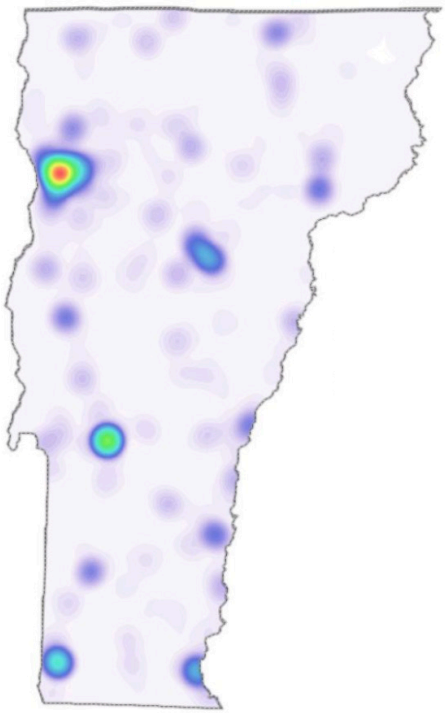
With a statewide average of 4.4% of responses being categorized as mutual aid, it is apparent from the available data that many Vermont agencies are providing mutual aid to meet ordinary service demands of surrounding areas. Put another way, some service areas are relying on the discretion and largeness of neighboring agencies, rather than addressing their service demand directly. Reciprocity of mutual aid is lacking.

Failure to address the service demand may be from lack of government support for EMS; challenges in the recruitment and retention of personnel, whether volunteer or career; or the rural nature of the service area results in low demand and a resulting low priority for providing service.

It is noteworthy that some low volume agencies (<500 EMS responses in 2023) are providing greater than 10% of their volume as mutual aid. Increasing call volume through mutual aid allows EMS providers access to more patients with the concomitant maintenance of assessment and intervention skills. In these instances, there may be some benefit, in that the providing agency is maintaining proficiency by responding beyond their service area.

The provision of mutual aid strips the resources from the sending community. Under unusual and emergent circumstances, this may be acceptable. At present, it appears mutual aid is being provided on a regular basis by several agencies.

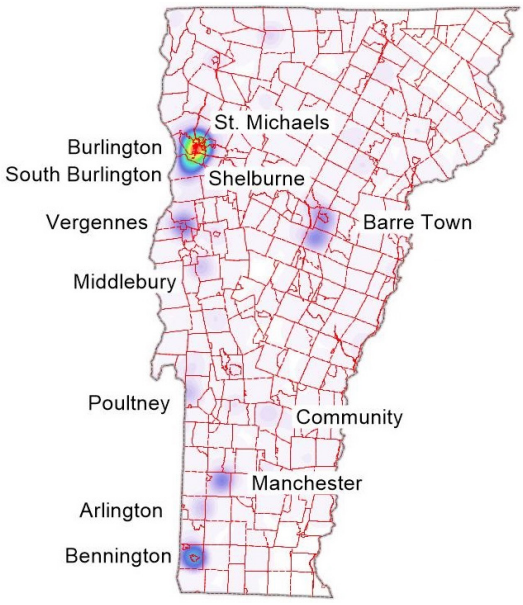
Mutual Aid Heat Map



25 Ambulance agencies (33% of the total) handled 87% of all Mutual Aid assignments.

Top 25 Agencies for Mutual Aid Provision		
University Of Vermont Rescue Squad	1,514	36%
Town Of Barre Dept. Of EMS	289	7%
Pownal Rescue Squad, Inc.	286	7%
Arlington Rescue Squad, Inc.	181	4%
Charlotte Fire And Rescue	179	4%
Fair Haven Rescue Squad	136	3%
Bristol Rescue Squad, Inc.	122	3%
Northshire Rescue Squad	99	2%
Glover Ambulance Squad, Inc.	82	2%
Middlebury Regional EMS	80	2%
Colchester Rescue	71	2%
Richford Ambulance Service	61	1%
Saint Michael's College Fire & Rescue, Inc.	58	1%
Bennington Rescue Squad, Inc	57	1%
Missisquoi Valley Rescue, Inc.	52	1%
Regional Ambulance Service	47	1%
Community Ambulance Service D/B/A Ludlow Ambulance Service	46	1%
Hanover Fire Department	45	1%
Town Of Shelburne - Rescue Department	43	1%
Vergennes Area Rescue Squad, Inc.	40	1%
Newport Ambulance Svc. - Northern EMS Div.	37	1%
Barre City Fire And Ambulance	35	1%
Brandon Area Rescue Squad, Inc.	31	1%
Chester Ambulance Service	30	1%
Whitingham First Response	28	1%
Total	3,649	87%

Agencies Receiving the Most Mutual Aid; 2024



The firm also located all mutual aid responses throughout the state. Interestingly, their concentration did not necessarily match to the density of excessive response time.

Average Daily Volume of Mutual Aid Calls by Hour of Day with Associated Average Response Times for 2024

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
HOUR	Vol	AVG RT	Vol	AVG RT	Vol	AVG RT	Vol	AVG RT	Vol	AVG RT	Vol	AVG RT	Vol	AVG RT
0	0.0	0:13:52	0.0	0:12:40	0.0	0:14:10	0.0	0:16:40	0.0	0:29:20	0.0	0:14:30	0.0	0:12:00
1	0.2	0:16:30	0.1	0:17:40	0.1	0:25:00	0.1	0:10:00	0.1	0:08:20	0.2	0:12:00	0.3	0:12:23
2	0.4	0:19:00	0.4	0:15:09	0.2	0:13:00	0.1	0:14:00	0.1	0:10:00	0.2	0:10:20	0.5	0:11:37
3	0.6	0:13:20	0.4	0:22:30	0.4	0:10:15	0.3	0:17:40	0.1	0:11:00	0.3	0:14:00	0.2	0:10:00
4	0.5	0:15:00	0.6	0:14:24	0.6	0:15:00	0.9	0:17:17	0.6	0:15:36	1.0	0:12:30	0.5	0:09:00
5	0.9	0:16:00	0.9	0:12:00	0.5	0:10:00	0.2	0:19:00	0.3	0:07:30	0.8	0:18:00	0.5	0:14:20
6	0.8	0:14:45	1.3	0:22:00	0.6	0:11:40	1.3	0:13:00	0.8	0:09:30	0.4	0:08:30	0.6	0:18:20
7	1.3	0:17:50	1.5	0:14:17	2.8	0:14:51	2.0	0:13:33	2.0	0:15:20	1.3	0:10:00	2.2	0:13:42
8	3.0	0:17:10	2.5	0:13:00	3.0	0:16:40	3.0	0:13:55	3.3	0:14:09	4.5	0:12:53	2.3	0:11:20
9	3.4	0:12:10	4.5	0:10:00	6.8	0:10:40	5.1	0:11:30	4.5	0:13:19	3.4	0:12:30	2.8	0:11:48
10	3.1	0:15:12	5.0	0:10:56	4.4	0:11:09	7.5	0:12:20	7.2	0:15:34	6.6	0:10:11	4.7	0:10:28
11	2.4	0:10:17	6.2	0:11:03	5.8	0:10:39	8.3	0:12:43	4.8	0:10:21	6.9	0:11:18	8.9	0:13:07
12	7.9	0:15:31	5.6	0:08:32	5.3	0:13:13	7.5	0:12:27	8.3	0:09:35	4.9	0:13:14	7.1	0:14:57
13	4.5	0:15:05	6.1	0:07:44	7.7	0:11:13	9.8	0:11:27	8.1	0:12:09	9.8	0:10:40	3.3	0:30:30
14	5.3	0:11:05	8.3	0:11:57	7.9	0:15:13	3.9	0:10:13	4.4	0:10:24	3.1	0:08:17	3.9	0:08:27
15	7.5	0:10:04	4.7	0:11:48	7.5	0:15:56	7.0	0:15:52	6.6	0:12:51	7.5	0:14:15	5.6	0:12:25
16	6.5	0:11:32	7.5	0:09:16	4.5	0:09:27	7.5	0:10:40	9.5	0:13:22	8.0	0:15:45	7.5	0:13:52
17	5.8	0:11:33	9.6	0:13:40	7.4	0:11:26	8.0	0:11:56	6.4	0:12:00	7.4	0:11:47	6.4	0:10:50
18	3.4	0:22:40	8.4	0:13:04	10.1	0:08:27	6.2	0:13:22	6.8	0:15:35	10.7	0:10:41	8.4	0:09:56
19	8.3	0:13:30	10.7	0:10:57	9.5	0:13:41	7.7	0:12:18	7.7	0:11:00	9.5	0:13:49	6.5	0:14:11
20	11.3	0:11:50	5.0	0:10:38	7.5	0:19:55	6.3	0:15:12	10.0	0:12:41	8.8	0:14:30	7.5	0:10:35
21	6.6	0:19:24	4.6	0:09:26	5.3	0:13:22	3.3	0:13:12	3.3	0:16:24	9.2	0:18:04	7.2	0:13:38
22	6.2	0:16:07	4.8	0:10:34	4.8	0:29:34	6.2	0:14:27	4.1	0:15:30	6.2	0:11:13	3.4	0:11:00
23	2.2	0:07:40	2.9	0:20:30	6.5	0:17:13	5.0	0:15:51	2.2	0:20:40	7.2	0:15:36	6.5	0:15:27

EMS Delivery Findings

3. EMS Calls for Service & Agency Volume

3.1 Vermont has around 165 EMS agencies, with approximately 3,000 licensed EMS practitioners and over 400 certified Emergency First Responders.

3.2 Call volume varies greatly by region, influenced by geography, population density, and agency structure.

3.3 Low call volumes in some areas challenge the sustainability of volunteer-driven services.

3.4 Vermont is pursuing strategies to expand training, explore new EMS delivery models, and improve volunteer and staff recruitment.

3.5 Anatomy of an EMS Call

3.5(a) EMS response begins with a request for help, typically via 911, but also includes self-transport and other methods of system entry.

3.5(b) A standardized call handling and dispatch process reduces errors and ensures correct unit deployment.

3.6 Call Answering and Dispatch Process

3.6(a) Calls go to Public Safety Answering Points (PSAPs), which screen and triage requests before dispatch or transferring to Public Dispatch Answering Points (PDAPs).

3.6(b) PSAPs are staffed by trained Basic Telecommunicators, and PDAPs may handle multiple services (police, fire, EMS) and include Emergency Medical Dispatchers (EMDs).

3.7 Dispatch Systems and Standards

3.7(a) The Medical Priority Dispatch System (MPDS) assigns response priority (Alpha to Echo), optimizing resource use and safety.

3.7(b) Accredited dispatch centers (ACE) ensure high-performing, protocol-driven emergency communications.

3.8 Deployment Models

3.8(a) Static deployment (used by 91% of Vermont EMS agencies) is less effective than dynamic deployment in high volume regions..

3.8(b) Dynamic deployment, more common in high-performance systems, repositions units throughout shifts based on demand.

3.8(c) System Status Management (SSM) uses historical data and CAD to predict demand and guide deployment.

3.9 Technology Use

3.9(a) GPS/AVL (location tracking) and MDCs (in-vehicle computers) are underutilized in Vermont, limiting dispatch accuracy and efficiency.

3.9(b) MDCs can streamline dispatch communication and status updates, reducing dispatcher workload.

3.10 Response Times

3.10(a) Vermont's average EMS response time (10:36) is significantly higher than national and regional averages.

3.10(b) Nearly half of ambulance agencies perform better than the statewide average; response times are longer in less populated or under-resourced areas.

3.10(c) Long response times raise concerns about care delays, particularly in emergencies.

3.11 Dispatch System Fragmentation

3.11(a) Vermont has 6 in-state and three out-of-state PSAPs, plus over 30 PDAPs with varying standards, qualifications, and protocols.

3.11(b) This fragmentation complicates response consistency and performance.

3.11(c) Some dispatching is conducted from small departments or even private homes.

3.11(d) Average call transfer time from PSAP to PDAP is over 1.5 minutes, adding to overall response delay.

3.12 EMS Dispatch Survey Results

3.12(a) 85% of agencies report dispatching on a first-come, first-served basis, rather than using medical priority.

3.12(b) 91% use static deployment; only 1% use dynamic models.

3.12(c) 63% receive no reports from dispatch; only 1% have CAD access.

3.12(d) 79% pay another entity for dispatch services.

3.13 EMS Workforce and Coverage

3.13(a) Vermont EMS includes 90 First Responder agencies and 75 Ambulance agencies; the majority are low-volume and volunteer-based.

3.13(b) Over 65% of ambulance agencies handle fewer than 1,200 calls annually, posing risk for skill degradation.

3.13(c) All regions are covered by at least one ambulance agency licensed at AEMT level or higher.

3.14 Interfacility Transport & Mutual Aid

3.14(a) 25 agencies handle 87% of all mutual aid responses and 97% of interfacility transports.

3.14(b) Agencies performing the most transports tend to have higher volumes and broader service areas.

3.15 Ambulance Deserts

3.15(a) All 14 Vermont counties contain "ambulance deserts"—areas more than 25 minutes from EMS coverage—affecting 6.4% of the population.

3.15(b) Local First Responder agencies may mitigate delays, but they face volunteer shortages and aging workforces.

3.16 First Responder Performance

3.16(a) First responders often arrive before ambulances and can deliver early life-saving care.

3.16(b) However, the system is strained by low volunteer numbers and long response times in some regions.

3.17 Demographic and Social Impact on EMS Demand

3.17(a) Vermont's aging population (especially those over 80) and high rates of homelessness are increasing EMS demand.

3.17(b) Substance abuse disorder significantly impacts EMS response, with some counties seeing high naloxone usage.

3.18 Performance and System Reform

3.18(a) Vermont's EMS system is not performing at peak performance as evidenced by long response times, low call volume agencies, and static deployment models.

3.18(b) There is limited use of alternative care options (e.g., treat-in-place or community paramedicine).

3.18(c) Available data is insufficient for real-time system wide evaluation; improved data collection and performance measurement is needed.

Financial Landscape

This section will provide an analysis of the financial structure and sustainability of EMS across Vermont, with a focus on both first response and ambulance agencies. The firm examined and compared revenue and expenditure data from the EMS agencies for which information was provided and include a review of funding sources. This included federal, state, and municipal appropriations, revenue generated from contracts for EMS services, and other local or regional funding streams. Additionally, Cambridge Consulting Group evaluated current and projected budget documents available for review.

The analysis also explored cost efficiency by assessing the cost per case for small agencies versus larger agencies, providing insights into economies of scale and operational efficiency. Individual agency's financial status was examined through detailed reports. Agency specific finds are presented in the Appendix.

Lastly, the firm conducted a comparative review of agency size and activity volume distinguishing between agencies that rely primarily on paid staff and those that operate with volunteer personnel, to identify differences in financial needs, service delivery capacity, and long-term sustainability.

Methodology

To deliver this financial analysis, CCG conducted general research into state-wide funding of EMS and health care in Vermont, analyzing the previous five years of appropriations to public safety agencies, Medicaid and Medicare data, and health care spending generally. CCG also reviewed the Oliver Wyman Act 167 Community engagement: Recommendations report on Vermont hospitals.

In addition, CCG asked all of the Vermont EMS agencies to respond to a set of financial surveys for fiscal years (FY) 2023 through 2025 (the survey results are shown in the Appendix). The survey questions asked the agencies to report annual expenses and revenues by different categories.

In response to the requests for surveys, CCG received the following:

- 46 surveys for FY 23 (27% of EMS agencies)
- 46 surveys for FY 24 (27% of EMS agencies)
- 44 surveys for FY 25 (26% of EMS agencies)

Seven agencies submitted Medicare Ground Ambulance Data Collection System reports in lieu of survey submissions. One agency submitted profit and loss and balance sheet reports in lieu of survey submissions.

For those agencies that did not submit any reports, CCG conducted independent research of public records to obtain Internal Revenue Service Forms 990, Return of Organization Exempt from Income Tax, and Forms 990-EZ, Short Forms Return of Organization Exempt from Income Tax, for the nonprofit EMS agencies. From this research, CCG obtained:

- 15 reports for FY 21 (9% of EMS agencies)
- 30 reports for FY 22 (18% of EMS agencies)
- 20 reports for FY 23 (12% of EMS agencies)

CCG used the raw data from each of the survey and report submissions, as well as from the IRS forms obtained from its research, which were placed into a working spreadsheet. CCG then combined reported expenditures and revenues into totals and calculated each agency's net revenue by year.

CCG also received a customized report from the Green Mountain Care Board containing Medicaid, Medicare, and some health insurance company claims data for Vermont EMS agencies. According to that report, 85 of Vermont's 160+ EMS agencies filed 113,790 total claims and received a total of $28,616,315 in payments.

Data Limitations

In all, Cambridge Consulting Group attained fiscal information on nearly half of all EMS agencies in the state. Three important data limitations should be noted. First, it is not possible to make direct comparisons while analyzing the CCG individual surveys with the data from other sources. For example, the IRS 990 includes lines for financial elements that combine several data points that the CCG survey tool lists separately. As an example, the survey tool requested salary and benefits expenditures in separate categories, while the IRS 990 combines them into one line. Similarly, for revenue, the survey tool requested separate accounting of revenue from billing, direct subsidies, and from fundraising and donations, while the IRS 990 lists "program service revenue," "investment income," and "contributions and grants." which are more vague and introduce ambiguity. There are similar differences between the survey tool and the Medicare Ground Ambulance Data Collection System reports.

To address these differences, the firm recategorized reported financial elements to align into standardized categories. For instance, data from the Medicare Ground Ambulance Data Collection System reports is summarized and entered according to the IRS 990 and 990EZ categories.

Second, Vermont EMS agencies do not share a common fiscal year, so the time periods that are compared between fiscal years are not necessarily consistent. However, they all represent 12 consecutive months.

Third, there were inconsistent numbers of submissions or reports across fiscal years. The available IRS 990 and 990EZ ended with FY 2023, while the CCG surveys requested data through FY 2025. Thus, each year includes different amounts of information for each EMS agency. While somewhat challenging to ascertain clear trends at the level of specific expenditure and revenue categories, it was possible to do so at an aggregate level.

EMS is an Essential Service

Vermont has made great strides in identifying the importance of financing a high quality EMS system within the last two years. In June 2024, the General Assembly passed, and the Governor signed, legislation that declared that "*[e]mergency medical services provided by an ambulance service are essential services*" and "*the provision of medical assistance in an emergency is a matter of vital concern affecting the health, safety, and welfare of the public.*" The legislation further states that it "*is the policy of the State of Vermont that all persons who suffer sudden and unexpected illness or injury should have access to the emergency medical services system in order to prevent loss of life or the aggravation of the illness or injury, and to alleviate suffering.*" It also created an EMS Special Fund administered by the Commissioner of Health and allocated $450,000 to it to support EMS training, and also appropriated $370,000 to the EMS Advisory Committee for a study evaluating Vermont's EMS system. Unfortunately, the law lacks prescriptive language that would mandate state, county and/or local action.

Prior to this development, the state did not regularly appropriate funding for EMS. In contrast, it provided regular funding for police, fire services, and emergency management. The Vermont Five-year Appropriates summary, shows a 247% increase in emergency management funding during the last five years (likely due to the COVID-19 pandemic), and a 13.4% increase in fire services funding during the same time period. It also shows the state's recent investment in EMS. The state has appropriated $150,000 to support EMS education and training, data collection and analysis, and other activities related to the provision of ambulance services since 2012. Starting in FY26, the state appropriation increased to $450,000. (https://legislature.vermont.gov/statutes/section/18/017/00908)

While it is true that Vermont fire departments also rely on diverse streams of town/city funding, just as EMS agencies do, the state has provided a reliable stream of funding for fire service training and equipment but not, historically, for EMS. Through its financial analysis and interviews with EMS stakeholders, CCG found that the absence of a similar state funding source for EMS agencies clearly impacts those organizations in the areas of training, education, data analysis, licensing, and medical direction. Vermont's recent policy and budget actions supporting resources for EMS will make a difference in EMS system performance and patient outcomes if it continues on a regular basis into the future.

Independent of this recent progress, Vermont towns and cities have been expected to essentially self-fund EMS, which has resulted in a patchwork of funding mechanisms that include varying levels of town appropriations/subsidies, donations and fundraising, federal Medicaid and Medicare reimbursement, ambulance billing, interfacility transport fees, and grant funding. As would be expected, EMS agencies in the state have varying levels of success with each of these revenue strategies.

Data Reporting

Part of CCG's directive was to collect Vermont EMS financial data that, until now, has not been collected by the state in a detailed or systematic manner. The process of doing so was instructive about the state of EMS financing in Vermont.

Currently, the only mandatory financial reporting that is in place for Vermont EMS agencies at the federal level is IRS forms 990s and 990EZs for nonprofit agencies, and Medicaid and Medicare reporting for agencies that seek federal reimbursement for the provision of EMS, and at the state level the Medicaid Provider Tax report. Indeed, despite the EMS Act's language requiring the EMS Advisory Council to collect data on "current total spending on emergency medical services in Vermont, with itemized information for each emergency medical service regarding all applicable federal, State, and municipal appropriations and revenue sources," the highest participation rate for the CCG surveys was 23% for FY 2024. Absent a state mandate paired with administrative and technical support, it is unlikely all EMS agencies will be capable of providing this information.

The survey completion rate, while higher than any previous attempt and a positive step forward, may be a reflection of a very low level of funding EMS agencies have for administrative tasks, which reverberates across agencies' ability to have functioning billing operations, apply for federal reimbursement and grants, and to demonstrate their funding needs in a data-based way. As noted in the Vermont Regional Emergency Medical Services Coordination Study 2024 Report to the Legislature, "*[t]echnical assistance addressing business management, planning, leadership, and communication to EMS service leaders is needed to build a coalition of understanding across the system.*"

Extrapolating from reported reimbursement claims data for 2023 provide to Cambridge Consulting Group by the Green Mountain Care Board revealed total estimated payments to Vermont EMS agencies transporting patients in state for the year was $29.4 Million. This included Medicare, Medicaid and about 60% of all insurance companies. Out-of-pocket amounts paid by patients for co-pays, deductibles, or self-pay, was not included in this reporting. Those patient-pay portions were likely to have amounted to an additional $3.6 Million. Therefore, according to the GMCB report, of the $91Million in estimated annual revenue experienced by all Vermont EMS organizations in aggregate, about 32% was from fee-for-service billing.

However, this does not comport with data gleaned from the state's Medicaid Provider Tax (MPT) report for state fiscal year (SFY) 2025. The MPT report revealed a total of $43.1Million in total patient billing revenue was received by the state's EMS agencies. This by definition includes direct, out-of-pocket reimbursement from self-pay patients which the GMCB report did not include, but, like the GMCB report, it excluded revenue associated with ambulance transportation of patients to out-of-state healthcare facilities. Also similar to the GMCB report, the MPT report excluded any other sources of revenue, like municipal tax subsidies, donations, grants, etc.

By compiling the information provided by the agencies that did complete Cambridge Consulting Group's fiscal surveys, with IRS and CMS reports, and the GMCB and MPT reports, then adjusting that data to account for known missing information like out-of-state transports, the firm was able to calculate reasonably reliable projections for both revenue and expenses for each EMS agency in Vermont.

For the year 2024, the firm estimates the total cost for EMS and IFT services in the state was approximately $96 Million, with revenue of about $88 Million, resulting in operating losses of $8 Million.

Additional revenue is probably attainable for some EMS agencies in Vermont. Cambridge Consulting Group found that several transporting ambulance organizations in the state do not bill Medicare, Medicaid, or insurance companies for their services. Only 51% of the state’s EMS services filed claims in 2023. While an agency can not bill Medicare if they do not provide transportation, Medicaid (in Vermont) and insurance carriers can be billed.

The legislature’s action in 2023 to increase the Medicaid reimbursement rate for ambulance transportation to 100% of the Medicare reimbursement rate, as well as its decision to allow Medicaid reimbursement for emergency medical care that does not result in transport, is a positive step that Vermont’s EMS agencies should take advantage of. In addition, ambulance services near designated Critical Access Hospitals (CAH), may be able to pursue “cost-based” reimbursement from Medicare, through affiliation with those particular hospitals.

1. Estimates were made for non-reporting insurance companies by extrapolating the data that was available. Approximately 40% of insurance companies in Vermont do not report claims data to the Green Mountain Care Board.

Financial Landscape Findings

EMS Underfunded Compared to Other Public Safety Disciplines

4.1 EMS is formally recognized as an essential service in Vermont but does not receive funding on par with fire, police, or emergency management services.

4.2 Over a five-year period, emergency management funding increased by 247%, likely due to COVID-19, and fire services funding increased by 13.4%.

4.3 No comparable increase in funding was provided to EMS agencies during the same timeframe, highlighting a disparity in state support.

4.4 Inadequate and Fragmented Revenue Sources

4.4(a) EMS agencies rely on a patchwork of revenue streams: modest local tax support, billing (Medicare/Medicaid & health insurance), donations, transport fees, and occasional grants.

4.4(b) This model leads to uneven funding across agencies, with no consistent or centralized state-level support comparable to what is provided for police & fire services.

4.4(c) The lack of state funding support particularly affects training, education, licensing, data collection, and medical direction functions.

4.5 Limited Financial Oversight and Reporting

4.5(a) Vermont lacks mandatory, systematic state-level financial reporting for EMS agencies.

4.5(b) Reporting is limited to: IRS Form 990s for nonprofits; Medicare cost reporting for reimbursement

4.5(c) Despite legislative efforts, response rates to fiscal data collection requests remained low.

4.5(d) The lack of administrative capacity in many agencies prevents accurate reporting, grant applications, and billing, further weakening financial transparency and sustainability.

4.6 Evidence of Recurring Deficits and Financial Instability

4.6(A) In FY 2023, 50 non-governmental EMS agencies submitted financial data; 22 reported negative net incomes, with deficits ranging up to –$3.5 million.

4.6(b) For FY 2021, 4 of 21 reporting agencies had deficits; in FY 2022, 15 of 42 agencies had deficits.

4.6(c) The aggregate net income in FY 2022 was estimated at a negative: –$8 million

4.6(d) Despite negative net incomes, most agencies report positive net assets or endowments, allowing continued operations despite deficits in the short term.

4.7 Disparity Among EMS Agencies

4.7(a) There is significant variation in financial health across Vermont EMS agencies, largely due to: size of the agency, staffing model (volunteer vs. paid), and governance structure (nonprofit, for-profit, municipal)

4.7(b) Total expenses for FY 2023 ranged from $2,000 to nearly $9 million; gross revenues ranged from $0 to $5.3 million, showing broad financial diversity.

4.7(c) Smaller and volunteer-dependent agencies are disproportionately affected by financial stress.

4.8 Implications

4.8(a) The findings suggest structural vulnerabilities in Vermont's EMS funding and sustainability.

4.8(b) Vermont's system presents a lack of resource pooling, consolidation, or regional collaboration that could help address disparities and improve system-wide resilience.

4.8(c) The system lacks standardized and recurring financial reporting to ensure transparency, accountability, and informed funding decision.

4.9 Fiscal Stability Comparative Analysis*

**Because significant amounts of activity have been identified as missing from the SIREN data base, any financial calculations using volume as a denominator, numerator, or multiplier, are knowingly inaccurate.*

4.9(a) Small agencies showed the highest level of fiscal stability based on their very low level of operating costs which resulted from the use of volunteers instead of paid practitioners. This was an expected finding.

4.9(b) Governmental Fire and EMS agencies had the highest levels of fiscal marginality (break-even) since their budgets are fully funded through tax supplements to billing revenue and are not structured to generate net incomes. This was an expected finding.

4.9(c) Oddly, medium sized agencies showed the lowest cost per dispatch and transport for EMS activity. This is counter intuitive and contrary to expectations as well as the national experience. Usually, the larger the entity and the higher its activity volume, the lower the cost per call or transport. Cambridge Consulting Group suspects that the under reporting of volume in the SIREN data base contributed to this anomaly. It is most likely that the large EMS agencies had the lowest cost per dispatch and transport.

Interfacility Transfers

Procuring ambulances for the provision of inter-facility medical transportation (IFTs) is an area of severe strain in the Vermont EMS system. In the context of EMS, interfacility transports refer to the movement of patients between two or more healthcare facilities, often using ground or air ambulances, to ensure patients receive specialized care that their current facility cannot provide.

There is no statewide, centralized patient transport/transfer processing mechanism. Each healthcare facility is responsible for arranging the medical transport of its patients when needed. The only providers of IFT service in the state are the licensed EMS ambulance agencies. There are no commercial ambulance companies in Vermont dedicated exclusively to interfacility transport (IFT); however, four agencies primarily provide IFT services and do not have an assigned primary EMS response zone. For EMS agencies with limited resources and overall capacity, this leads to the inevitable prioritization of EMS activity over IFT demand, resulting in less than adequate service for healthcare facility medical transportation.

There is also a substantial deficiency in the data elements associated with IFT collected and maintained by either hospitals or transporting agencies. For instance, there is no data point captured for the “original requested pick-up time” or “transport ordered time” for IFT incidents. Thus, it is not possible to empirically identify how long healthcare facilities must actually wait for the transport of patients.

Even with this lack of some information, data shows EMS agencies were still delayed beyond the arranged pick-up time by between 30 minutes and an hour for the majority of transport requests.

Although there is no statewide collection of detailed data on IFTs, or the delays in the provision of this service, in CCG’s interviews with the EMS leadership and hospital representatives, it was clear that the system of procuring IFTs was mostly inadequate. Most hospital physicians were easily able to describe delays in these transfers leading to increased clinical risk for patients and additional burden on the EMS system.

The data provided to Cambridge Consulting Group revealed that IFT activity has decreased between 2023 and 2024. As mentioned earlier, not all agencies were utilizing the SIREN database prior to 2023, so the volume numbers reported during those years are artificially low and can not be used for trending analysis. In addition, what types of calls are classified as IFT, can be confusing and problematic. For instance, one descriptor used in the Vermont ePCR system for Type of Call is “Medical Transport”. Depending on the ambulance agency and individual practitioner completing the record, that could mean the transfer of a patient from one hospital to another (a classic IFT) or it might be taking a patient to a doctor’s appointment (not an IFT for the purposes of this study or for assessing the impact of IFTs on EMS in the state).

To mitigate this problem as much as possible, Cambridge Consulting Group used the same “type of call” descriptors definitions for IFT for all data analysis, across all agencies and all years.

As noted, this data repository did not include accurate information about the delay between the healthcare facilities’ request for IFT service and when the EMS agency was actually able to provide it.

Interfacility transfers have strained EMS nationally for many years and the National Highway and Traffic Safety Administration (NITSA) published its Guide for Interfacility Patient Transfer in 2002. https://www.ems.gov/assets/Interfacility_Transfers.pdf

In 2022, the American College of Emergency Physicians issued its position paper on Appropriate Interfacility Patient Transfer. https://www.acep.org/siteassets/new-pdfs/policy-statements/appropriate-interfacility-patient-transfer.pdf

Both of these documents cover the clinical and legal framework for such transfers but do not address a situation in which there is an inadequate delay in the provision of such transfers.

Quantitative estimates

The state of Vermont has no registry or collection point for IFT data specifically, other than the ePCR records warehouse SIREN. In addition, most of the state's hospitals do not routinely collect information about patient transfers. But Cameron Zagursky, NRAEMT, CFC, the Emergency Communications Center Supervisor at the University of Vermont Medical Center was able to provide information regarding IFTs from UVMMC for 2024.

In that year, there were 667 interfacility transports for UVMMC, 748 from Porter Medical Center, and 1,907 Case Management Transports from UVMMC. The "case management" transports are those that are leaving University of Vermont Medical Center and being transferred to skilled nursing facilities, memory care, rehab facilities, psychiatric facilities, private residences, etc., and were typically transported by BLS ambulance crews due to the need for nominal medical supervision, additional support, or other non-advanced medical care.

The UVMMC data set also does not include the time of the initial request for an IFT or the arrival of this transport vehicle, so no quantitative analysis of IFT delays in Vermont is possible.

The origin of IFT cases are distributed in clusters around the state, usually associated with either acute care hospitals, hospital emergency departments, or other healthcare facilities such as skilled nursing facilities or rehabilitation hospitals. The temporal distribution of IFTs shows concentration between 7:00 AM and 8:00 PM every day of the week.

Qualitative descriptions

CCG's in-depth conversations with Emergency Medicine and EMS leaders across Vermont provided a clear and consistent qualitative picture of the challenges posed by the current IFT system. The system is widely viewed as under-resourced, inconsistently available, and burdened by fragmented coordination, staffing shortages, and logistical inefficiencies. As a result, critically ill patients are often left boarding in emergency departments for extended periods, delaying necessary care. Stakeholders statewide emphasized the urgent need for a more centralized, coordinated, and adequately funded IFT system supported by improved data sharing, surge planning, and strengthened interagency communication.

Stakeholder interviews identified interfacility transfers (IFTs) as a key and increasing challenge within Vermont's emergency care system. IFTs were identified as the second most pressing problem facing EDs throughout the state and played a significant role in increased patient boarding and overall system inefficiencies.

One of the most pressing issues is a lack of IFT availability after 5:00 PM, which creates something of a bottleneck effect. Patients stay boarded in EDs overnight, resulting in predictable morning surges that swamp staff and delay care. Hospitals describe a daily "mad scramble" to secure transport resources during the mornings that only adds to their patient throughput challenges.

Another factor driving a decline in local EMS capacity to meet IFT demand is the persistent, low compensation and uncertain reimbursement mechanisms that impact hiring and retention. Administrative obstacles, including prior authorizations—which are challenging to get and often lead to delays—also limit transfer capacity. Often, EDs are compelled to deploy hospital-based clinicians, including nurses or respiratory therapists, to accompany critical transports, siphoning key personnel from in-house patient care.

As a result, the needs of patients with urgency or time-sensitive conditions are severely postponed. Stakeholders reported multiple case examples in which patients languished in EDs for 12 to 48 hours waiting for transport availability. In some cases, the patient could not be taken to the closest or most appropriate facility, either because the receiving hospital was at capacity or because of financial restrictions that required payment upfront for transfers to non-closest hospitals.

Air medical transport, frequently the last remaining alternative for expeditious transfers, is equally inconsistent—unavailable about 60 percent of the time, usually because of weather.

Also, hospitals reporting high-to-moderate IFT costs are spending significant amounts of money to cover for IFT limitations; some hospitals stated that annual costs to be able to transfer patients to and from their facility for evening and overnight coverage were between $150,000–$250,000. This financial cost is compounded by the operational impact placed on both hospital and EMS staff, as inter-facility transports routinely pull clinical staff away from emergency response and in-house care.

The other key barrier is the absence of centralized coordination. ED clinicians frequently must reach out to five or six facilities manually to find one willing to accept a patient. In many environments, the same doctor or nurse who is already managing patient care is responsible for coordination in both the receiving facility and the transport, which creates an additional layer of stress on top of the delayed treatment. Many stakeholders reported robust support for developing a centralized coordination model (e.g. a Medical Operations Coordination Center [MOCC]) to offer real-time assistance in locating open beds and coordinating transfers.

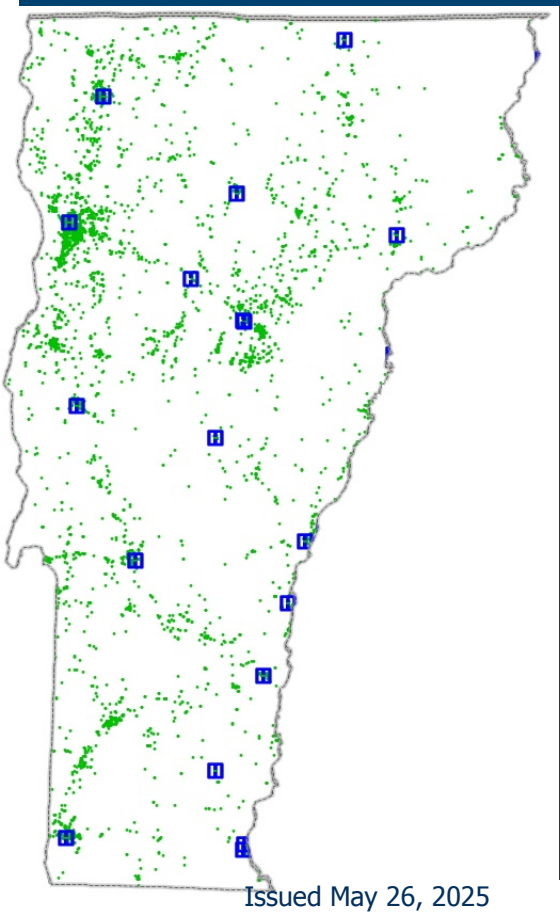
Lastly, stakeholders involved reported a number of inefficiencies and disruptions that similarly recurred: last-minute transfer requests, unready patients or paperwork when EMS arrived on scene, emergency calls interrupting transfers, and misalignments between EMS crew capabilities and patient needs. These problems point to a jumbled, incoherent system. A few agencies even developed self-sustained IFT programs that could financially operate, but these are not scalable or widely available across the state, ultimately resulting in inequity in service access.

Together, these findings reveal a system that is under such strain that structural, operational, and financial changes are vital for the statewide provision of interfacility transport services that are timely, equitable, and coordinated across facilities.

Of the state's 75 licensed ambulance agencies, 33% provided 97% of all IFT service

Response EMS Agency Name	Level	IFT Vol
Amcare Ambulance Service	Ambulance	5,103
LAMOILLE AMBULANCE SERVICE	Ambulance	3,402
Rescue Inc.	Ambulance	1,902
REGIONAL AMBULANCE SERVICE	Ambulance	1,780
BARRE TOWN EMS	Ambulance	1,775
MIDDLEBURY REGIONAL EMS	Ambulance	1,212
BENNINGTON RESCUE SQUAD, INC	Ambulance	757
NEWPORT AMBULANCE SVC. - NORTHERN EMS DIV.	Ambulance	700
ORLEANS EMERGENCY UNIT, INC.	Ambulance	695
NEWPORT AMBULANCE SERVICE, INC.	Ambulance	684
CALEDONIA ESSEX AREA AMBULANCE SERVICE, INC.	Ambulance	675
Golden Cross Ambulance Inc	Ambulance	658
UVM HealthNet Ground	Ambulance	607
UPPER VALLEY AMBULANCE, INC	Ambulance	516
WINDSOR AMBULANCE SERVICE	Ambulance	511
Springfield Fire Department Ambulance	Ambulance	342
BRISTOL RESCUE SQUAD, INC.	Ambulance	294
MISSISQUOI VALLEY RESCUE, INC.	Ambulance	291
WHITE RIVER VALLEY AMBULANCE	Ambulance	259
FAIR HAVEN RESCUE SQUAD	Ambulance	235
LYNDON RESCUE, INC.	Ambulance	207
UNIVERSITY OF VERMONT RESCUE SQUAD	Ambulance	131
POWNAL RESCUE SQUAD, INC.	Ambulance	117
Dartmouth Hitchcock Advanced Response-GRND	Ambulance	113
ENOSBURGH AMBULANCE SERVICE	Ambulance	110

IFT Origination Activity



Average Daily IFT Volume by Hour of Day in 2024

HOUR	Sun	Mon	Tue	Wed	Thu	Fri	Sat
0	6.2	6.6	5.5	5.2	5.3	5.7	7.2
1	7.4	5.2	5.5	5.6	4.6	5.0	6.4
2	5.6	4.3	4.0	4.8	4.4	4.2	6.2
3	5.4	4.9	4.3	4.3	5.1	3.6	4.4
4	5.2	5.0	3.8	4.5	4.1	5.3	4.8
5	5.9	5.7	5.1	6.1	5.3	5.3	5.7
6	5.6	7.7	7.3	6.7	7.0	6.6	5.3
7	7.8	10.1	10.4	9.5	9.0	8.8	8.0
8	10.5	13.1	11.8	13.1	11.6	12.2	9.3
9	12.3	14.3	13.3	14.4	13.4	12.8	10.5
10	12.2	14.9	15.8	15.6	14.4	13.3	12.5
11	12.7	15.8	17.3	13.7	15.5	14.8	12.7
12	14.5	15.3	15.3	15.4	15.5	14.7	13.4
13	12.1	15.3	13.8	15.5	13.3	14.3	12.8
14	12.3	15.3	14.9	14.7	14.4	15.2	14.1
15	12.1	14.2	14.3	13.1	13.8	13.6	12.8
16	12.7	14.7	15.1	14.5	13.8	13.4	12.1
17	11.8	13.8	14.0	13.8	12.4	13.8	13.2
18	12.4	11.5	13.3	12.1	12.4	12.1	12.6
19	12.6	11.9	12.0	11.6	11.5	11.6	11.8
20	9.6	10.8	10.6	10.2	10.1	11.4	10.8
21	9.8	9.5	9.9	8.1	10.0	9.7	10.1
22	7.3	8.7	7.9	7.5	7.4	9.2	8.9
23	6.9	6.5	5.9	6.8	6.3	7.1	7.3

Interfacility Transfers Findings

Interfacility Transport in Vermont

5.1 There is no centralized, statewide system for coordinating IFTs; each hospital must arrange its own transport.

5.2 Only licensed EMS ambulance agencies provide IFTs in the state; there are no commercial-only IFT providers.

5.3 EMS Prioritization and Service Gaps

5.3(a) Agencies with limited resources prioritize emergency 911 responses over IFTs.

5.3(b) This leads to inadequate availability of IFTs, resulting in delays and service gaps.

5.4 Data Deficiencies

5.4(a) Critical data, such as the original requested pick-up time, is not tracked by either EMS agencies or hospitals.

5.4(b) Available data shows that most IFTs are delayed by 30 minutes to an hour beyond the arranged pick-up time.

5.5 IFT Volume Trends

5.5(a) IFT volumes rose steadily from 2021 to 2023 but declined in 2024.

5.5(b) Some of this volume irregularity is attributed to incomplete data reporting prior to 2023.

5.6 Distribution of IFT Activity

5.6(a) 33% of ambulance agencies account for 97% of all IFTs.

5.6(b) The top five providers of IFTs—AmCare, Lamoille, Rescue Inc., Barre EMS, and Regional Ambulance—handle the majority of these calls.

5.7 UVMMC Case Study

5.7(a) UVMMC reported over 4,000 IFTs in 2024, including “case management” transports to non-acute care destinations.

5.7(b) However, the dataset lacks time-of-request and time-of-arrival, limiting its usefulness in delay analysis.

5.7(c) IFTs cluster around healthcare facilities and are mostly requested between 7:00 AM and 8:00 PM.

5.8 Qualitative Insights from Stakeholders (see more details in Findings Section 6)

5.8(a) Lack of IFT availability after 5:00 PM is nearly universal, leading to morning surges of boarded patients across hospitals.

5.8(b) Reduced Local Capacity and Administrative Burdens

5.8(b)(1) Local EMS capacity to provide IFTs is declining due to staffing shortages, low compensation, and uncertain or delayed reimbursement.

5.8(b)(2) The need for prior authorizations—which are difficult to obtain—adds administrative burden.

5.8(c) Transports of Critical and Time-Sensitive Patients Are Being Delayed

5.8(c)(1) Specific case examples highlight critically ill patients waiting 12–48 hours in EDs due to unavailable IFTs

5.8(c)(2) In several cases, patients could not be sent to the nearest or most appropriate facility because the receiving hospital was full or the patient was required to pay upfront if transport was to a non-closest facility.

5.8(d) Hospitals Are Incurring Significant Costs for evening or overnight IFT services.

5.8(e) Strain on Hospital and EMS Staffing; IFTs routinely pull clinical staff away from in-house patient care or from emergency response coverage.

5.8(f) Lack of Centralized Coordination

5.8(f)(1) ED physicians frequently report needing to call facilities manually to find one willing to accept a patient.

5.8(f)(2) Physicians or nurses are responsible for both locating a receiving facility and requesting an IFT, leading to stress and delayed care.

5.8(f)(3) Stakeholders recommend a centralized system like a MOCC (Medical Operations Coordination Center) to assist with real-time coordination.

5.8(g) Disruptions and inefficiencies are common

5.8(h) Financial and Operational Disparities: Some agencies have created self-sustaining IFT programs, which may be profitable but are not universally accessible or scalable as a state model

EMS Education System

The Vermont Department of Health, EMS Division's EMS Training Section is committed to providing leadership and support for the EMS Instructor Coordinators, Senior Instructor Coordinators, Skill Instructors and EMS Training Officers. As a department with a singular employee, the EMS Training Manager, the Section's performance is hindered by personnel, financial and operational limitations that inhibit the execution of necessary duties.

- The Vermont EMS education system has several areas of challenges which include but are not limited to:
- Instructor/educator recruitment
- Retention
- Instructor/educator certification/licensure
- EMS course scheduling, execution, coordination costs and records management
- Disparity between EMS Instructor/Senior Instructor Coordinator and EMS Training Officers duties and state requirements
- Educational technology utilization
- Use of improvement science for program enhancement
- High quality EMS training/education process

Information & Data Collection Process

To support the assessment of Vermont's EMS education system, Cambridge Consulting Group conducted a multi-step information and data gathering process involving surveys, meetings, interviews, and literature review.

Using a list of 64 approved EMS Instructor Coordinators (ICs) and Senior Instructor Coordinators (SICs) provided by the Vermont EMS Division, CCG distributed a survey via email to each individual. The survey was accessed through a QR code included in the message and consisted of three sections. Only those surveys completed in full were included in the final dataset; incomplete responses were excluded from the analysis.

A parallel process was carried out for Vermont's 239 EMS Training Officers (TOs). Again, using a contact list provided by the Division, the survey access link was distributed. As with the IC/SIC surveys, only fully completed responses were considered in the data analysis.

In addition to the survey outreach, CCG Senior Advisor John Todaro participated in two key stakeholder meetings. On February 7, 2025, he attended the monthly EMS IC/SIC conference call to answer questions about the system review process and encourage survey participation. He also extended an open invitation for private follow-up sessions to discuss the status of EMS education in Vermont. One such session was requested and held on February 13, 2025. Mr. Todaro also attended the EMS Training Officer monthly conference call on March 11, 2025, to further support the engagement and data collection process.

Throughout the process, CCG maintained active communication with Courtney Newman via email and conference calls. Her support and insights into Vermont's EMS education infrastructure were instrumental in facilitating access to contact lists, refining the survey approach, and collecting supplemental data beyond the structured survey tools.

In addition to direct stakeholder engagement, CCG conducted a review of relevant literature and documents related to EMS education.

Survey Findings - EMS Instructor Coordinator/ Senior EMS Instructor Coordinators

Position Level	EMS Instructor Coordinator & Senior EMS Instructor Coordinators approved by Vermont EMS Office Expiration 6/30/2026	Responses received from Vermont EMS Instructor Coordinator & Senior EMS Instructor Coordinators	Survey Completion Percentage
EMS IC	52	18	34.60%
EMS SIC	12	12	100%
Total EMS IC/SIC	64	30	46.80%

EMS IC/SIC Highest-Level of Education				
HS Diploma	AA/AS	BA/BS	MA/MS	PhD/Doctorate
4	4	6	13	4

EMS IC/SIC Highest-Level Paramedicine Certification		
EMT	AEMT	Paramedic
5	13	12

EMS IC/ Senior EMS IC by Region													
District	1	2	3	4	5	6	7	8	9	10	11	12	13
EMS IC	4	2	4	3	1	1	0	1	3	1	1	0	0
Senior EMS IC	1	1	3	0	0	1	1	0	1	0	0	1	1

EMS Initial Certification Course Availability per Year														
District	1	2	3	3 & 4	5 & 9	6	7	8	9	10	11	12	13	Vermont *(statewide)*
EMR	3	0	0	3	1	3	2	0	0	0	2.25	4	5	23.25
EMT	2	7	5	4	1	2	1	3	2	0	1.25	2	4	34.25
AEMT	1	3	2	0	0	1	0	0	1	0	1.25	1	2	12.25
Paramedic	0	0	0	1	0	0	0	0	0	0	0	1	2	4

EMS Card Courses Available on as Needed Basis														
	Region	1	2	3	4	5	6	7	8	9	10	11	12	Vermont State University	Vermont EMS Academy
EMS Card Courses	BLS	X	X	X	X	X	X		X	X		X	X	X	X
	ACLS				X		X		X				X	X	X
	PALS						X		X				X	X	X
	ITLS														
	PHTLS			X										X	X
	AMLS												X		X
	GEMS														X
	EPC			X									X		
	PEPP			X								X		X	
	TECC								X						X

National Continued Competency Program (NCCP) Courses Provided		
Program/IC/SIC	# of time provided per year	Tuition
Vermont State University	0	N/A
Vermont EMS Academy	12	$350-$500
IC/SIC	Survey information indicates that some IC/SIC's provide continuing education, but there is no specific documentation of standardized NCCP course being provided	

Hospital and Field Clinical Sites Utilized for EMT, AEMT and Paramedic		
Vermont State University EMT, AEMT, Paramedic	Hospital	UVMMC, CVMC, Copley, Gifford, DHMC, Cheshire Medical, RRMC, Grace Cottage, SVMC, North County Healthcare, Porter Medical Center, Littleton Reg Healthcare, Springfield Hospital
	Field	Paramedic/ALS Intercept Agency, EMS 3rd Service, Fire-based EMS Transport Agency
Vermont EMS Academy EMT, AEMT, Paramedic	Hospital	Under Review
	Field	Paramedic/ALS Intercept Agency, EMS 3rd Service
IC/SIC EMT, AEMT,	Survey information generically indicates that agency sponsoring courses and local EMS agencies are used as clinical sites	

Hospital and Field Clinical Areas That Are Difficult To Obtain Or Maintain	
Vermont State University Paramedic	Pediatrics, ICU and OR
Vermont EMS Academy Paramedic	Under Review

National Registry of EMTS's Vermont Pass Rates for 2023 & 2024						
Certification Level	National Overall Pass Rate 2023	2023 1st Attempt	2023 Cumulative 3rd Attempt	National Overall Pass Rate 2024	2024 1st Attempt	2024 Cumulative 3rd Attempt
EMT	74%	67%	81%	Not released as of 2/27/2025	73%	81%
AEMT Cognitive	65%	77%	67%		78%	68%
AEMT Psychomotor	99%	Not Provided			Not Provided	
Paramedic Cognitive	79%	81%	94%		82%	90%
Paramedic Psychomotor	99%	Not Provided			Not Provided	

The National Registry Data Dashboard. (2023, EXAMPLE MONTH, DAY). National Registry. Retrieved 27 February 2025, from https://www.nremt.org/maps Vermont State Data Received from Courtney Newman Vermont EMS Training Manager

Cost of Education Programs

While it's true that instructional spending as a percentage of total spending has decreased from 2003 to 2022, the notion that overhead costs are the primary driver behind this shift appears to be misguided. Our analysis of Integrated Postsecondary Education Data System (IPEDS) data shows that overhead costs have remained relatively stable as a percentage of total spending. There is a shift in spending but it's primarily from instruction to student services. This shift is a response to the evolving needs and demands of students. As colleges strive to provide a comprehensive and supportive educational experience, it's crucial to understand the nuances behind the allocation of financial resources.[2]

The University of Vermont Health Network paramedic course was not reported in the surveys and not included in the comparison. Tuition for year one of the program was grant supported for 10 students. Tuition for year two of the program is grant supported for 9 students and $10K for others up to 12 students.

1 The National Registry Data Dashboard. (2023, EXAMPLE MONTH, DAY). National Registry. Retrieved 27 February 2025, from https://www.nremt.org/maps Vermont State Data Received from Courtney Newman Vermont EMS Training Man

2 Fern, Michael J., Debunking the Myth: Are Overhead Costs Really Driving College Tuition Hikes? Higher Ed Ops, May 3, 2024 https://higheredops.net/2024/05/03/debunking-the-myth-are-overhead-costs-really-driving-college-tuition-hikes/

Methodology

To assess the finances of EMS education programs in Vermont, particularly paramedic program, Cambridge Consulting Group sought to evaluate whether tuition and fees adequately reflect or cover the operating costs of program delivery. The initial intention was to apply a standard Overhead Rate analysis, a widely used methodology to assess cost efficiency by calculating the ratio of total indirect costs to total direct costs. The formula is:

Overhead Rate = (Total Indirect Costs / Total Direct Costs) × 100
(Source: Enerpize)

However, due to the unavailability of itemized budget data, specifically, the absence of detailed information on direct and indirect costs, CCG was unable to utilize this standard method effectively. Instead, a more pragmatic approach was applied.

For paramedic education programs, the gross revenue per program was estimated by multiplying the tuition fee per student by the number of enrolled students. Where available, this figure was then compared against the reported total program budget to determine whether tuition revenues could reasonably support program costs. This method provides a general sense of cost recovery or potential deficits, though it does not distinguish between fixed and variable costs, nor does it account for external subsidies, grants, or institutional support.

Additional data were drawn from CCG's Vermont EMS Instructor Coordinator/Senior Instructor Coordinator and Paramedic Program Survey (March 15, 2025), which reported tuition and fee structures for initial EMS certification programs across different levels, from EMR to Paramedic. Notably, outlier data points (college credit fees for EMT course and the costs of paramedic programs as part of associate degree programs) were excluded from average calculations to prevent distortion of typical program costs.

In summary, while a traditional overhead rate analysis was not feasible due to data limitations, a gross tuition-to-budget comparison model provided a reasonable, if simplified, means to evaluate the financial dynamics of EMS education programs in Vermont. The following tables summarize the responses received to the EMS education programs and instructors surveys.

Fees Charged Per Student for Initial Certification Course				
Certification Course	**Average**	**High**	**Low**	**Free / No Fee Charged**
EMR	$335	$750	$35	4
EMT	$1,251	$1,800	$675	0
AEMT	$1,478	$2,000	$678	
Outlier Note: College credit course of $12,000 not included in average				
Paramedic	$21,407	$26,763	$16,050	
Outlier Note: Paramedic courses taught within university/college as 2-year program				

Paramedic Program Fees Charged Versus Overhead Cost			
Program	**Tuition per Student**	**Textbook & Materials**	**Program Budget**
Vermont State University	$25,543	$1,220	$175, 000
Vermont EMS Academy	$14,800	$1,250	Under Review

Paramedic Program			
Program	**Tuition, Books & Materials**	**Program Operational Budget**	**Income Mark-up %** Does not include institution/organization direct/indirect cost or program operational costs
Vermont State University	**$25,763** Earns College Credit	**$175, 000**	
Tuition for Maximum of 24 Students	**$25,763 x 24 = $618,312**		**353%**
Tuition for Minimum of 12 Students	**$25,763 x 12 = $309,156**		**177%**
Vermont EMS Academy	**$16, 050** Vocational	Under Review	
Tuition for Maximum of 15 Students	**16,050 x 15 = $240,750**	Under Review	Unable to Calculate
Tuition for Maximum of 5 of Students	**$16,050 x 5 = $80,250**		Unable to Calculate

It is important to note that a significant portion of the information received through the EMS IC/SIC survey and accompanying conference calls contained incomplete responses such as blank fields, “N/A” entries, or omitted data, particularly in areas that may be perceived as proprietary or sensitive.

As a result, and despite input from the EMS IC/SIC survey, stakeholder meetings, and support from EMSD, it was not possible to conduct a reliable analysis comparing the cost of EMS education (EMR, EMT, AEMT, and Paramedic levels) to corresponding pass rates on the National Registry of EMTs (NREMT) exams. Any such analysis would lack sufficient data integrity and would yield results of questionable accuracy.

An examination of the role agency training officers play in the state’s EMS system was done through stakeholder interviews and the survey process. The results are reviewed in the table below. They reflect that the vast majority of TOs act to coordinate the provision of training in their agencies, provide educational instruction, and facilitate practitioners in processing the necessary reporting to gain their recertifications.

Forty-one percent (41%) of EMS agencies have a single training officer with a third having a designated training division. About 1/3 of the training officers support their District EMS educational services needs in some way, and 80% maintain records of their practitioners’ training and continuing education.

Survey Findings – Training Officers

# of EMS Training Officers	# of EMS Training Officer surveys completed	Survey Completion Percentage
239	43	18%

Does Organization have a Designated EMS Training Division		
Yes, single person	29	66%
Yes, with support staff	13	30%
No	1	4%

Does Organization Offer EMS Continuing Education	
Yes	86%
If Yes, Do You Charge Tuition	
No	57%

Does Your Organization provide EMT, AEMT, or Paramedic Initial Education	
Yes	27%
If Yes, Do You Charge Tuition	
No	73%

Does Your Organization Provide Tuition Reimbursement for EMT, AEMT and Paramedic programs not provided by your agency	
Yes	70%

Does Your Organization Utilize Vector as its LMS			
Yes	Yes, But Not Always	No	LMS Utilized Other Then Vector
32%	50%	18%	First Due 5%
			Prodigy 7%
			Other 40%

Dose Organization Maintain Record of Training Attained by your Personnel	
Yes	80%
No	20%

Does Organization Provide Monetary Support for EMS Training/Education	
Yes	No
68%	32%

Does Organization Provide Instructor Support to District Training/Education	
Yes	No
32%	68%

Organization Roles or your EMS Training Officer	
Coordinate training programs/courses	86%
Provide training instruction	86%
Assist Personnel with Recertification Paperwork	93%
Maintain Training Records	86%
Submit EMS Training Reports to District	39%
Submit EMS Training Reports to State	42%

Which of the following apply in your organization regarding the Training Officer Position	
Training Officer must meet prerequisites	32%
There is a job description for Training Officer	32%
Training Officer must be certified/authorized instructor for at least one category of EMS education	20%
Trianing Officer clearly understands their role	32%
There is a formal process to select Training Officer	23%
How many Training Officer's does your organization have	1 TO 41% >1 TO 5%

EMS Education Findings

Capacity of the Vermont Department of Health, Office of EMS – Training Section

6.1 The Vermont Department of Health's Office of EMS Training Section lacks the necessary personnel and funding to adequately manage the statewide EMS training and education infrastructure.

6.2 This under-resourcing affects multiple critical areas, including but not limited to:

6.2(a) Recruitment and retention of Instructor Coordinators (ICs) and Senior Instructor Coordinators (SICs).

6.2(b) Coordination and delivery of initial and continuing education courses for ICs/SICs, including the development of course content.

6.2(c) Implementation of mentoring, coaching, and performance improvement programs for ICs/SICs.

6.2(d) Development and delivery of training programs for EMS Training Officers (TOs), including ongoing mentorship and education.

6.2(c) Oversight and quality improvement of EMS courses statewide, including performance monitoring and scheduling coordination.

6.3 Training Officer Meeting Qualitative Response

6.3(a) EMS Training Officers are not typically responsible for developing or delivering training content or courses.

6.3(b) Non-customized online education materials are used for instruction

6.3(c) Training Officers are not required to hold IC/SIC certification or meet equivalent standards.

6.3(d) There is no existing performance review process or improvement framework specific to EMS Training Officers.

6.3(e) The Vermont Department of Health EMS Office is widely perceived as understaffed and underfunded, especially in the area of training and education.

6.3(f) Demands placed on volunteer EMS instructors and educators are extensive, requiring significant time commitments for training, documentation, and maintenance of clinical/instructor certifications.

6.3(g) There is a shared concern that expectations placed on volunteers are excessive, particularly for ICs, SICs, and Training Officers who are already contributing time beyond their clinical roles.

6.4 Statewide Coordination and Standardization Gaps

6.4(a) No centralized or statewide coordination of EMS training schedules

6.4(b) Course content coordination is minimal, relying primarily on national EMS education standards

6.4(c) No state guidelines standardizing the equipment or materials necessary for delivering EMS courses (EMR, EMT, AEMT), with the exception of paramedic programs governed by CoAEMSP.

6.4(d) No consistent statewide standards for student-to-instructor ratios in skills or simulation labs for non-paramedic EMS education levels.

6.4(e) Simulation is not uniformly integrated across EMS training programs; its use is highest in paramedic-level education, with minimal adoption in other levels.

6.5 Disparities in Course Costs and Access to Resources

6.5(a) Tuition and fees for EMS certification and continuing education courses vary significantly across the state.

6.5(b) No digital repository or shared online platform for educators to access and exchange course materials or state-issued documents.

6.5(c) No statewide EMS Instructor/Educator Association exists to support the professional development of EMS educators.

6.5(d) No dedicated state EMS Instructor/Educator Conference to offer continuing education or specialized training

6.6 Training Officer meetings are coordinated by the State EMS Training Manager, but attendance is not mandatory leading to low participation

6.7 Requirements for obtaining and maintaining IC/SIC certification are minimal and do not reflect current best practices in educational science or instructor competency standards.

6.8 No standardized state-approved process for evaluating or selecting educational technology for EMS education.

Performance and Quality in High Consequence Cases

Methods

To assess the reliability of Vermont's EMS system in responding to high consequence medical emergencies, Cambridge Consulting Group examined four critical patient categories:

Cardiac Arrest, **Major Trauma**, **Stroke**, and **Sepsis**

Electronic patient care report (ePCR) data from 2024 was analyzed for all EMS calls that met standardized national definitions for each of these conditions, as defined by the National EMS Information System (NEMSIS) Technical Assistance Center. Detailed case definitions for these categories are publicly available at https://nemsis.org/case-definitions/.

For each qualifying case, a set of key call event time data elements was extracted from the ePCR system. These time elements, referenced by their NEMSIS data dictionary fields, included:

- Symptom Onset Time (eSituation.01)
- Incident Unit Notified By Dispatch Time (eTimes.03)
- First Responder Arrived on Scene Time (eScene.05)
- Incident Unit Arrived at Patient Time (eTimes.07)
- Incident Unit Left Scene Time (eTimes.09)
- Incident Patient Arrived at Destination Time (eTimes.11)

The analysis focused primarily on two time intervals to evaluate response reliability:

Time from Dispatch Notification to First Responder On-Scene:
eTimes.03 to eScene.05

Time from Dispatch Notification to Ambulance Arrival at Patient:
eTimes.03 to eTimes.07

Data Definitions, Quality Considerations, and Caveats

The **Incident Unit Notified By Dispatch Time (eTimes.03)** marks the moment an ambulance is notified by a dispatch center. It is important to note that the time a call is initially received by a PSAP is not included in Vermont's ePCR system, as PSAPs do not upload data to the EMS data platform. Additionally, the notification time for non-transporting first response agencies is not recorded in the dataset.

Because of these limitations, the **Incident Unit Notified By Dispatch Time** was used as a proxy for system activation in the time interval analysis. The lack of initial PSAP data is a known limitation.

The **First Responder Arrived on Scene Time (eScene.05)** reflects when a non-transporting unit arrived at the scene. However, this does not necessarily indicate proximity to the patient, as the actual arrival at the patient may occur some time later—particularly in complex or rural environments.

The **Incident Unit Arrived at Patient Time (eTimes.07)** is a more clinically relevant metric, indicating when the ambulance crew made physical contact with the patient. This is distinct from general arrival at the scene (e.g., parking at a residence or business).

To validate the two primary time intervals, additional timestamps were reviewed to ensure consistency and contextual accuracy.

Cases where either of the two key time data elements was missing were excluded from interval analysis. Additionally, cases in which arrival at scene or arrival at patient was documented as occurring before dispatch notification were excluded, as they do not reflect standard EMS system activation and introduce analytic distortion.

To assess the quality of available data, intervals were assigned data quality ratings based on the proportion of missing values within each patient category:

- High Quality: Less than one-third (<33.3%) of time data missing
- Medium Quality: Between one-third and two-thirds (33.3%–66.6%) of time data missing
- Low Quality: More than two-thirds (>66.6%) of time data missing

Exclusions and quality ratings for each time interval and patient category were identified.

Interpretation of Intervals

- The **Dispatch to First Responder On-Scene Interval** measures the elapsed time between ambulance notification and the arrival of a first response unit at the scene. In most EMS systems, this difference is typically minimal, assuming the first responder is co-dispatched.
- The **Dispatch to Ambulance at Patient Interval** captures the time from dispatch notification to patient contact. This is especially relevant in evaluating clinical outcomes in time-sensitive emergencies, such as cardiac arrest or stroke.

This methodological approach—while limited by the absence of PSAP and first responder dispatch data—offers a valuable proxy for understanding how Vermont's EMS system functions in high-acuity scenarios. The findings provide insight into both systemic response times and the completeness of critical time-stamp data within the state's ePCR reporting infrastructure.

Data Quality for Key Time Interval Calculations

Patient Category	# of Cases	Time Interval	# of cases with missing data	% of cases with missing data	# of cases where First Responder Arrived on Scene Time was before Incident Unit Notified By Dispatch Time	% of cases where First Responder Arrived on Scene Time was before Incident Unit Notified By Dispatch Time	Data Quality Rating
Cardiac Arrest	1003	Incident Unit Notified by Dispatch Time to First Responder Arrived on Scene	840	83.75%	7	0.70%	LOW
	1003		24	2.39%	1	0.10%	HIGH
Major Trauma	1204	Incident Unit Notified by Dispatch Time to First Responder Arrived on Scene	1109	92.11%	4	0.33%	LOW
	1204		9	0.75%	0	0.00%	HIGH
Stroke	2051	Incident Unit Notified by Dispatch Time to First Responder Arrived on Scene	1848	90.10%	2	0.10%	LOW
	2015		217	10.58%	0	0.00%	HIGH
Sepsis	986	Incident Unit Notified by Dispatch Time to First Responder Arrived on Scene	938	95.13%	1	0.10%	LOW
	986		18	1.83%	0	0.00%	HIGH

Performance and Quality Improvement Findings

Performance and Quality Improvement Analysis

- **7.1 Ambulance arrival at patient times were reliably recorded across all four conditions, allowing evaluation of response in time-sensitive cases.**

- **7.2 However, first responder arrival data was largely missing, severely limiting analysis of the co-response model and full system activation times.**

- **7.3 Missing PSAP/PDAP data demonstrates a critical gap in Vermont's ePCR data collection infrastructure, especially for early-phase response metrics.**

Clinical Data Dictionary

This project included the creation of a comprehensive clinical measures data dictionary consistent with national standards for EMS services, ensuring that all metrics are relevant, measurable, and applicable to Vermont's EMS system.

Clinical Measures

Clinical measures can serve different purposes. One common use is simply to track how often certain types of patients, procedures, or medications appear in the system. These are called descriptive measures, and they help explain what's happening in the field—but they don't show how well care is being delivered.

A more meaningful use of clinical measures is to evaluate how well clinical care is actually being performed. This includes tracking outcomes like patient survival, complications, and how effectively treatment protocols are followed. These are known as clinical performance measures, and they provide insight into the quality of care delivered by individual clinicians, teams, agencies, or the overall EMS system.

This section focuses on clinical performance measures.

Methods

The information in this section is primarily based on two key activities: surveys and interviews.

A statewide survey was distributed to all licensed EMS provider agencies in Vermont, requesting information on various aspects of clinical performance measurement. Of the 165 agencies polled, 57 completed the survey, a response rate of 35 percent.

In addition, a series of interviews were conducted with representatives from EMS provider agencies, district EMS offices, and the State EMS Division. While these interviews informed the broader scope of the project, particular emphasis was also placed on gathering perspectives related to clinical performance measurement.

Survey Results and Analyses

Question 1 - There are several types of high consequence incidents that could be measured and reported on at a state level. Please rank order the following conditions in the order that you feel are most important.

a. Major Trauma Cases
b. Myocardial Infarctions
c. Cardiac Arrests
d. Sepsis Cases
e. Severe Allergic Reactions (ie: Anaphylaxis)
f. Strokes
g. Opioid Overdose

Rank Ordering of Clinical Conditions for State Level Measurement and Reporting		
	Point Count	% of Total Points
Cardiac Arrests	291	18.23%
Myocardial Infarctions	281	17.61%
Strokes	269	16.85%
Major Trauma Cases	262	16.42%
Opioid Overdose	182	11.40%
Sepsis Cases	162	10.15%
Severe Allergic Reactions	149	9.34%
TOTAL	1596	100.00%

In order to visualize the results more clearly, points were assigned to each rank. Because there were 7 selections, the clinical condition receiving the top ranking in an individual survey response was given 7 points, the second highest was given 6 points, and so on with the lowest ranking response getting only one point. The results from all 57 survey responses were then analyzed in aggregate. The results are summarized in the table above.

The results broke into two distinct clusters. Cardiac arrest, myocardial infarction, stroke and major trauma had similar percentages of the point totals with 18.25%, 17.61%, 16.85%, and 16.42% percent, respectively. With such a small difference between them, these conditions should be considered to have the most interest for measurement development by the State.

The other cluster of conditions were opioid overdose, sepsis, and severe allergic reactions with 11.40%, 10.15% and 9.34%, respectively. These should be considered to have a lesser level of interest.

Question 2 - Would your agency be willing to utilize elements that are not in the NEMSIS data set to calculate performance measures tracked at the state level? This would require your agency to collect data not included in the NEMSIS data set.

A total of 57 responses to this question were received. The numbers and percentages of yes and no responses were calculated. The results are summarized in table to the right.

These results strongly lean against non-NEMSIS data collection. The survey results align well with comments heard in the interviews portion of the project.

Willingness to Collect Non-NEMSIS Data for State-Level Performance Measures		
	Count	Count %
Yes	23	40.35%
No	34	59.65%

Question 3 - What clinical performance measures not currently included in the NEMSIS (https://nemsis.org/) or NEMSQA (https://www.nemsqa.org/) libraries would your agency be interested in tracking?

24 responses (42%) expressed interest in tracking clinical measures beyond those defined by NEMSIS and NEMSQA, while 33 (58%) did not.

Many of the open-ended responses did not describe true performance measures but rather general interests or observations. However, responses that could reasonably be interpreted as performance-related have been included in the list below. These entries were edited for clarity and brevity, and in some cases, interpretation was applied to clarify the respondent's intent.

Operational Performance

- Time from dispatch to first responder arrival at patient
- Time from dispatch to other response agency arrival at patient
- Scene time during major trauma incidents
- Scene time during stroke alert incidents
- Hospital off-load time interval
- No transport rates
- Rates of mutual aid provided
- Rates of paramedic intercepts provided
- Rates where EMS service is uncovered or under-covered
- Duration of intubation attempts
- Rates of video laryngoscopy (VL) vs. direct laryngoscopy (DL) intubation
- Missed or undocumented vascular access attempts
- Rates of lights and siren responses vs. no lights and siren responses
- Rates of nitrous oxide use

Workforce Wellness & System Utilization

- Rates of EMS utilization to identify frequent system users
- Rates of lift assist calls (especially for high-risk fall patients who could benefit from community paramedicine referral)
- Rates of provider exposure to high-stress calls (e.g., pediatric deaths, multi-fatality incidents)
- Rates of violence encountered by EMS personnel

Clinical Outcomes

- Cardiac arrest survival rate
- Compression fraction during cardiac arrest
- Peri-shock pause durations
- Effectiveness of pain management
- Rates of stroke recognition and treatment
- Rates of sepsis recognition and treatment
- Percentage of acute MI or STEMI patients who have defibrillation pads placed
- Time from patient contact to 12-lead EKG capture in STEMI cases
- Percentage of anaphylaxis patients who received epinephrine
- Percentage of opioid overdose patients who received bag-mask ventilations

Safety and Protocol Compliance

- Rates of cases with clinical indicators for BiPAP where BiPAP was not performed
- Percentage of suspected opioid overdose calls where:
  - Narcan was administered
  - A leave-behind kit was offered and declined
  - A leave-behind kit was not offered

***Of the responses listed, tracking of hospital off-load times was suggested several times.*

Question 4 - What clinical performance standards does your agency use, if any?

A total of 56 responses were received for this question. Of those, only three (5.3%) indicated that they were using clinical performance standards, while the remaining 53 (94.7%) were not.

Many of the narrative responses did not describe the use of defined performance standards. Instead, they referenced general case review practices or the use of measures without specifying any benchmarks or thresholds for acceptable performance. Narrative responses that clearly referenced the use of performance standards are included in the table to the right. These have been edited for clarity and brevity, with some interpretation applied to clarify respondent intent.

Performance Standards in Use by Provider Agencies
Mission:Lifeline EMS standards *(https://www.heart.org/-/media/Files/Professional/Quality-Improvement/Recognition-Criteria/2025/MLEMSRecognition202502212025.pdf)*
Chest compression fraction >90%
Perishock pause <10 sec with AED mode or <6 sec with medic manual interpretation
LUCAS deployment with no more than 6 sec pause per component placement
Vital signs obtained with a minimum of 2 sets for all patients (not including refusals)
12-lead ECG is obtained within 10 minutes for chest pain patients
12-lead ECG for chest pain patients is interpreted by a paramedic
12-lead ECG for chest pain patients is attached to the run report
Unit enroute within 2 minutes of tone receipt

Table AA

Question 5 - What measures would you like to see NEMSQA research and ultimately issue?

There were 37 responses to this question. Of those, 5 (8.93%) offered suggestions, while 51 (91.07%) did not. Many of the suggestions were not performance measures The narrative responses that might be classified as performance measures are included in the table below. These responses were edited for clarity and brevity. Some interpretation and assumption on intent was made in the clarification of responses.

Adding clinical performance data elements to collect and measure necessarily increases the total workload of clinicians and agency managers. The reluctance of the survey respondents to increase the information their practitioners must record is understandable, especially considering the workforce shortage identified in the Vermont EMS system. However, the only mechanism to accurately assess the quality of care being provided by EMS clinicians and agencies is through the attainment of data. This project specifically called for the identification of a state data dictionary to augment the current NEMSIS information elements. Based on the respondents that did identify new data elements, Vermont should consider using them.

Measures Suggested for Use by NEMSQA
Average response time intervals
Percentage of paramedic intercepts requested vs. needed
EMS utilization before and after use of hospice care team
Percentage of transports that are repeat patients
Percentage of lift assists that are transported to hospital
Percentage of acute MI or STEMI patients that have defibrillator pads placed
Percentage of anaphylaxis patients that receive epinephrine
Percentage of myocardial infarction patients that have EKG transmitted to receiving hospital
Hospital off-load time intervals
Rates of EMS injury and assaults

Table AB

Insights on Performance Measures from Interviews

When performance measures were raised during stakeholder interviews, participants' perspectives and suggestions were carefully noted. These individual interviews, conducted by Cambridge Consulting Group, were designed to gather feedback from key participants in Vermont's EMS system—including district medical advisors, EMS district chairpersons, industry leaders, the Chair of the EMS Advisory Committee (EMSAC), and leadership from the Department of Health.

While the interviews included several targeted questions, they were intentionally structured to be open-ended, allowing for rich, qualitative feedback. The insights gathered are presented here in a thematic and generalized format to reflect the overall impressions and recurring ideas that emerged from these conversations.

Interviewees consistently expressed support for the concept of statewide performance measurement. No opposition to the idea was noted. To the contrary, several participants emphasized the importance of state-led efforts to collect and report performance data and identified it as a critical area of need.

This support appeared to be largely driven by the recognition that many EMS agencies lack the capacity to independently collect, analyze, and report clinical performance measures. This limitation may be attributed, in part, to the absence of formal training in EMS quality management across various organizational roles, including EMS quality managers, medical directors, and agency administrators.

Although some agencies and districts reported making use of performance measurement tools embedded within their electronic patient care reporting (ePCR) systems, these capabilities appear to be underutilized across the state.

Identification of Data Dictionary Clinical Performance Measures

It is recommended that the State of Vermont collaborate closely with ePCR software vendors to fully integrate all available NEMSQA performance measures into their reporting capabilities using standardized NEMSIS data elements. As the NEMSQA measure library continues to expand, vendors should be strongly encouraged to update their platforms promptly, incorporating newly approved measures as soon as they are released. The current set of NEMSQA performance measures is presented in the table on the next page.

Performance measure data collection and calculation should occur at three distinct levels: **the agency, the district,** and **the state**.

To date, the National EMS Quality Alliance (NEMSQA) has focused exclusively on clinical performance measures that can be calculated using standardized NEMSIS data elements. This approach is intentional, as it avoids the substantial burden of manual data abstraction that often accompanies hospital participation in clinical registries and accreditation programs.

Given these considerations, it is not recommended that the State of Vermont pursue non-NEMSQA performance measures at the state level. However, individual agencies and districts are encouraged to expand upon their own performance measurement initiatives by incorporating non-NEMSIS clinical measures aligned with their specific operational needs and quality improvement goals.

The Current NEMSQA Performance Standards	
Measure ID	**Description**
Airway-01	Percentage of EMS responses originating from a 911 request for who receive a successful advanced airway placement on first attempt without documented hypotension or hypoxia during the peri-intubation period.
Airway-05	Percentage of intubation procedures performed during an EMS response originating from a 911 request in which adequate patient oxygen levels were achieved prior to intubation procedure.
Airway-18	Percentage of successful advanced airway procedures performed during an EMS response originating from a 911 request in which waveform capnography is used for tube placement confirmation and monitoring.
Asthma-01	Percentage of EMS responses originating from a 911 request for patients with a diagnosis of asthma who had an aerosolized beta agonist administered.
Hypoglycemia-01	Percentage of EMS responses originating from a 911 request for patients with symptomatic hypoglycemia who receive treatment to correct their hypoglycemia.
Respiratory-01	Percentage of EMS responses originating from a 911 request for patients with primary or secondary impression of respiratory distress who had a respiratory assessment.
Respiratory-02	Percentage of EMS responses originating from a 911 request for patients with hypoxia during which oxygen is administered.
Pediatrics-03b	Percentage of EMS responses originating from a 911 request for patients less than 18 years of age who received a weight-based medication and had a documented weight in kilograms or lengthbased weight estimate documented during the EMS response.
Safety-01	Percentage of EMS responses originating from a 911 request in which lights and sirens were not used during response.
Safety-02	Percentage of EMS transports originating from a 911 request during which lights and sirens were not used during patient transport.
Safety-04	Percentage of EMS transports originating from a 911 request or interfacility request for patients less than 8 years of age during which patients are transported using a pediatric restraint device.
Seizure-02	Percentage of EMS responses originating from a 911 request for patients with status epilepticus who received benzodiazepine during the EMS response.
Stroke-01	Percentage of EMS responses originating from a 911 request for patients suffering from a suspected stroke who had a stroke assessment performed during the EMS response.
Syncope-01	Percentage of EMS responses originating from a 911 request for patients with syncope during which a 12-lead (or greater) ECG is performed.
TBI-01	Percentage of EMS transports originating from a 911 request for patients with suspected traumatic brain injury during which oxygen level, ETCO2, and systolic blood pressure are documented.
Trauma-01	Percentage of EMS responses originating from a 911 request for patients with injury who were assessed for pain.
Trauma-03	Percentage of EMS transports originating from a 911 request for patients whose pain score was lowered during the EMS encounter.
Trauma-04	Percentage of EMS responses originating from a 911 request for patients who meet CDC criteria for trauma and are transported to a trauma center.
Trauma-08	Percentage of EMS transports originating from a 911 request for patients with trauma during which GCS, systolic blood pressure, and respiratory rate are documented.
Trauma-14	Percentage of EMS transports originating from a 911 request for patients meeting Step 1 or Step 2 prehospital field triage criteria for trauma during which a pre-arrival trauma alert is initiated.
TTR-01	Percentage of EMS responses originating from a 911 request for patients not transported by EMS during which a basic set of vital signs is documented.

Clinical Data Dictionary Findings

Data Dictionary Analysis

8.1 Survey Sentiment

8.1(a) While EMS leaders value data collection for performance, many are reluctant to expand reporting due to existing staffing challenges.

8.1(b) Nonetheless, a state-supported data collection framework is viewed as necessary for systemic quality improvement.

8.2 Insights from Interviews

8.2(a) Strong support exists for statewide performance measurement.

8.2(b) Agencies often lack capacity and training to perform independent quality tracking.

8.2(c) Current tools in ePCR systems are underutilized.

8.2(d) A state-led initiative is needed to standardize and support performance tracking.

8.3 Recommendations

8.3(a) Vermont should work with ePCR vendors to: Integrate all current and future NEMSQA measures into system reporting.

8.3(b) Use standard NEMSIS data elements to avoid manual data abstraction.

8.3(c) Collect and use performance tracking at the agency, district and state levels.

8.3(d) Vermont should not pursue non-NEMSQA measures at the state level due to added burden.

8.3(e) Agencies and districts may voluntarily expand data tracking based on local needs.

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Performance and Quality Data - Reference Section

Response Reliability on High Consequence Cases

Methods

For the purpose of assessing the reliability of the VT EMS systems in response to high consequence cases, the following patient categories were studied:

- Cardiac arrest
- Major trauma
- Stroke
- Sepsis

Electronic patient care report data from 2024 was obtained from all calls meeting criteria for classification as cardiac arrest, major trauma, stroke, or sepsis. These classifications have standardized definitions on a national basis by the National EMS Information System (NEMSIS) Technical Assistance Center. Highly detailed descriptions of these definitions can be found at https://nemsis.org/case-definitions/.

For each case in each patient category, the call event time data elements listed below were used for the analysis. The name of the call event time data element and the associated NEMSIS Data Dictionary reference number is shown.

- Symptom Onset Time (eSituation.01)
- Incident Unit Notified By Dispatch Time (eTimes.03)
- First Responder Arrived on Scene Time (eScene.05)
- Incident Unit Arrived At Patient Time (eTimes.07)
- Incident Unit Left Scene Time (eTimes.09)
- Incident Patient Arrived At Destination Time (eTimes.11)

The primary focus of the analysis for response reliability to high consequence cases was on two specific time intervals:

- Incident Unit Notified By Dispatch Time (eTimes.03) to First Responder Arrived on Scene Time (eScene.05)
- Incident Unit Notified By Dispatch Time (eTimes.03) to Incident Unit Arrived At Patient Time (eTimes.07)

Data Definitions, Data Quality, and Caveats (Heading Level 2)

The *Incident Unit Notified By Dispatch* Time (eTimes.03) is when the primary PSAP is reported to have notified the ambulance of the call. The time when the call 'rang' at the

primary PSAP comes from the primary public safety answering point (a.k.a., "primary PSAP"), which does not upload data to the VT EMS data system. The time that the non-transport first responder agency received notification is also not in the data set.

It should be noted that the *Incident Unit Notified By Dispatch Time* was used in lieu of the call received by dispatch center time. That data element is not in the VT ePCR data set because the data comes from the primary public safety answering point (a.k.a., "primary PSAP"), which does not upload data to the VT EMS data system.

The *First Responder Arrived On Scene Time* (eScene.05) is the reported on-scene time from the non-transport medical first response unit, if any, that responded to the call. Note that the arrival at scene time will precede arrival at patient, particularly when the physical location of the patient is some distance away from where the first responder unit parked. Despite being called a *first responder,* they may or may not have arrived on-scene before the responding ambulance arrived beside the patient.

The *Incident Unit Arrived At Patient Time* (eTimes.07) is the time that the responding ambulance was reported to arrive at patient. This is a more clinically relevant time than when the time the ambulance arrived on scene, which is typically when the ambulance came to a stop at the address or location it was sent to by the dispatch center.

Other call event times and time intervals were examined to help validate the two key call event times in context of the overall call.

Both of the key call event time data elements were not present for each call. The count and percentages of calls where call event times for the interval calculation were missing are listed in table set below.

The Incident Unit Notified By Dispatch Time to First Responder Arrived on Scene Time Interval shows how it took from the time that the dispatch center notified the responding ambulance of the call until a first responder agency arrived on-scene. The time difference between call notification of the ambulance and the first responder agency is typically minimal in most systems.

The Incident Unit Notified By Dispatch Time to Incident Unit Arrived At Patient Time Interval shows how it took from the time that the dispatch center notified the responding ambulance of the call until the crew arrived at patient.

In some cases, the reported *First Responder Arrived On Scene Time* may have been before the *Incident Unit Notified By Dispatch Time*. While this scenario may be possible when the first responder has the initial direct contract with the patient or bystander and then informs

the dispatch center of the incident, this is relatively infrequent and does not help answer the question about the response reliability to high consequence cases. Therefore, those cases were excluded from the analysis. The same applies to the *Incident Unit Arrived At Patient Time*. On cases where it was before the *Incident Unit Notified By Dispatch Time,* those cases were also excluded from the analysis.

When the data from 2/3rd (66.66%) or more of a key time element was missing from a patient category of cases for a time interval, that time interval was a data quality rating of LOW. If between 1/3rd and 2/3rd of the data were missing, it received a data quality rating of MEDIUM. When less than 1/3 of the data was missing, the interval was assigned a data quality rating of HIGH.

These exclusions are counted, the percentage of cases when it occurred, and the data quality ratings are shown for each patient category in below tables.

Patient Category	# of Cases	Time Interval	# of cases with missing data	% of cases with missing data	# of cases where First Responder Arrived on Scene Time was before Incident Unit Notified By Dispatch Time	% of cases where First Responder Arrived on Scene Time was before Incident Unit Notified By Dispatch Time	Data Quality Rating
Cardiac Arrest							
	1003	Incident Unit Notified by Dispatch Time to First Responder Arrived on Scene	840	83.75%	7	0.70%	LOW
	1003	Incident Unit Notified by Dispatch Time to Incident Unit Arrived At Patient Time	24	2.39%	1	0.10%	HIGH
Major Trauma							
	1204	Incident Unit Notified by Dispatch Time to First Responder Arrived on Scene	1109	92.11%	4	0.33%	LOW
	1204	Incident Unit Notified by	9	0.75%	0	0.00%	HIGH

		Dispatch Time to Incident Unit Arrived At Patient Time					
Stroke							
	2051	Incident Unit Notified by Dispatch Time to First Responder Arrived on Scene	1848	90.10%	2	0.10%	LOW
	2015	Incident Unit Notified by Dispatch Time to Incident Unit Arrived At Patient Time	217	10.58%	0	0.00%	HIGH
Sepsis							
	986	Incident Unit Notified by Dispatch Time to First Responder Arrived on Scene	938	95.13%	1	0.10%	LOW
	986	Incident Unit Notified by Dispatch Time to Incident Unit Arrived At Patient Time	18	1.83%	0	0.00%	HIGH

Table – Data Quality for Key Time Interval Calculations

Results

Cardiac Arrest

For cardiac arrest cases, the time from dispatch notification to the arrival of the first responder crew on-scene averaged 9 minutes 47 seconds (00:09:47). 90% of the cases had first responder arrival on-scene by 14 minutes 36 seconds (00:14:36). There were several very long first responder arrival time intervals that seemed to be calculated from valid data. The longest such response was 2 hours 51 minutes (2:51:00). This and other longer time intervals skewed the average response time, so the median response time interval of 7 minutes (00:07:00) may be a better reflection of the 'typical' response time interval for arrival of the first response unit on scene. This information is summarized in Table below.

The time from dispatch notification to the arrival of the ambulance crew at patient averaged 10 minutes 20 seconds (00:10:20). 90% of the cases had the ambulance crew at patient within 19 minutes (00:19:00). There were several very long ambulance crew arrival

at patient time intervals that seemed to be calculated from valid data. The longest such response was 1 hour 3 minutes (01:03:00). This and other longer time intervals skewed the average response time, so the median response time interval of 9 minutes (00:09:00) may be a better reflection of the 'typical' response time interval for arrival of the ambulance crew at patient. This information is summarized in Table below.

Patient Category	# of Cases	Time Interval	Average	Median	90Th Fractile	Range
Cardiac Arrest						
	153	Incident Unit Notified by Dispatch Time to First Responder Arrived on Scene	00:09:47	00:07:00	00:14:36	00:00:00 to 02:51:00
	976	Incident Unit Notified by Dispatch Time to Incident Unit Arrived At Patient Time	00:10:20	00:09:00	00:19:00	00:00:00 to 01:03:00

Table – Results of Cardiac Arrest Response Reliability Time Interval Analyses

Considering the amount of rural geography being covered, these response intervals are reasonable from an operational standpoint. The problem is that cardiac arrest is the one the most time sensitive patient categories, as the likelihood for survival with a good neurological outcome diminishes by 10% with each passing minute from the time of patient collapse to the initiation of chest compressions and/or defibrillation (American Red Cross: Out of Hospital Cardiac Arrest Facts - https://www.redcross.org/take-a-class/resources/articles/cpr-facts-and-statistics) . These data do not accurately capture the minutes from patient collapse to contact with the primary PSAP and primary PSAP contact to dispatch notification of the responding ambulance. This can amount to several minutes of additional delay in addition to the response time intervals stated above.

The impact of the undocumented delays before dispatch notification of the responding crews and the time intervals from dispatch notification to arrival of first responders and ambulances directly impacts patient outcomes. This is reflected in the outcomes data for prehospital cardiac arrest cases in Vermont as shown in the CARES (Cardiac Arrest Registry for Enhanced Survival) data (https://mycares.net/) reports.

The most recent CARES report for Vermont that was made available to the consulting team was for calendar year 2022. The CARES report that offers the best insight on the efficacy of the Vermont EMS system are the so-called 'Utstein" Survival Reports, which are based on

international consensus standards for reporting cardiac arrest outcomes (Bray et a: Cardiac Arrest and Cardiopulmonary Resuscitation Outcome Reports: 2024 Update of the Utstein Out-of-Hospital Cardiac Arrest Registry Template. Circulation (2024) 150(9):e203. https://doi.org/10.1161/CIR.0000000000001243).

The traumatic cardiac arrests have highly variable chances for survival dues to wide range of injuries that may have caused the arrest. Therefore, non-traumatic arrests that were witnessed by a bystander and had an initially recorded heart rhythm of ventricular fibrillation or pulseless ventricular tachycardia (VF/VT)are most commonly used for evaluation of system performance. These cares are shown in the center column of data on the CARES report in Figure below.

In 2022, Vermont had 547 attempts at resuscitations from cardiac arrest from non-traumatic cardiac arrests. Of those, 204 cases were witnessed by bystanders and 70 of those had a initial rhythm of VF/VT. Of those 70 cases, 23 survived long enough to be admitted to the hospital. Of those 70 patients, 14 patients (survived to hospital discharge for a hospital discharge survival rate of 20%. Of those 14 patients, all 14 had a good neurological outcome (i.e., CPC score of 1 or 2).

Vermont results were compared to results from the entire group of EMS agencies and hospitals across the United States that participated in CARES in 2022 (Table below). The entire group of CARES participants encompasses a mix of urban, suburban, and rural communities, but is likely to be more urbanicity with correspondingly highly chances of survival due to geography and correspondingly shorter response times. Therefore, Vermont may expect to perform somewhat lower than the entire CARES group.

The most important comparison is in the rate of survival to hospital discharge with a good neurological result. Nationally, this is 27.2% compared to Vermont result of 20.0%. This is an absolute difference of 7.2% but a comparative difference of 26.5% less for Vermont.

	Attempted Resuscitations from a Non-Traumatic Cause and Witnessed by a Bystander	**Initial Rhythm VF/VT**	**Admitted to Hospital**	**Discharged Alive**	**Discharged Alive with Good Neurological Outcome**
All CARES Participants	54,887	15,087	7,455 (49.4%)	4,632 (30.7%)	**4,116 (27.2%)**
Vermont	204	70	23 (32.8%)	14 (20.0%)	**14 (20.0%)**
% Difference (1-(VT/All))	n/a	n/a	-33.6%	-34.8%	**-26.5%**

Table – Comparison of 2022 CARES Results from Vermont with all CARES Participants

The difference between Vermont and national data shows that Vermont could be doing much better. Despite the difference, Vermont is showing reasonable levels of performance in the opinion of the consultants. The best performing EMS systems have survival to hospital discharge rates with good neurological outcomes in the range of 70 to 80%. While urban geography and shorter response times may explain some of that difference, there are other differences in clinical process performance that also play a strong factor in those higher survival rates. That includes factors like the rates of bystander CPR; rates of public AED use; quality of chest compressions and ventilations in the field; and the quality care after the return of pulses in the field and after hospital arrival. While improvements in the number of ambulances and first responder units to shorten response time can help improve survival rates, these changes are also the most expensive to implement.

The rate of bystander CPR and public AED use an area where Vermont is doing better that the national group. Vermont has a bystander CPR rate of 48.7% compared to only 40.0% nationally. Vermont has a rate of public AED use of 14.6% compared to 11.3% nationally. While Vermont's rates on these metrics are better than nationally, the bystander CPR rates could be dramatically better at reasonable cost with aggressive high-quality implementation of CPR coaching of callers by ALL 9-1-1 communications centers. Detailed information on dispatcher-initiated telephone CPR programs is available from the American Heart Association (https://cpr.heart.org/en/resuscitation-science/telecommunicator-cpr/telecommunicator-cpr-recommendations-and-performance-measures). Compared to adding more ambulance and first responder units, implementation of dispatcher-initiated CPR coaching of caller is extremely cost effective.

Major Trauma

For major trauma cases, the time from dispatch notification to the arrival of the first responder crew on-scene averaged 16 minutes 9 seconds (00:16:09). 90% of the cases had first responder arrival on-scene by 25 minutes 24 seconds (00:25:24). There were several very long first responder arrival time intervals that seemed to be calculated from valid data. The longest such response was 4 hours 24 minutes (04:24:00). This and other longer time intervals skewed the average response time, so the median response time interval of 9 minutes (00:09:00) may be a better reflection of the 'typical' response time interval for arrival of the first response unit on scene. This information is summarized in Table below.

The time from dispatch notification to the arrival of the ambulance crew at patient averaged 11 minutes 9 seconds (00:11:09). 90% of the cases had the ambulance crew at

patient within 21 minutes (00:21:00). There were several very long ambulance crew arrival at patient time intervals that seemed to be calculated from valid data. The longest such response was 1 hour 42 minutes (01:42:00). This and other longer time intervals skewed the average response time, so the median response time interval of 9 minutes (00:09:00) may be a better reflection of the 'typical' response time interval for arrival of the ambulance crew at patient. This information is summarized in Table below.

Considering the amount of rural geography being covered, these response intervals are reasonable from an operational standpoint. These data do not accurately capture the minutes from patient collapse to contact with the primary PSAP and primary PSAP contact to dispatch notification of the responding ambulance. This can amount to several minutes of additional delay in addition to the response time intervals stated above.

While most major trauma cases are not quite as time sensitive as cardiac arrest cases, they still warrant the fastest level of response. It is not uncommon for dispatchers not to be able to recognize major trauma cases from information received by callers. This may result in some cases not getting the fastest response mode. As the technology for automated vehicular crash notification becomes more common, this problem may be partially addressed for motor vehicle crashes. It is implementation in VT PSAP centers is encouraged.

Patient Category	# of Cases	Time Interval	Average	Median	90Th Fractile	Range
Major Trauma						
	91	Incident Unit Notified by Dispatch Time to First Responder Arrived on Scene	00:16:09	00:09:00	00:25:00	00:00:00 to 04:24:00
	1194	Incident Unit Notified by Dispatch Time to *Incident Unit Arrived At Patient Time*	00:11:09	00:09:00	00:21:00	00:00:00 to 01:42:00

Table – Results of Major Trauma Response Reliability Time Interval Analyses

Stroke

Stroke cases had the time from dispatch notification to the arrival of the first responder crew on-scene averaging 8 minutes 13 seconds (00:08:13). 90% of the cases had first responder arrival on-scene by 16 minutes (00:16:00). There a few very long first responder arrival time intervals that seemed to be calculated from valid data. The longest such response was 56 minutes (00:56:00). There were not enough of these to make a major difference in the results, so the average response time is a reasonable reflection of the 'typical' response time interval for arrival of the first response unit on scene. This information is summarized in the table below.

The time from dispatch notification to the arrival of the ambulance crew at patient averaged 15 minutes 30 seconds (00:15:30). 90% of the cases had the ambulance crew at patient by 1 hour 15 minutes (00:20:00). There were a lot of long ambulance response intervals in this patient category and they all seem to have been calculated from valid data. The longest such response was 2 hour 6 minutes (02:06:00). There were so many of these longer response times that skewing is not much of a factor, so the average response time intervals is a reasonable reflection of the 'typical' response time interval for arrival of the ambulance crew at patient. This information is summarized in the table below.

The ambulance response intervals are quite long, particularly when compared to the first responder response intervals. It is speculated that the prioritization of these cases was not for the fastest mode of response by the ambulances. This may be a result of dispatch not recognizing stroke from caller interrogation, which is not uncommon. To minimize the chances of failure to detect stroke during caller interrogation, a formally structured caller interrogation process using commercial software, training programs, quality reviews, and dispatch center accreditation in emergency medical dispatch procedures is recommended.

Patient Category	# of Cases	Time Interval	Average	Median	90Th
Stroke					
	986	Incident Unit Notified by Dispatch Time to First Responder Arrived on Scene	00:36:48	06:00:00	00:16:
	986	Incident Unit Notified by Dispatch Time to *Incident Unit Arrived At Patient Time*	00:11:13	00:10:00	00:20:

Table– Results of Stroke Response Reliability Time Interval Analys

Sepsis

For sepsis cases, the time from dispatch notification to the arrival of the first responder crew on-scene averaged 8 minutes 55 seconds (00:08:55). 90% of the cases had first responder arrival on-scene by 15 minutes 12 seconds (00:15:12). There was one very long first responder arrival time interval that seemed to be calculated from valid data. This longest response was 1 hour 16 minutes (01:16:00). This did not have much of a skew impact, so the average is a reasonable reflection of the 'typical' response time interval for arrival of the first response unit on scene. This information is summarized in Table below.

The time from dispatch notification to the arrival of the ambulance crew at patient averaged 11 minutes 20 seconds (00:11:20). 90% of the cases had the ambulance crew at patient within 20 minutes (00:20:00). There were many very long ambulance crew arrival at patient time intervals that seemed to be calculated from valid data. The longest such response was 1 hour 42 minutes (01:42:00). There were so many long time intervals that it did not seems to cause much of a skew, so the average response time is still a reasonable reflection of the 'typical' response time interval for arrival of the ambulance crew at patient. This information is summarized in Table below

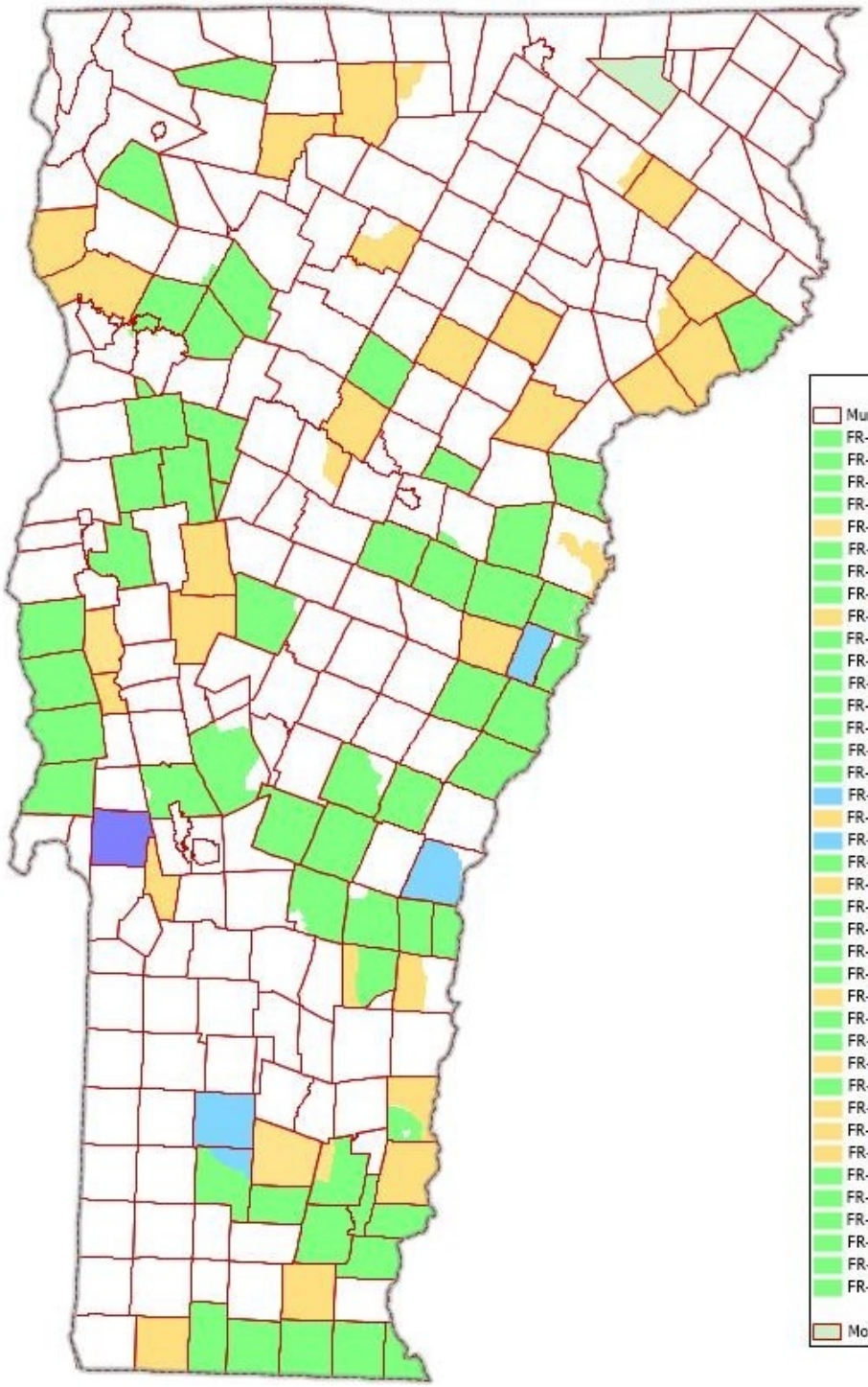
Much like the stroke cases, the ambulance response intervals are quite long, particularly when compared to the first responder response intervals. Also like the stroke cases, it is speculated that the prioritization of these cases was not for the fastest mode of response by the ambulances. It would be difficult for dispatch interrogation to discern a sepsis case, so a high prioritization would be dependent on detection of other high priority signs, symptoms, and circumstances. To minimize the chances of failure to detect sepsis or other high prioritization signals during caller interrogation, a formally structured caller interrogation process using commercial software, training programs, quality reviews, and dispatch center accreditation in emergency medical dispatch procedures is recommended.

Patient Category	# of Cases	Time Interval	Average	Median	90TH
Sepsis					
	985	Incident Unit Notified by Dispatch Time to First Responder Arrived on Scene	00:08:55	00:07:00	00:15:
	985	Incident Unit Notified by Dispatch Time to *Incident Unit Arrived At Patient Time*	00:11:20	00:10:00	00:20:

Table– Results of Sepsis Response Reliability Time Interval Analys

EMS Agencies' Primary Response Zones w/Level of Care

EMS First Responder Agencies
Primary Response Zones
with Level of Care &
with Municipal Boundaries



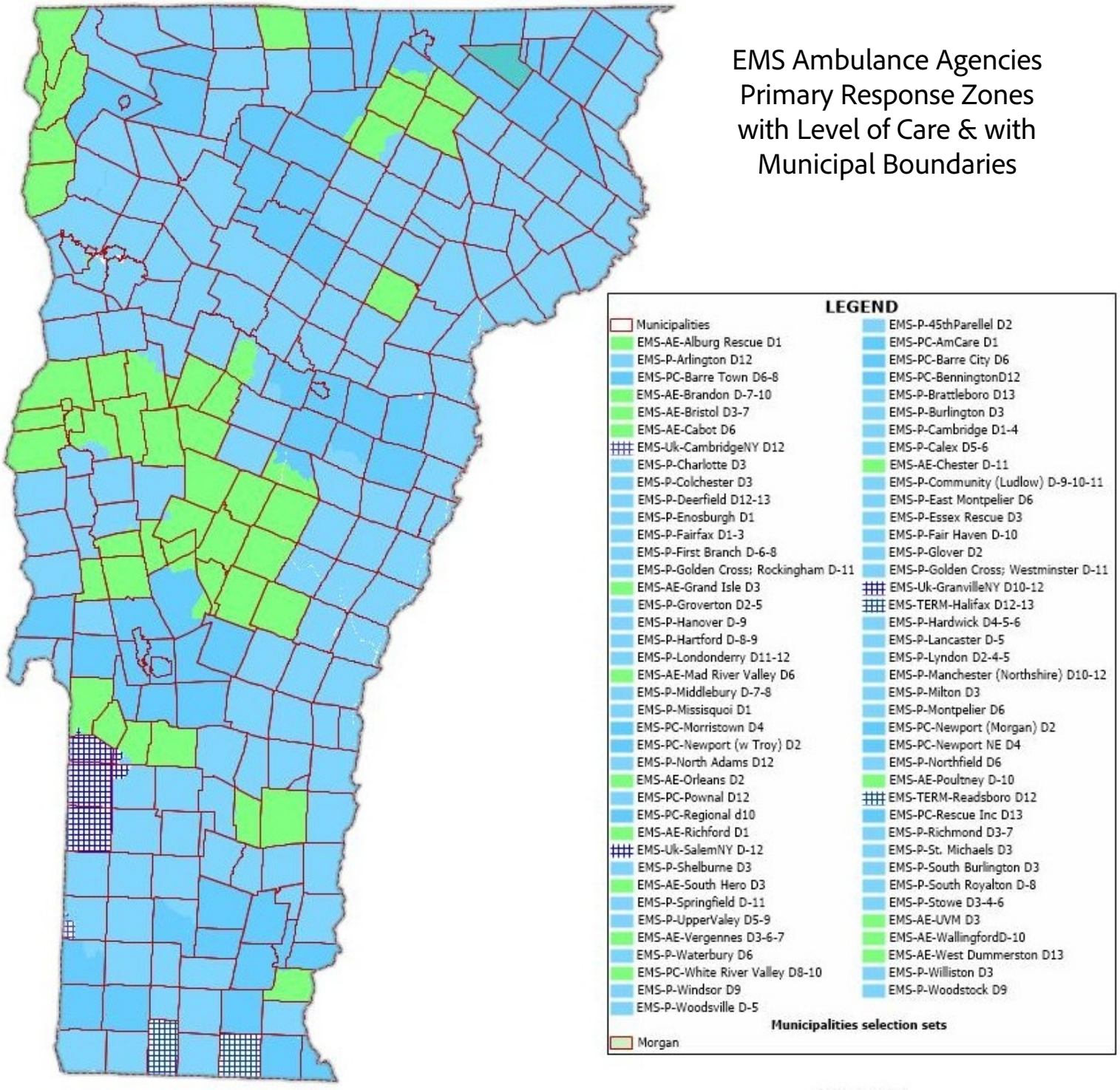
LEGEND

- Municipalities
- FR-AE-Barnard D8
- FR-AE-Benson D-10 1013
- FR-AE-Bridgewater D9 914
- FR-AE-Chittenden D-10 1003
- FR-E-Cornwall D-7 711
- FR-AE-Groton-Ryegate D-5-6 517
- FR-AE-Hinesburg D3 332
- FR-AE-Killington D-10 1015
- FR-E-Marlboro D13 1317
- FR-AE-Orwell D7 706
- FR-AE-Pittsford D10
- FR-AE-Putney D13 1314
- FR-AE-Saxtons D-11 1118
- FR-AE-Strafford D8 916
- FR-AE-Underhill-Jericho D3 345
- FR-AE-VT ANG D3 328
- FR-P-West Fairlee D-9 927
- FR-E-Whiting D7 725
- FR-P-Winhall D12 1217
- FR-AE-Cavendish 1110
- FR-E-Concord 525
- FR-AE-Essex Junction 333
- FR-AE-Georgia 119
- FR-AE-Granville 807
- FR-AE-Huntington 330
- FR-E-Ira 1019
- FR-AE-Monkton 727
- FR-AE-New Haven 723
- FR-E-Newbury 528
- FR-AE-Plainfield 621
- FR-E-Proctorsville 1131
- FR-E-Rockingham 1120
- FR-E-South Hero 343
- FR-AE-Starksboro 708
- FR-AE-Vernon 1319
- FR-AE-Washington 614
- FR-AE-West Dummerston 1310
- FR-AE-West Windsor 917
- FR-AE-Worcester
- FR-E-Bakersfield D1
- FR-E-Bellows Falls D11 1117
- FR-AE-Bradford D-9 901
- FR-PC-Castleton (DIV Regional) D10
- FR-AE-Corinth D6 612
- FR-AE-Global Foundries D3 342
- FR-P-Hartland D9 910
- FR-E-Jamaica D13
- FR-E-Lincoln D7 726
- FR-AE-Newbrook D12-13 1304
- FR-E-Peacham D5
- FR-AE-Pomfret D9 905
- FR-E-Ripton D-7 721
- FR-AE-Shoreham D7 707
- FR-AE-Town Line D-7 714
- FR-E-Vershire D-9 925
- FR-AE-Wardsboro D12-13 1307
- FR-E-Westminster D11 1113
- FR-AE-Whitingham D12-13 1221
- FR-E-Woobury D4 631
- FR-E-Colchester 347
- FR-AE-Essex Fire 334
- FR-AE-Fairlee 903
- FR-AE-Gilman-Lunenburg 506
- FR-AE-Guilford 1315
- FR-E-Hyde Park 421
- FR-E-Middlesex NL
- FR-E-Montgomery 127
- FR-E-Newark 524
- FR-AE-Norwich 923
- FR-AE-Plymouth 922
- FR-AE-Reading 918
- FR-AE-Sheldon 118
- FR-E-Stamford 1216
- FR-AE-Thetford 913
- FR-E-Walden 529
- FR-E-Waterford 519
- FR-E-West Weathersfield 1129
- FR-AE-Williamstown 632

Municipalities selection sets

- Morgan

Orange: EMT Level of Care
Green: Advanced EMT Level of Care
Blue: Paramedic Level of Care
Purple: Critical Care Level of Care



Green: Advanced EMT Level of Care
Blue: Paramedic Level of Care
Dark Blue: Critical Care Paramedic Level of Care
Checkered: Out-of-State Agency; Unknown Level of Care

Site Visits Summary

Three site visits were conducted in Vermont during March of 2025 for the purposes of this study. One was held in the northern region of the state, a second in the central area and a third in the southern portion. EMS agency leadership from throughout the state were invited to attend in-person or virtually. The session focused on discussing challenges and potential improvements to the

EMS system in Vermont, from the perspective of agency representatives and stakeholders. Participants addressed issues such as recruitment, retention, funding, training, and technological advancements, while also exploring strategies to enhance service delivery and adapt to changing demographics. The team emphasized the importance of data-driven recommendations, community involvement, and a forward-thinking approach to address the evolving needs of EMS agencies and improve overall healthcare equity.

Facilitated Site Visit Meetings

n early March 2025, the Cambridge Consulting Group (CCG) conducted a series of site visits to evaluate the Vermont Emergency Medical Services (EMS) system. The CCG team, comprised of experts Steve Kroll, Dr. Bob Holman, and Brian LaCroix, traveled to South Burlington, Barre, and Newfane, Vermont, to meet with local EMS stakeholders.

The assessment focused on critical operational, fiscal, and policy challenges within the EMS system, with insights shared by state and local EMS providers. Key issues identified include recruitment and retention, training and education, dispatch inefficiencies, fragmented state-wide coordination, and strained healthcare support systems. This report summarizes the findings and provides recommendations for improving Vermont's EMS system.

Site Visits

7. **South Burlington, Vermont – Thursday, March 6, 2025**
   - **Attendees:** 16 in-person, 3 virtual participants
   - **Stakeholder Representation:** EMS Districts 1, 2, 3, 4, & 5
8. **Barre, Vermont – Friday, March 7, 2025**
   - **Attendees:** 4 in-person, 4 virtual participants
   - **Stakeholder Representation:** EMS Districts 6, 7, 8, & 9
9. **Newfane, Vermont – Saturday, March 8, 2025**
   - **Attendees:** 12 in-person, 2 virtual participants
   - **Stakeholder Representation:** EMS Districts 10, 11, 12, & 13

Key Issues Identified

1. **Recruitment & Retention**
   - Recruitment and retention of EMS personnel remain the most significant challenges across Vermont
   - The aging EMS workforce and an increasingly older population contribute to workforce shortages
   - Limited financial incentives and the cost of housing deter young professionals from joining or remaining in the EMS field.
2. **Education & Training**
   - There is a notable absence of standardized EMS training across districts.
   - Educational resources are strained, with significant reliance on volunteer instructors who are aging and may soon retire.
   - Vermont EMS lacks a consistent Field Training Officer (FTO) program, which affects the training and integration of new personnel.
3. **Operational Performance Standards**
   - Many EMS districts lack best practices in critical areas such as routine Life & Safety (L&S) responses, demand analysis, and effective hiring practices.
   - Variability in operational performance standards, particularly in EMS protocols and dispatch systems, creates inefficiencies.
4. **Dispatch Systems**
   - Vermont's EMS dispatch system is fragmented, with six Public Safety Answering Points (PSAPs) and 38 separate dispatch centers.
   - This system suffers from inefficiencies, including poor coordination and outdated technology.
   - Dispatch times are exacerbated by communication gaps, especially in rural areas where volunteer dispatchers manage systems from their homes.
   - A lack of interoperability and data-sharing exacerbates response times, particularly in rural areas.
5. **Medical Direction & Clinical Protocols**
   - Many districts rely on volunteer medical directors, and clinical protocols are inconsistently applied across the state.
   - There is no statewide system for managing local protocols, leading to discrepancies in care across different regions.
   - Vermont faces challenges in integrating new models of care, such as Mobile Integrated Healthcare (MIH), due to resource limitations.
6. **Interfacility Transport (IFT) & Healthcare System Strains**
   - There is limited data on interfacility transport (IFT) and insufficient hospital engagement with EMS providers.
   - EMS services are increasingly burdened with transporting patients who may not need emergency care, particularly with the push for early discharges from hospitals.
   - The healthcare system's shift towards outpatient and community-based care, such as home health, further strains EMS capabilities.

7. **State-Wide EMS District Structure**
   - Vermont's EMS system is divided into 13 districts, each with its own leadership and protocols, creating a fragmented approach to EMS delivery.
   - Political dynamics are highly localized, leading to a lack of cohesion and collaboration between districts.
8. **Financial Sustainability**
   - Vermont EMS agencies face significant financial challenges, including high operational and capital costs.
   - Agencies also struggle with reimbursement rates, with many relying heavily on government payers like Medicaid, which contributes to financial instability.
   - The state's ambulance revenue tax generates funds but does not adequately address the financial needs of many districts, particularly those serving transient or low-income populations.
9. **Behavioral Health & EMS**
   - Behavioral health services are significantly underdeveloped, with limited crisis care available outside regular office hours.
   - Many EMS agencies report being overwhelmed with behavioral health calls, which are not adequately addressed by the existing healthcare system.
   - The lack of a triage system for behavioral health calls exacerbates the burden on EMS providers.

Considerations

1. **Standardization of Training & Protocols**
   - Develop a statewide EMS Field Training Officer (FTO) program to ensure consistent onboarding of new personnel.
   - Establish standardized training curricula and protocols across districts to reduce variability and improve operational efficiency.
2. **Dispatch System Overhaul**
   - Implement a unified, state-wide dispatch system with improved interoperability and data-sharing capabilities to enhance response times and coordination across EMS agencies.
   - Explore the feasibility of creating a centralized dispatch center to streamline operations and improve efficiency.
3. **Support for Recruitment & Retention**
   - Increase financial incentives for EMS professionals, particularly in rural areas, to address staffing shortages and improve recruitment.
   - Address the high cost of housing in rural areas, which is a significant barrier to retaining EMS professionals.
4. **Behavioral Health Integration**
   - Strengthen the integration of behavioral health services with EMS, including providing dedicated resources for mental health crisis management.
   - Develop a state-wide triage system for behavioral health emergencies to ensure appropriate care and reduce the strain on EMS.

5. **Improve Data & Resource Allocation**
   - Enhance data collection on interfacility transport (IFT) to better understand utilization patterns and identify areas for improvement.
   - Implement a state-wide Computer-Aided Dispatch (CAD) system to improve resource allocation and reduce response times.
6. **Financial Sustainability & Support**
   - Address the financial challenges faced by EMS agencies by exploring alternative funding mechanisms, such as increasing Medicaid reimbursement rates and expanding access to grants.
   - Consider re-structuring the ambulance revenue tax to provide more equitable funding for districts with varying financial needs.
7. **Mobile Integrated Healthcare (MIH) & Community Paramedics**
   - Pilot Mobile Integrated Healthcare (MIH) programs in areas with high chronic care needs and frail elderly populations, while carefully managing expectations regarding resource limitations.
   - Encourage collaboration between EMS and other community health services to reduce the strain on EMS caused by hospital discharge practices.

Conclusion

The Vermont EMS system is at a critical juncture, facing challenges in recruitment, training, dispatch, and operational efficiency. A holistic approach that addresses both immediate operational concerns and long-term systemic issues is necessary to ensure the sustainability of EMS services in the state.

With leadership from state officials, collaboration between EMS agencies, and targeted investment in resources, Vermont can build a more efficient, effective, and sustainable EMS system.

EMSD Self-Assessment

The Cambridge Consulting Group requested the EMSD conduct a self-assessment pertaining to their statutory responsibilities, focusing on the status of achievement for each element. This is their response. It underscores the form's conclusions that the division is underfunded and understaffed and struggles to completely fulfill its mandated obligations.

Vermont Emergency Medical Services Division Self-Assessment Report

Vermont Statutes, Title 18, §906 sets forth the responsibilities of the Department of Health Emergency Medical Services Division. The Emergency Medical Services Division is generally known as Vermont Office of Emergency Medical Services and Vermont EMS Office. Vermont Statutes, Title 24, §2682 adds additional areas of authority.

Ten areas of responsibility are included in 18 V.S.A. §906:

1. **Develop and implement training standards for basic and advanced life support**

   The EMS Office approves state-licensed instructors to deliver courses leading to National Registry certification and state licensure at the EMR, EMT, AEMT, and Paramedic levels. The curricula for these courses are based on the NHTSA National Scope of Practice Model and the Vermont Statewide EMS Protocols. Having only one FTE dedicated to EMS education, the EMS Office is facing challenges transitioning from the end-of-course psychomotor exam to training instructors to incrementally measure and ultimately verify students' skills competency. This program requires the EMS Office's sole education FTE to develop competency evaluation tools, train and monitor instructors to effectively evaluate student competency and address gaps, and modify the instructor development and evaluation tools as the program evolves.

2. **Develop and implement standards for vehicles used in providing EMS**

   The EMS Office licenses all ground transport vehicles, which are required in EMS Rule to adhere to the design specifications of the General Services Administration KKK-A-1822F standard, National Fire Protection Association 1917-2016 standard, or the Commission on Accreditation of Ambulances GVS v.1 standard. All licensed ambulance vehicles are inspected by EMS staff every two years.

3. **Develop a statewide system of EMS**

   The components of a statewide EMS system include leadership and policy, funding, human resources, a transportation network, facilities and systems of care, public access and 911, public information, education and prevention, clinical care and medical direction. The ability of the Office of EMS to plan and collaborate on the development and implementation of each of these unique but closely associated components has varied greatly. The Office of EMS regularly updates the EMS Rule, revises and implements evidence based clinical protocols, and distributes funding to support the initial and continuing education and training of the EMS workforce. Vermont EMS levels of licensure are based upon on current NHTSA National Scope of Practice Model and are regularly evaluated and revised. Each year several hundred new EMS licenses applications, and one and a half thousand license renewal applications are processed. The EMS for Children program works with partner organizations that focus on data analysis, quality improvement, and pediatric research to ensure the best possible outcomes for children needing emergency care across the state.

While the Office of EMS has made substantial progress in a limited number of areas, the development of a statewide EMS system has been slowed due to inadequate state investment and overreliance on grants that are narrow in focus and insufficient in funding to provide for the personnel, infrastructure, and systems necessary to do what is required. Staffing levels in the Office of EMS has remained nearly stagnant for two decades, leaving each staff member responsible for several critical functions, and the Office vulnerable to fulfilling its regulatory responsibilities when staff are absent or positions are vacant. Regular turnover of staff has contributed to a loss of institutional knowledge, further hampering the team's ability to advance the development of a statewide EMS system.

4. **Develop response time standards**

   No work has been done on this responsibility due to insufficient staffing and resources.

5. **Training or assisting in the training of EMS personnel**

   In addition to approving courses for NREMT certification and state licensure, the EMS Office's State Training Administrator (sole education FTE) compiles for the bi-weekly EMS Newsletter a list of non-licensure courses and training opportunities offered by various organizations on topics that support EMS work, such as responder wellness, leadership, PHTLS/PALS/ACLS, emergency preparedness, etc. The Training Administrator meets monthly with the state's licensed Instructor/Coordinators and bi-monthly with agency training officers. The Office owns training resources such as CPR manikins and simulated childbirth manikins, which it makes available to the EMS community. The EMS for Children program manager offers monthly statewide pediatric case reviews.

6. **Assist hospitals in developing programs that will improve the quality of in-hospital services for persons requiring emergency medical treatment**

   The EMS for Children program's Pediatric Readiness Project works with hospitals on an ongoing basis to promote the specific needs of pediatric patients that arrive with EMS.

7. **Developing and implementing procedures to ensure appropriate medical control**

   The EMS Office relies on emergency physicians who serve as District Medical Advisors without state compensation to oversee the quality of EMS care in their districts and to provide medical online and offline medical direction to the EMS clinicians in their districts. The EMS Office meets with the DMAs twice a year and as identified that DMAs do not have sufficient support and resources to effectively oversee the quality of EMS care. Some but not all DMAs are partially compensated by their hospitals, but this arrangement is becoming less tenable as hospitals grapple with budget challenges. All hospital emergency departments are provided access to the Statewide EMS Protocols to provide medical direction to EMS units transporting patients to their facilities.

8. **Establish requirements for the collection of data by EMS personnel and hospitals to evaluate emergency medical treatment.**

   The EMS Office owns and manages a statewide EMS patient care reporting system called SIREN. All EMS agencies are required to submit a patient care report for each EMS incident to which they are dispatched and initiate a response. The EMS Office has only 1.5 FTE dedicated to all aspects of EMS patient care reporting, which includes maintaining the SIREN system, addressing user access issues, and responding to a growing number of data requests. The data manager has identified significant

issues with data completeness, timeliness, and accuracy and has a plan to improve the user interface, offer training, and promote user compliance, but requires additional resources to effectively implement these actions.

9. **Establish by rule, license levels for emergency medical personnel**

   EMS Rule Section 8.0 defines all EMS license levels. It describes the qualifications and processes to obtain an initial or renewed license.

10. **Establish a rule for an entry level certification for EMS responders**

    EMS Rule Section 8.0 defines the qualifications and processes for obtaining an initial or renewed Vermont Emergency First Responder certification.

24 V.S.A. §2682 adds or clarifies three areas of authority

1. **To Issue licenses for ambulance service and first responder service**

   EMS Rule Section 4.0 describes the qualifications and processes to obtain an initial or renewed ambulance agency license. EMS Rule Section 5.0 describes the qualifications and processes to obtain an initial or renewed first responder agency license. EMS Rule Section 6.0 describes the qualifications and processes to obtain an initial or renewed air ambulance agency license.

2. **To revoke or suspend, with notice and opportunity for hearing in the event of violation or failure to comply with a rule or law.**

   EMS Rule Section 14.0 describes the EMS Office's authority to condition, deny, suspend, or revoke an agency, personnel, vehicle, or instructor license for unprofessional conduct or non-compliance with the EMS Rule. The Rule also describes the process by which a licensee or applicant can appeal a license action decision.

3. **Make rules to protect the public that may be served by EMS relating to age, training, physical requirements; designing and equipping ambulances, coordination with hospitals and organizations and central communication procedures; and other matters properly within the scope of Chapter 71 Ambulance Services.**

   Aspects of EMS Rule Sections 4.0, 5.0, and 6.0 establish the obligation of Ambulance, First Response, and Air Ambulance licensed organizations to provide ongoing training. EMS Rule Section 8.0 describes the personnel training requirements for initial licensure and licensure renewal. EMS Rule Section 9.0 describes the requirements for initial EMS training courses. EMS Rule Section 10 describes the requirements for licensure and licensure renewal of EMS Skill Instructors, Instructor Coordinators, and Senior Instructors. EMS Rule Section 11 establishes the scope of practice and education standards for the certification of Vermont Emergency First Responders, and the licensure of Emergency Medical Responders, Emergency Medical Technicians, Advanced Emergency Medical Technicians, and Paramedics. EMS Rule Section 12 describes EMS initial certification examinations. EMS Rule 7.0 establishes requirements for the design and equipping of ground ambulances. EMS Rule 4.0 and 5.0 both require licensed Ambulance and First Response services to have equipment necessary to communicate with hospitals and emergency communications centers, and the ability to receive medical direction. EMS Rule Section 8.9 describes the personnel training requirements, including the minimum age, for initial licensure and licensure renewal.

Stakeholders' Input Summary

System Structure and Governance

Cambridge Consulting Group conducted numerous interviews with key individuals and leadership of the Vermont EMS system and reviewed the responses to the firm's surveys and compiled this summary of stakeholders' input. It includes a SWOT analysis from the perspective of the stakeholders.

State Level

Office of EMS (OEMS): The central state authority for EMS, housed within the Vermont Department of Health

State Medical Director: Currently Dr. Dan Wolfson, who oversees statewide protocols and medical direction

EMS Advisory Committee: Statutory advisory body that reports to the legislature annually but lacks regulatory authority

Regional Level

EMS Districts: Vermont is divided into multiple districts,, established by statute years ago

District Medical Advisors (DMAs): Physicians who provide medical oversight within districts, often on a volunteer basis

Hospital Relationships: Districts are typically centered around anchor hospitals, though hospital involvement varies greatly

Local Level

Service Types: Mix of career (paid), volunteer, and hybrid EMS agencies

Coverage: Rural areas predominantly rely on volunteer services, while urban areas have more career services

Mutual Aid: Varying degrees of cooperation between services, with some areas experiencing challenges in this regard

SWOT Analysis

Strengths

1. **Dedicated Workforce:** Strong commitment from EMS professionals, particularly notable among volunteers in rural areas
2. **Statewide Protocols:** Standardized statewide protocols that guide clinical care, which has been a significant improvement from previous district-specific protocols
3. **Positive OEMS Relationships:** Generally positive relationships between the state OEMS and providers, described as “nimble” despite being understaffed
4. **Rural Service Coverage:** Remarkable coverage in rural areas despite staffing challenges
5. **Strong Medical Direction:** Active and engaged medical directors, particularly in District 3
6. **Quality Improvement Initiatives:** Some districts (notably District 3 and 6) have established effective QI programs
7. **Legislative Interest:** Current legislative interest in improving the EMS system

Weaknesses

1. **Fragmented System:** Siloed operations between districts with minimal coordination
2. **Dispatch Challenges:** Fragmented dispatch system with 6-7 PSAPs and 36+ dispatch centers, lacking standardized training and pre-arrival instructions
3. **Volunteer Staffing Shortages:** Declining volunteer workforce and difficulty recruiting new volunteers
4. **Inconsistent Education:** Highly variable EMS education quality and access across the state
5. **Data Collection Issues:** Inadequate data collection and analysis, limiting evidence-based decision making
6. **Interfacility Transport Problems:** Major challenges with interfacility transport, particularly during evening hours
7. **District Structure Limitations:** Districts have responsibilities but limited authority, creating an ineffective middle layer
8. **Unclear Medical Direction Authority:** Varying interpretations of medical directors’ authority and responsibilities
9. **Mental Health Response:** Inadequate resources for responding to mental health emergencies
10. **Quality Assurance Variability:** Inconsistent quality assurance processes across agencies and districts

Opportunities

1. **Regionalization:** Potential for consolidation of services, training, and resources
2. **Improved Dispatch Integration:** Streamlining dispatch systems and implementing priority dispatch protocols
3. **Educational Partnerships:** Developing relationships with vocational schools to create career pathways (successful examples exist)
4. **Healthcare Reform Integration:** Leveraging current healthcare reform momentum to position EMS as a vital healthcare component
5. **Mobile Integrated Healthcare:** Expanding the role of EMS beyond emergency response
6. **Performance Metrics Standardization:** Developing consistent performance standards across the state
7. **Enhanced Funding Mechanisms:** Provider tax mechanisms to increase Medicaid reimbursement
8. **Regional Coordination:** Strengthening regional coordination for disasters and major incidents
9. **Technology Implementation:** Improved data systems and analytical tools such as Biospatiale
10. **Advisory Council Empowerment:** Providing the Advisory Council with fiscal authority to implement recommendations

Threats

1. **Financial Sustainability:** Increasing costs without corresponding revenue increases
2. **Aging Workforce:** Experienced providers retiring without sufficient replacements
3. **Rural Population Decline:** Decreasing population in rural areas, further reducing volunteer base
4. **Political Resistance to Change:** Strong local control culture that resists regionalization
5. **Hospital Closures:** Reduction in rural hospital services impacting EMS transport patterns and times
6. **Equipment Costs:** Rising costs of ambulances, medical supplies, and technology
7. **Provider Burnout:** Increasing stress on remaining workforce, particularly regarding interfacility transports
8. **Changing Demographics:** Aging population requiring more healthcare services
9. **Public Expectations Gap:** Community expectations for emergency response versus available resources
10. **Law Enforcement Changes:** Vermont State Police no longer responding to psychological emergencies, shifting burden to EMS

Key Issues and Recommendations

Governance and Structure

The district structure requires reassessment, with most stakeholders indicating it doesn't function effectively

Regionalization appears necessary, though implementation faces political challenges

Clearer authority and responsibilities for medical directors are needed

Staffing and Workforce

Volunteer recruitment and retention require dedicated strategies

Career path development from high school through paramedicine needs strengthening

Mental health support for providers is increasingly important

Education and Training

More standardized and accessible education is necessary

Training for instructors on competency-based education is lacking

Collaboration between agencies for training could reduce redundancy

Operations

Interfacility transport requires systematic solutions

Dispatch consolidation and standardization would improve response coordination

Performance standards need to be consistently implemented and measured

Finance

Sustainable funding mechanisms are needed for both services and system infrastructure

Exploration of regional taxation authority may provide stability

Provider tax mechanisms could increase Medicaid reimbursement rates

Additional Data Needs

1. **Comprehensive response time data from all agencies**
2. **Financial data from volunteer agencies (often unreported)**
3. **Patient outcome data linked to EMS interventions**
4. **Workforce demographics and projected retirement information**
5. **Detailed analysis of mutual aid patterns and frequency**
6. **Comprehensive interfacility transport volume and patterns**

Summary

Vermont's EMS system is at a critical juncture. While built on a strong foundation of dedicated providers and quality medical direction, it faces significant challenges from its fragmented structure, staffing shortages, and financial pressures. Current legislative interest provides a rare opportunity for comprehensive reform, particularly around regionalization, education standardization, and sustainable funding. The evidence gathered suggests that without significant structural changes, rural coverage in particular will become increasingly difficult to maintain.

The path forward likely requires difficult conversations about consolidation, increased professionalization, and alternative deployment models. Stakeholders across the system have demonstrated awareness of these issues, and there appears to be growing consensus that maintaining the status quo is not sustainable. The upcoming 5-year EMS plan development process offers an important vehicle for implementing evidence-based improvements identified in this assessment.