PrioriHealth Partners, LLP

Comprehensive NH EMS Survey

A Survey of New Hampshire EMS Providers

2012

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Acknowledgement

The project team would like to thank Mr. Chip Cooper of the New Hampshire Bureau of EMS (BEMS) for his foresight and continuous efforts to discover the issues and concerns of New Hampshire EMS providers. Achieving greater than 50% response rate for a large survey was no small feat and contributes greatly to the soundness and reliability of the data collected.

Without the funding provided by the NH Department of Health and Human Services (DHHS), Rural Health and Primary Section (RHPC) and support of the NH Department of Safety, BEMS, NH Emergency Medical and Trauma Services (EMTS) Coordinating Board this survey would not have been possible.

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Project Introduction

PrioriHealth Partners was engaged to administer the New Hampshire (NH) Comprehensive Statewide Emergency Medical Services (EMS) Survey on behalf of the NH Department of Safety, Bureau of Emergency Medical Services (BEMS), NH Emergency Medical and Trauma Services Coordinating Board (EMTSCB) and the NH Department of Health and Human Services (DHHS), Rural Health and Primary Section (RHPC) to better understand the needs of NH's EMS Units and to identify how these state agencies can best serve their EMS constituents.

The Medicare Rural Hospital Flexibility Grant Program (Flex Program) is a federally funded program created by the Balanced Budget Act of 1997 to ensure access to the rural health care safety net, including rural EMS services. In 2003, the BEMS and RHPC partnered to conduct a statewide EMS Survey. The results of that survey lead to a number of EMS programs supported with "Flex funding" and the development of a strategic plan in 2009 by the EMTSCB for the future of NH EMS. One goal set in that strategic plan was to conduct an updated statewide EMS survey to assure a current picture of EMS in NH moving forward.

The NH Flex Program has partnered with the NH BEMS to identify the needs of EMS Units (rural in particular) and to set priorities for future funding of EMS programs and education and to help understand financial and operational limits for services to support EMS protocol development and State Statutes and Administrative Rules. Emergency Medical Services (EMS) Units across the country face considerable challenges in continuing to meet the ever-changing needs of the healthcare system and their communities.

Survey Development

The BEMS Research and Quality Management Section convened an advisory group from the EMTSCB to develop a series of questions to assess the current state of EMS in NH. While some survey questions were global, two parallel sets of questions were developed for the Transporting and Non-Transporting services. A primary constraint on the survey developers was to collect as much meaningful data as possible while requiring less than 60 minutes of respondent's time to actually complete the survey.

In general, the questions were intended to help in decision making and funding of future programs and included the following objectives:

- Validate existing information about coverage areas and ambulance distribution for state-wide emergency operations
- Getting a better understanding of capital equipment available to all services to support decision making for NH EMS protocols and state EMS Administrative Rules to minimize or avoid any new financial burden to services
- Understand what equipment non-transporting services currently carry to find a minimum common standard

- Understand how various services pay for operating costs and have data to show policy makers to demonstrate the financial burden their regulations and budget cuts may have on ambulance service billing and reimbursement
- Understand the EMS recruiting, retention and education challenges various regions and types of communities face in NH (such as rural versus urban).
- Identify interest EMS services may have in a number of potentially available training courses-such as EMS leadership and budget development, public information officer training, etc.

Some questions were dynamically stacked, so that a particular answer to a question would determine if a second question would be asked or not. This resulted in approximately 230 questions being developed for transporting services and 210 for non-transporting services with approximately 700 possible answers.

To provide an incentive for the 301 licensed services to complete the survey, the BEMS also developed a drawing for two $200 and two $100 gift certificates to a widely used equipment vendor. One pair of gift certificates was identified for transporting services and the other for non-transporting services who fully completed the survey.

Finally, questions were divided into two categories; questions where complete and full unit identified data would be provided by PrioriHealth to the BEMS and those where data would only be provided to BEMS in a de-identified or aggregate form. The intent of the de-identified questions was to encourage a more candid response from units to certain important questions. Each of these question types were specifically identified in the survey.

Survey Implementation

PrioriHealth Partners worked with the BEMS throughout the first half of 2011 to 'fine tune' the survey questions and to transfer those questions to a web based survey tool. PrioriHealth chose an open source survey platform known as Limesurvey (http://www.limesurvey.org/) for this project. The Limesurvey source code was compiled and installed onto a server managed and hosted by PrioriHealth.

Throughout the project period a number of updates, bug fixes, and enhancements were applied to the base survey code. Additionally it was necessary for PrioriHealth to develop several custom programmatic functions to improve the survey taker's experience with this large survey project.

For the 2011 NH EMS Survey, BEMS provided a qualified list of 301 services to receive an invitation to the survey via email. Each invitation was unique and for a specifically prepared survey, complete with demographic data pre-populated from the BEMS licensing database for that service. To ensure the privacy of this information it was necessary to validate the email address of each recipient so that only appropriate and qualified persons would have access to the pre-populated data.

BEMS first sent a survey advisory notice to each service via the email address on file. Bounced or rejected emails were then researched and revised. This revised list was provided to PrioriHealth who then also sent a pre-invite email notice to each address. Additional bounces and rejections were further researched by BEMS to get a reasonably qualified email address list.

As a result of the first beta test of the web-based survey released to BEMS, several small formatting and survey flow changes were implemented. During April and May 2011, a selected group of five NH EMS services were then invited to take the survey and provide their feedback on the questions and the overall process. This also provided an opportunity to test the survey invitation and preloaded service data although no further changes were required.

In early June 2011, survey invitations were emailed to the remaining 296 services. A number of email addresses bounced or were rejected by spam settings. Several attempts were made by PrioriHealth and BEMS to get the invitation emails through to the intended recipients. Despite the best efforts of BEMS and PrioriHealth, it is possible that several did not make it through the spam filters, estimated at less than ten recipients being affected.

The survey was closed for new entries in August 2011 with a total of 151 responses. During the two months that the survey was in progress, no less than three survey reminders were sent to those with incomplete survey's or those who had not started the survey. A summary of the survey results follows.

2011 Survey Results

The following pages provide a broad set of statistics and graphs from the entire survey project. A brief discussion and/or a summarized version of the actual survey questions are provided below.

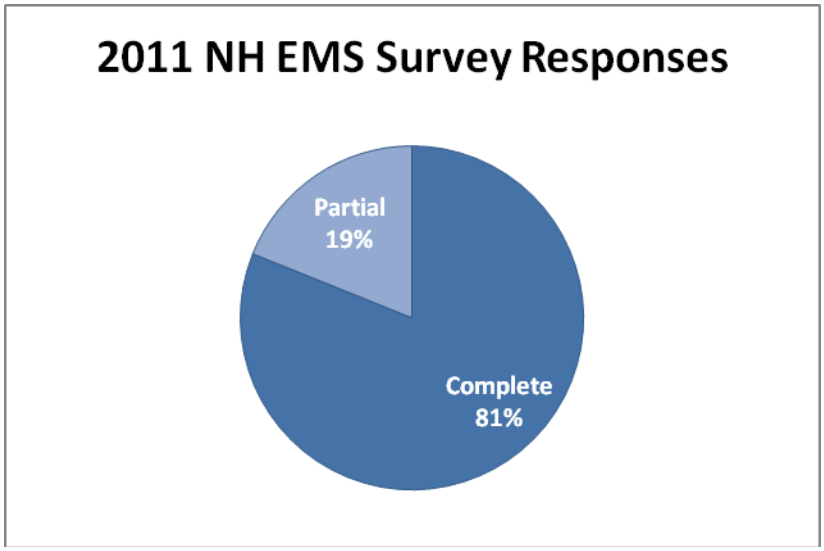
2011 NH EMS Survey Response Rate

This survey process had two major challenges to overcome in order to collect reliable data that could be useful for its intended purpose, namely it was not compulsory and the level of detail required many respondents to perform research about their service prior to survey completion. As a combined result of the active involvement of BEMS staff, the project team, an innovative incentive, and the commitment of the NH EMS services, a response rate exceeding 50% was achieved.

	Survey Returned	Response Rate
Transport	91	59%
Non-Transport	63	41%
Total	154/301	51% Overall

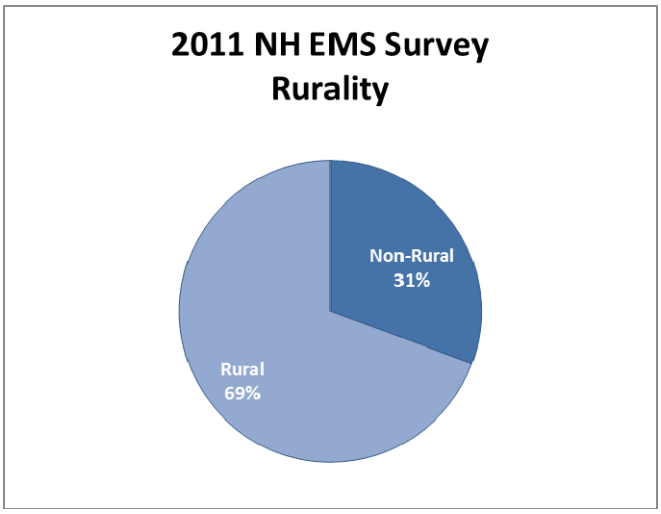
2011 NH EMS Survey Started to Completion Rate

The survey was designed to dynamically present questions that would be appropriate to the respondent depending on previous answers. For example, the first question about transport status focused later questions to areas specific to either a transport or a non-transport agency. Throughout the survey, each page submission was stored in a secure database and the next page was presented. At the conclusion of the survey, if the submit button on the final page was pressed, the survey was then marked as 'complete' or else the survey was considered partially complete.



2011 NH EMS Survey Rurality of Respondent Services

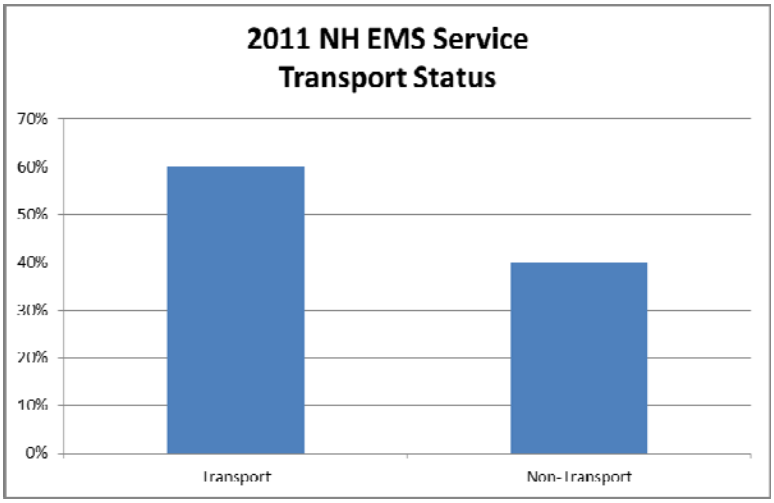
More than 2/3 of respondents are designated as rural according to the NH State Office of Rural Health designation.



2011 NH EMS Survey Response by Transport Status

Nearly two-thirds of the respondents provide 911-scene response with transport capabilities; the remaining respondents provide first response or educational services only. In comparison nationally, according to the 2011 USDOT EMS Office National EMS Assessment, 72% of EMS agencies provide 911-scene response with transport capability and 28% of EMS agencies provide 911-scene response without transport capability.

The transport status of the service was the first question in the survey and subsequent questions were dynamically keyed from this initial question. Respondents self-selected their status as transporting or non-transporting. The selection of the respondent may or may not reflect the actual status of their service's license (transport or non-transport) with the state of NH.

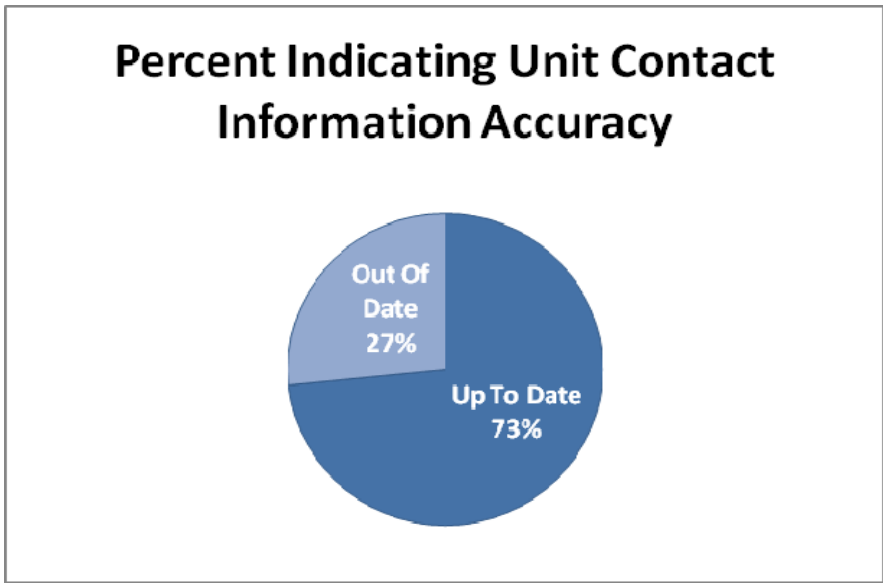


Responses indicating accuracy of BEMS provided pre-populated data

A select set of data was provided to the project team from the BEMS licensure database to assess the accuracy of the records and to update the database where needed. This resulted in 27% of the surveys providing updated information, all of which was Unit Contact information.

The data was pulled from the BEMS licensure database at the end of year one of a two-year licensing cycle. This indicates that at the end of a year, between 25-30% of Unit Contact Information in the database is outdated and that number could, theoretically, be higher by the end of the two-year licensing cycle.

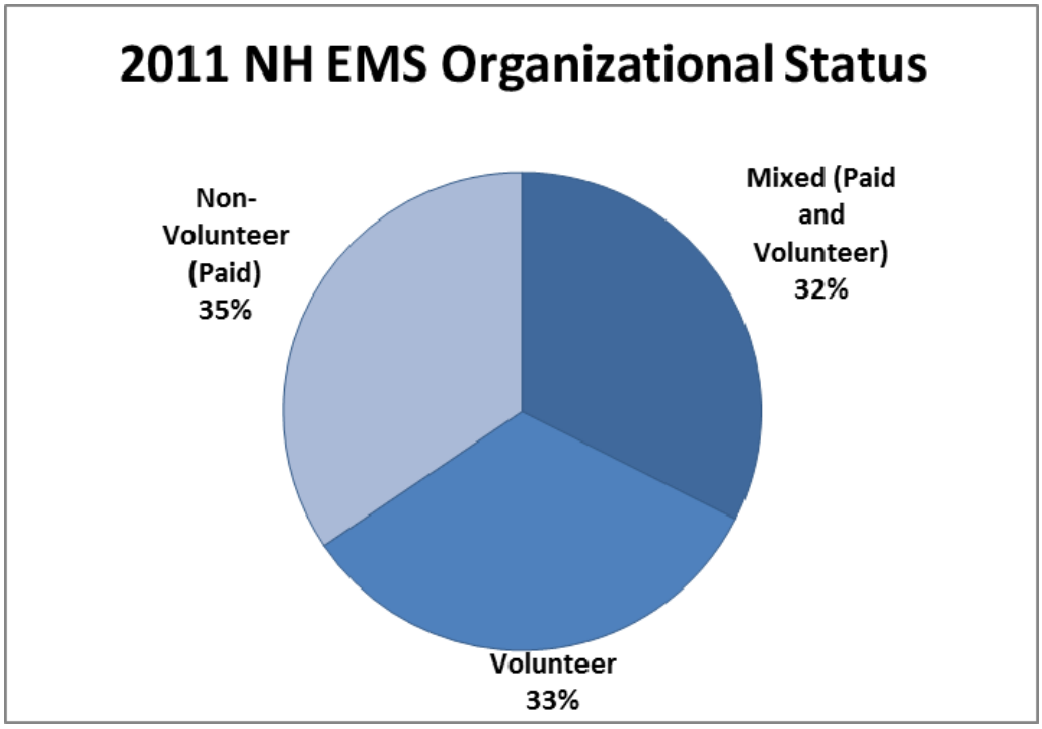
This indicates that many units are not complying with state Administrative Rules that require units to update the BEMS within 30 days of such changes. One possible solution to improve this situation would be for the BEMS to publish a concise unit guide for services to refer to for their reporting requirements, rather than expecting they will read through all of the state's Administrative Rules for Emergency Medical Services.



Overview of EMS Service Demographics

Organizational status of respondents

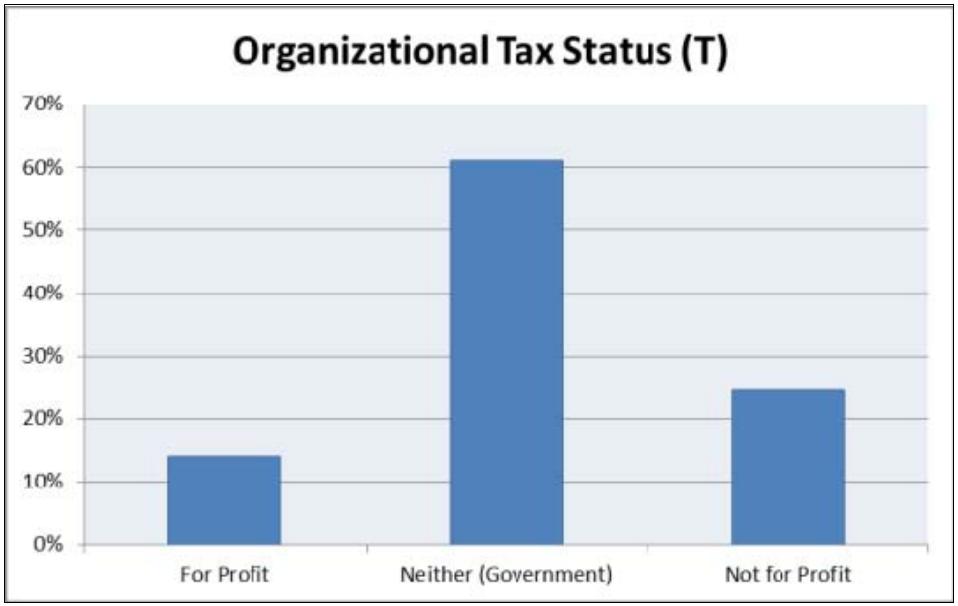
The survey asked agencies to self-identify as volunteer, non-volunteer, or mixed. With no consistent or formal definition of a volunteer agency at the state or national level, this question requires the agency to determine whether they provide volunteer services. Slightly more than two-thirds of respondents reported having at least some volunteer component.

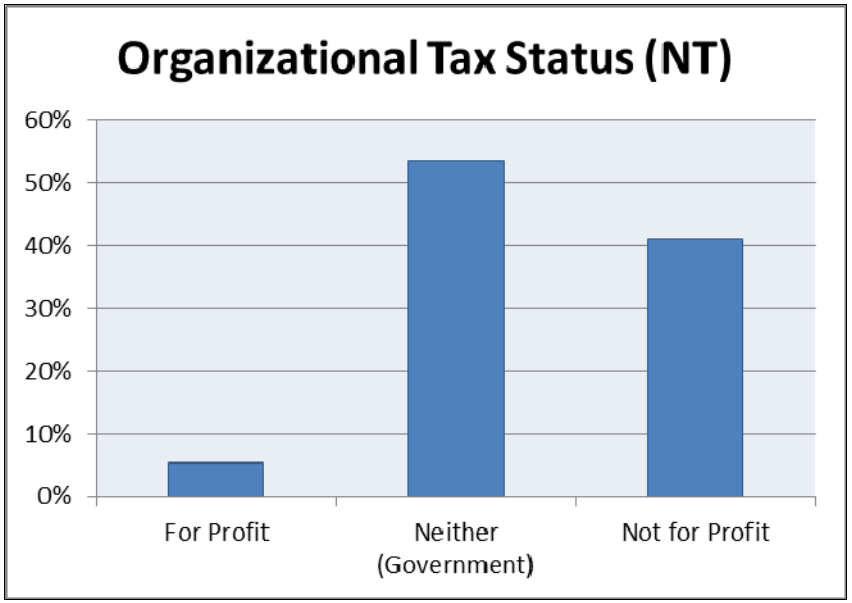


Transport	Non-Transport

What is your organizational tax status?

Almost 85% of transporting agencies self-reported as non-profit while about 95% of non-transporting agencies self-reported as being non-profit. This response was based upon a self-assessment by the service and not qualified as to whether the service was a legally registered non-profit entity

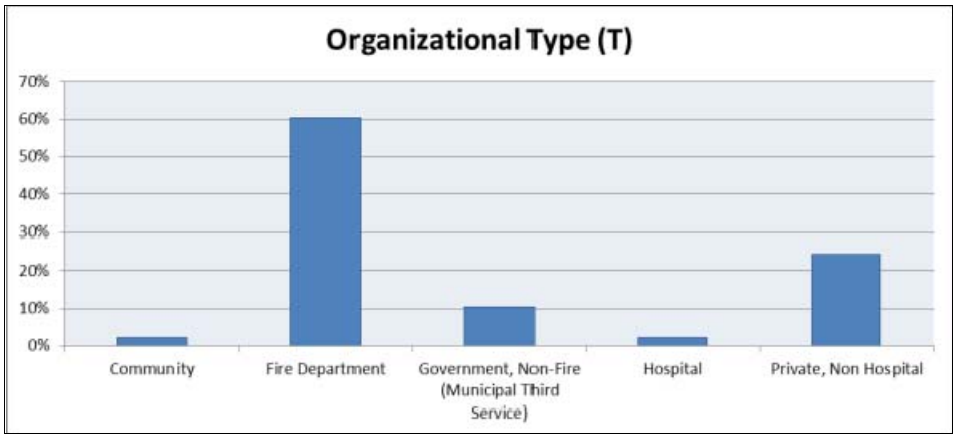


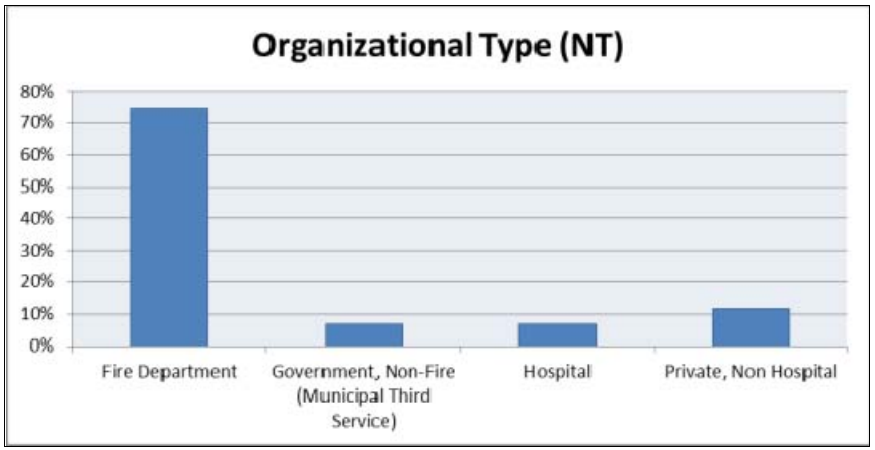


Transport	Non-Transport

What is your organizational type?

A majority of EMS in New Hampshire is provided through Fire Departments serving in either transport or non-transport roles. Almost 25% of transporting services are provided by private non-hospital agencies.

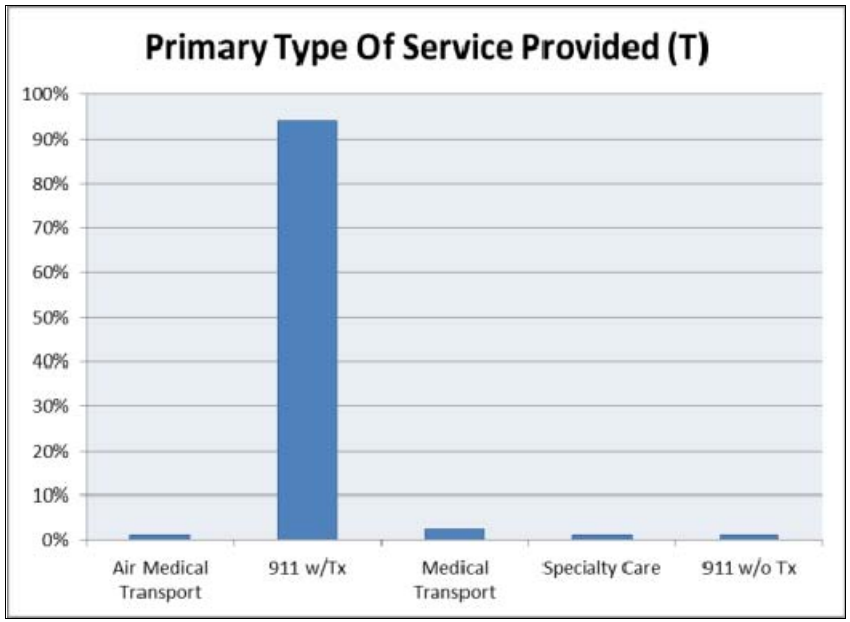


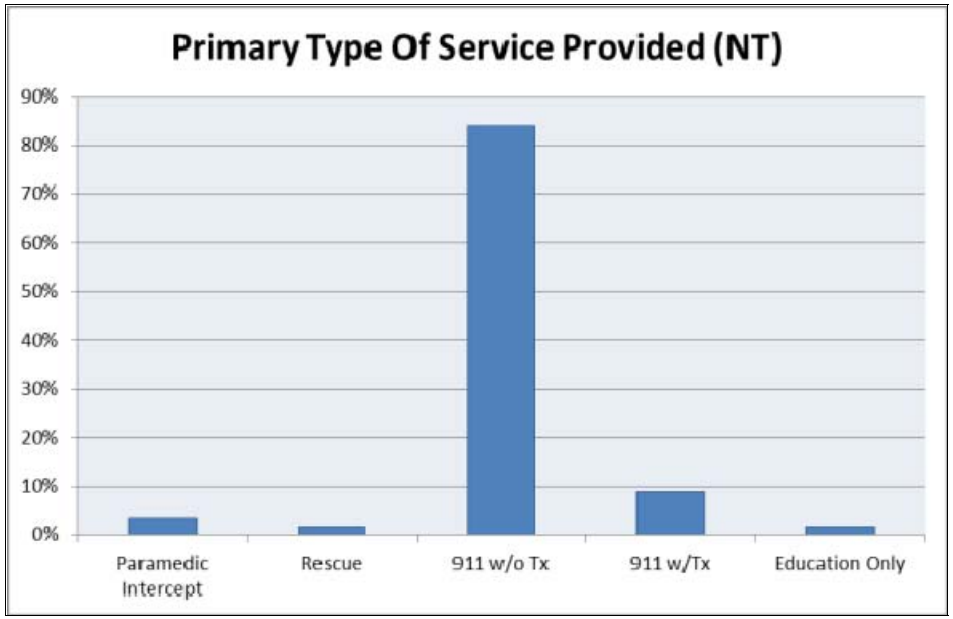


Transport	Non-Transport

What is your primary type of service provided?

Nearly all transporting agencies identified 911 transport as their primary type of service. Interestingly almost 10% of agencies licensed as non-transporting agencies indicated they provide 911 transport as a primary service. This may be explained because a number of NH EMS services are technically licensed as "Transporting" services and can transport if needed (even if they self-identified as non-transporting for the purposes of this survey), but frequently do not have the available staff resources to actually transport, so they tend to operate more like a non-transporting service the majority of the time.



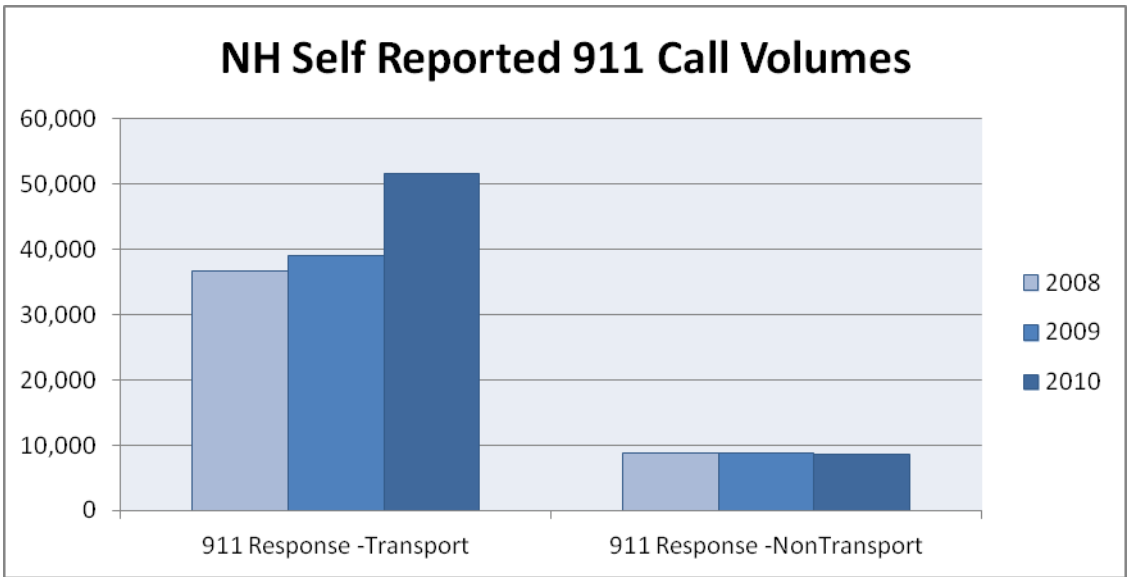


EMS Call Volumes for 2008-2010

EMS Call Volumes and types were self-reported for this survey. Calls coded as 911 calls in NH include traditional emergent calls received through the 911/dispatch system, walk-ins, flag-downs, and emergent standbys for police and fire events.

Some variations in call volume can be explained by variations in the electronic reporting systems. For instance, on the chart for non-911 calls only, the sudden spike in interfacility transports in 2010 can be attributed to private services doing a better job of reporting these calls in the system rather than there being a substantial increase in the number of actual transfers.

The Self-Reported 911 Call Volumes for non-transporting services is notably flat over the three years. An explanation for this result could not be determined from the information available in the survey.

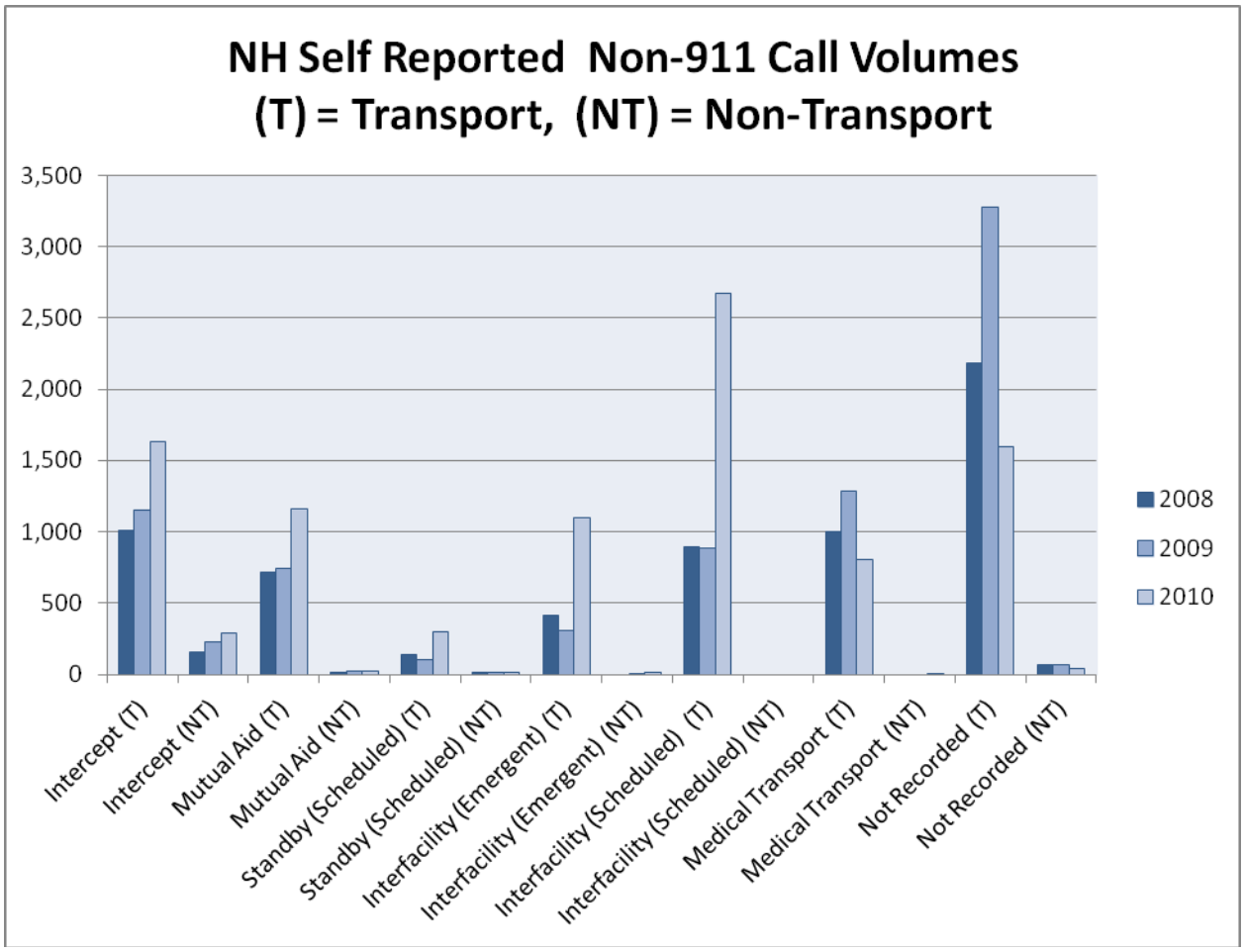


Self-reported call volumes for non-911 calls only

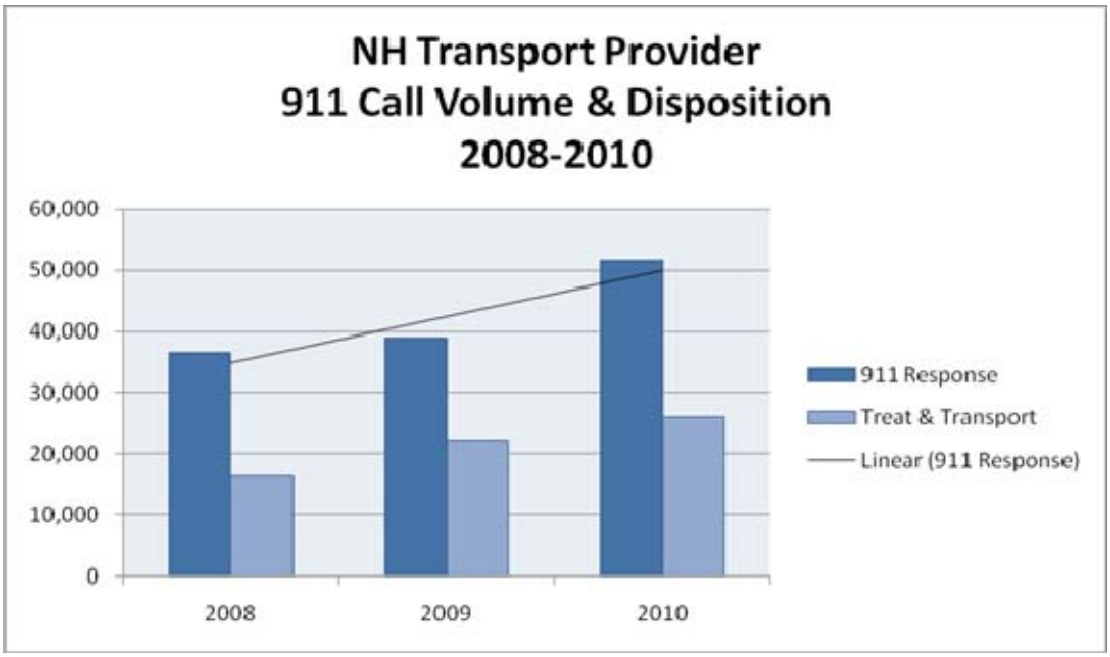
These are all calls that were not coded as specifically 911 calls and are represented in a separate table due to the significant differences in scale between the 911 calls volumes and all other calls types. The graph categories are standardized and used in the statewide ePCR system. The graph category interpretation/definitions are:

- **Intercept** is a Paramedic/ALS Intercept.
- **Mutual Aid** is a 911 response to another community not primarily covered.
- **Standby (Scheduled)** means a call where a crew was scheduled to standby at an event such as a ball game.
- **Interfacility (Emergent)** means an emergency interfacility transport between hospitals.
- **Interfacility (Scheduled)** means a pre-scheduled interfacility transport between hospitals.
- **Medical Transport** means a scheduled transfer for routine purposes that are not between hospitals, such as a dialysis run or doctor's office visit.

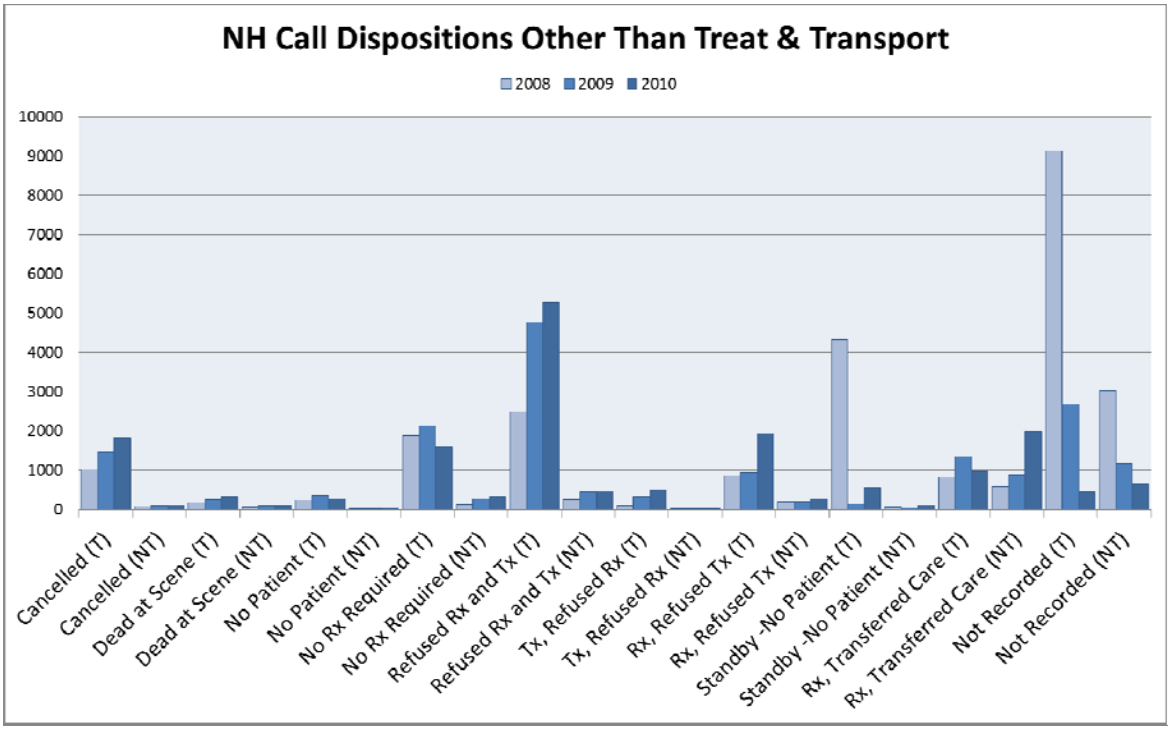
- **Not Recorded** means the EMS crew or Service did not code the type of EMS run they completed as part of the documentation process.



Transport provider 911 call volume & treat/transport disposition for 2008-2010



All provider call dispositions for 2008-2010



New Hampshire EMS Financing

Financing of EMS systems has been identified as one of the most urgent issues rural EMS systems must address today. As a result of Balanced Budget Act of 1997, ambulance agencies are no longer reimbursed on a reasonable charge/cost basis by Medicare[1234].

Medicare contractors review each claim, to determine if the transport was medically necessary and is therefore billable, resulting in some claims being denied. A "medically necessary" transport is one in which the condition or complaint of the patient requires an ambulance (e.g. the patient could not have been transported by public transportation) and is transported to a covered destination, usually a hospital emergency room. Medicare and other third-party insurance companies routinely deny claims that are determined by those payers to be "medically unnecessary"[5].

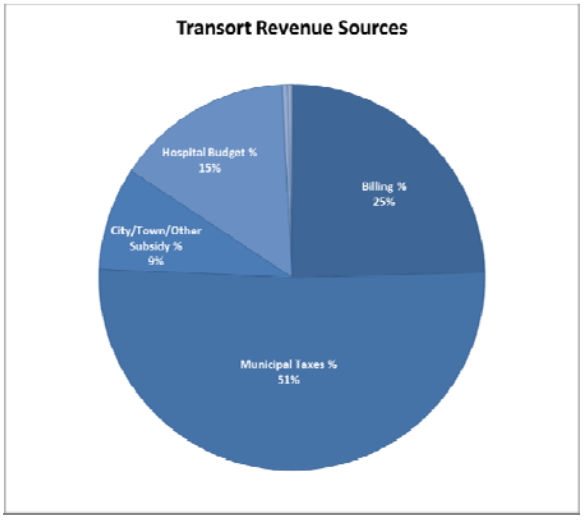
Under Medicare rule, emergency calls canceled prior to transport and non-transports are not paid, and "treat-no-transport" is only paid in cases of cardiac arrest. A claim meeting the medically necessary test is paid based on a national fee-schedule, using a unique algorithm to determine the exact amount an EMS transport agency deserves to be paid. The Medicare ambulance fee schedule is stratified into three payment categories of urban, rural and super rural. Transport of Medicare beneficiaries from rural and super rural zip codes results in a modest increase in the payment rate over those transported from urban zip codes.

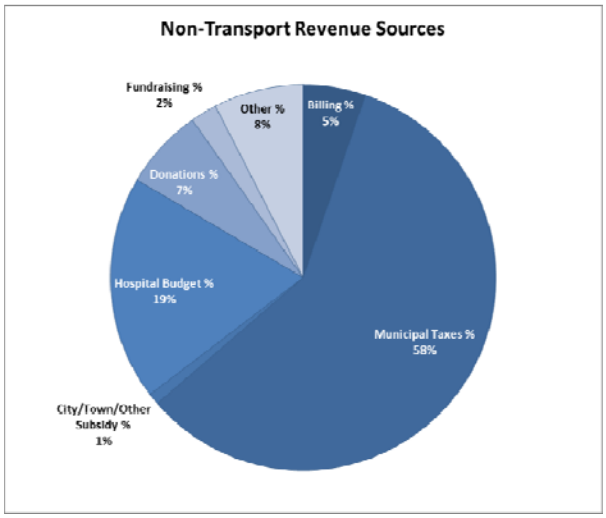
Many volunteer based rural EMS agencies do not bill for their services even for medically necessary transport services. EMS agencies that struggle to maintain 24 hour 7 days a week service while not being reimbursed have fewer funding options for resources than those that are partially or fully funded through billing.

The project team sought to enhance the knowledge base regarding New Hampshire's EMS systems financing. The survey included questions identifying call volume, annual operating expenses, revenue sources, and the proportions of Medicare and other payer sources for those that reported billing as a source.

Self-reported revenue sources of respondents

The following data describe the self-reported revenue sources for all agencies. These values, given as a percentage, represent the average for 2008-10 for each department. The data is limited due to informal and differing accounting methods between departments. Total values do not equal 100% due to averaging.





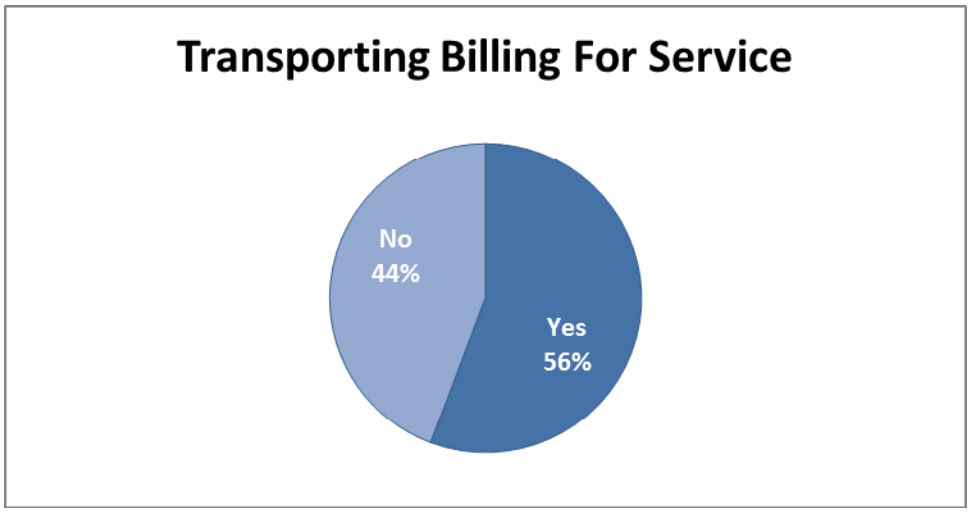
Org Type	Billing %	Municipal Taxes %	City/Town/ Other Subsidy %	Hospital Budget %	Donations %	Fundraising %	Other %
Community (T)	0	50	0	0	0	0	0
Fire Dept (T)	10	67	3	0	0	0	0
Hospital (T)	0	0	0	50	0	0	0
3rd Service (T)	31	55	13	0	0	0	0
Private (T)	42	1	13	0	1	1	0
Fire Dept (NT)	0	65	2	0	1	3	5
Hospital (NT)	0	0	0	45	3	3	0
3rd Service (NT)	0	75	0	0	1	0	0
Private (NT)	13	0	0	0	13	0	13

Respondents identified the following "other" revenue sources:

- The federal government fund everything from manpower to equipment
- Tuition from EMT Classes
- An EMS Service provides us with our medical supplies to assist them with first response.
- Special Details
- Firemen's Association, minimal
- Contracted standby
- Private owner of the bike park.
- Department Funding
- Event Standby
- A Fire Department provides funding through their budget from the town
- Grants

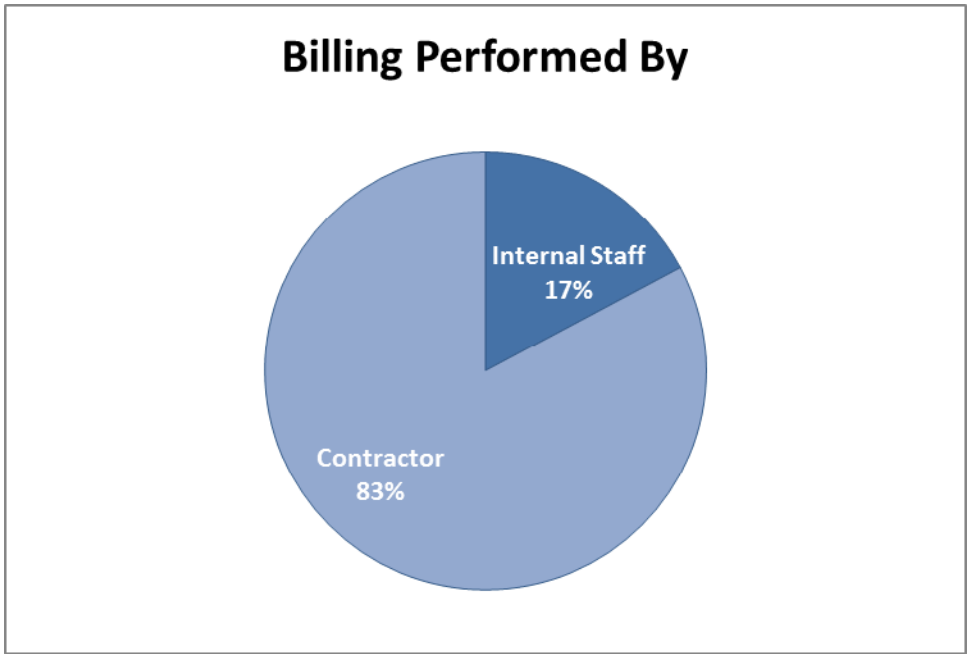
Billing for Service

Nearly half of NH's transporting services report they do not bill for their services although they are entitled to do so. With EMS services facing challenges in recruiting and retaining qualified staff, this provides a tremendous opportunity to address improving financial sustainability of providing EMS in NH.



Billing Performed By Staff or Contractors

Of the 56% of services who do bill, 83% utilize outside contractors to do the billing for them. Performing billing requires staff to have additional training and oversight with organizational policies related to billing.



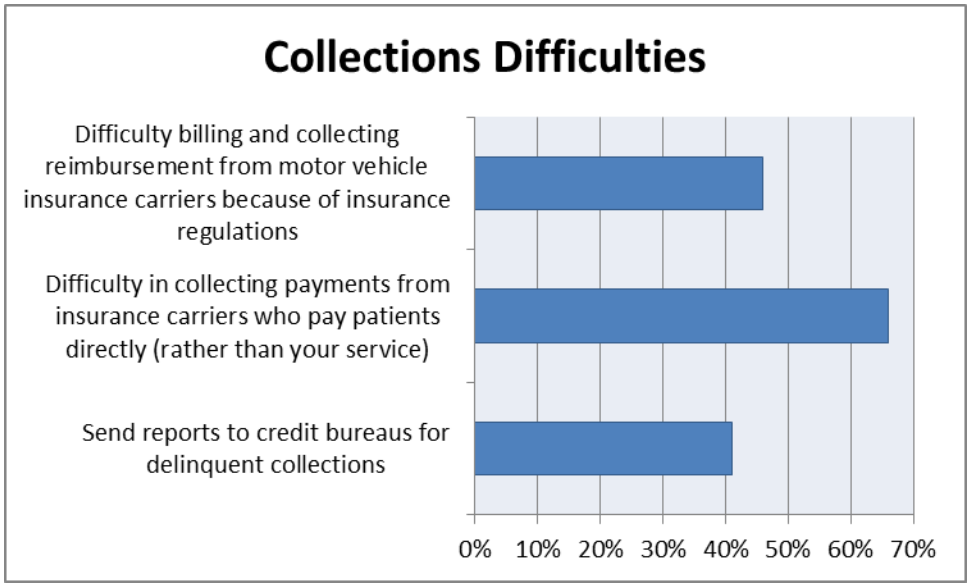
Billing and Collections

As a measure of the performance of billing and collections services, EMS managers frequently refer to their collection rate. In NH, 75% of calls are eventually billed and 70% of those are collected upon for an adjusted collection rate of 52.5% among those that do bill.

	% Eventually Billed	% Eventually Collected
Count	48	43
Mean	75	70
Min	0	0
Max	137	99
STD	26.7	17.5

Collections Difficulties

NH services identified several issues as contributing to their difficulties in collecting revenue from billing. A primary issue that has been identified from 2/3 of the services is related to the practice of insurance companies sending payments directly to patients rather than the service provider. The patient is then responsible for sending payment for the EMS service and often times they do not. This may be addressed by legislative action requiring insurers to submit payments directly to the service providers, reducing the delay in payment as well as reducing the diversion of payments from EMS providers.



Billing Motor Vehicle Insurance

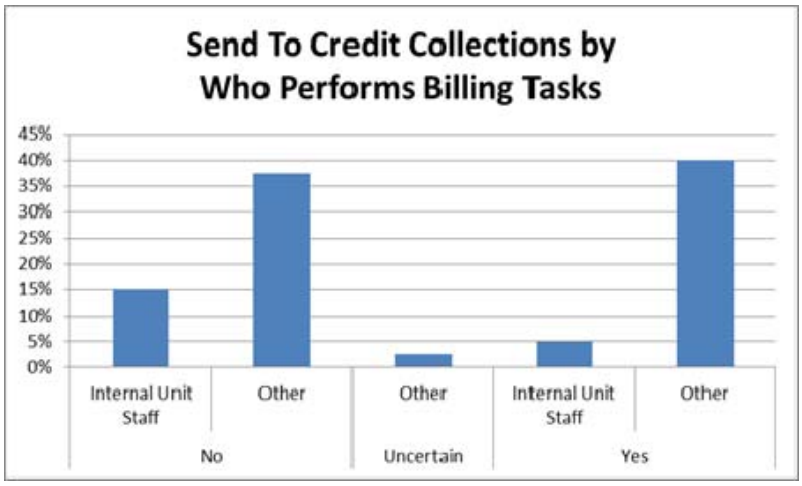
On average, nearly 8% of billing was reported to be effected by motor vehicle insurance carriers with some services reporting as high as 32% of billing being effected by motor vehicle insurance carriers. This variance can be explained by the variety of roadways that different EMS services cover.

	% of annual billing is affected by motor vehicle insurance carriers
Count	**35**
Mean	**7.5**
Min	**0**
Max	**32**
STD	**7.11**

Billing Collections Activity

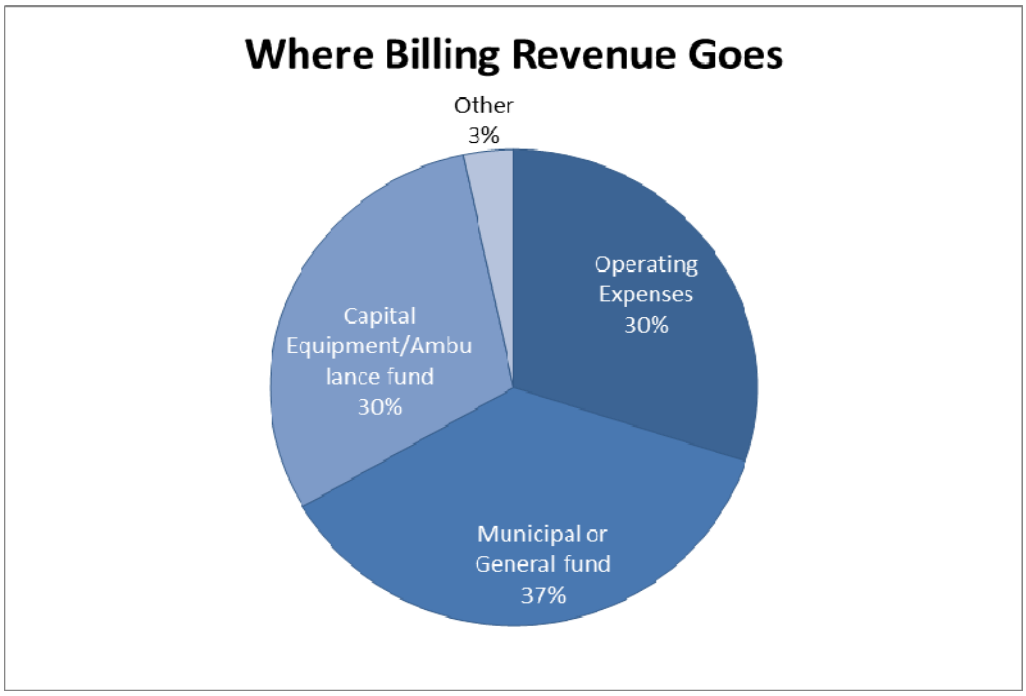
Interestingly, on average about 7% of annual billing is sent to a credit collection agency although some services reported up to 50% of their billing going to collection. This variance may be explained by the billing practices and would require a more in depth investigation to uncover the differences among services. For example, some may make repeated calls to the patient for payment before sending it to collections while others may write off the debt with less effort made to collect. There may also be a tendency by EMS services to only send bills to collection agencies for non-local residents. Contracted billing agencies appear equally as likely to send delinquent bills to collections as not. However, internal service billers are 10% less likely to send delinquent bills to collections.

	% of annual billing has to go to collection
Count	42
Mean	**6.5**
Min	0
Max	50
STD	11.32



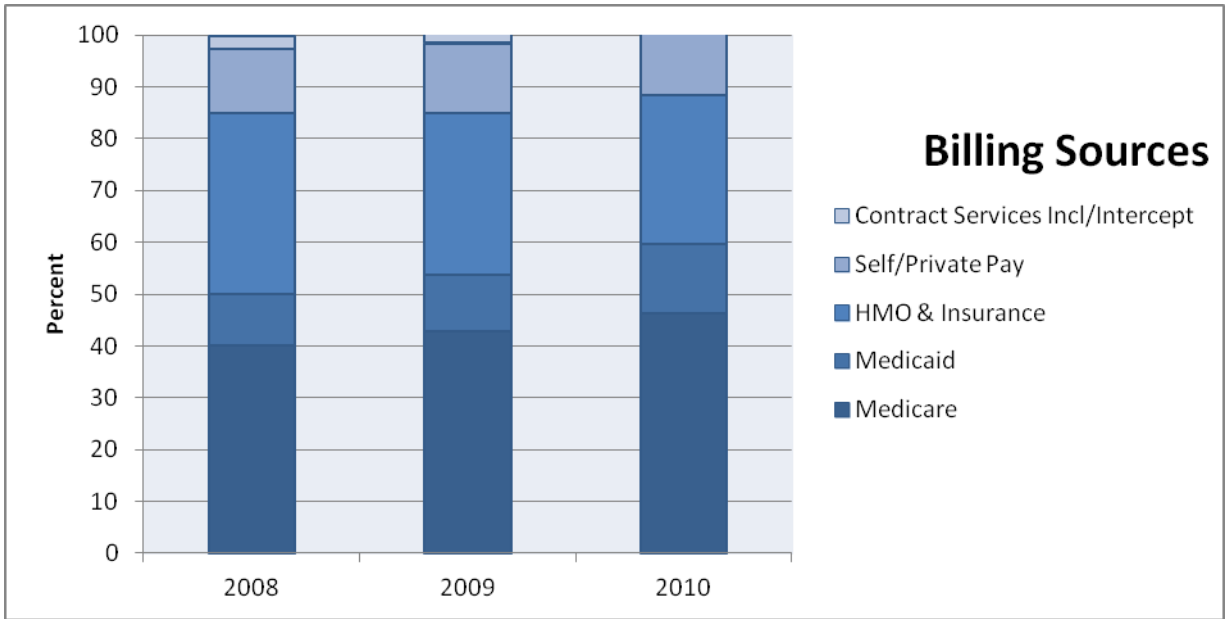
Billing Revenue is used for

The revenue that is received from billing is nearly equally divided between operating expenses, capital equipment/ambulance funds, and municipal funds. The 37% retained by municipal or general funds indicates that a substantial portion of NH EMS billing is not directly contributing to the EMS service budget. A recommended practice would bring all revenues to the budget of the EMS service with only supplemental funding coming from the municipal budgets.



Billing sources of respondents

Services that perform billing identified the following sources of revenue.



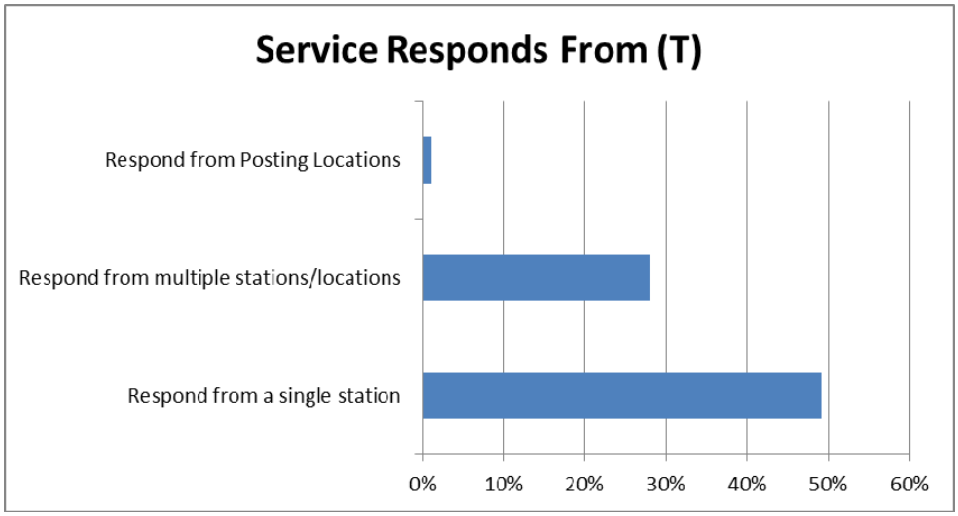
Response Capabilities and Response Safety of Transport to Non-Transport Services

The following series of charts provide a clear picture of the current state of EMS provider response capabilities and response safety in New Hampshire. The data is generally presented as a side-by-side comparison of transport and non-transport services.

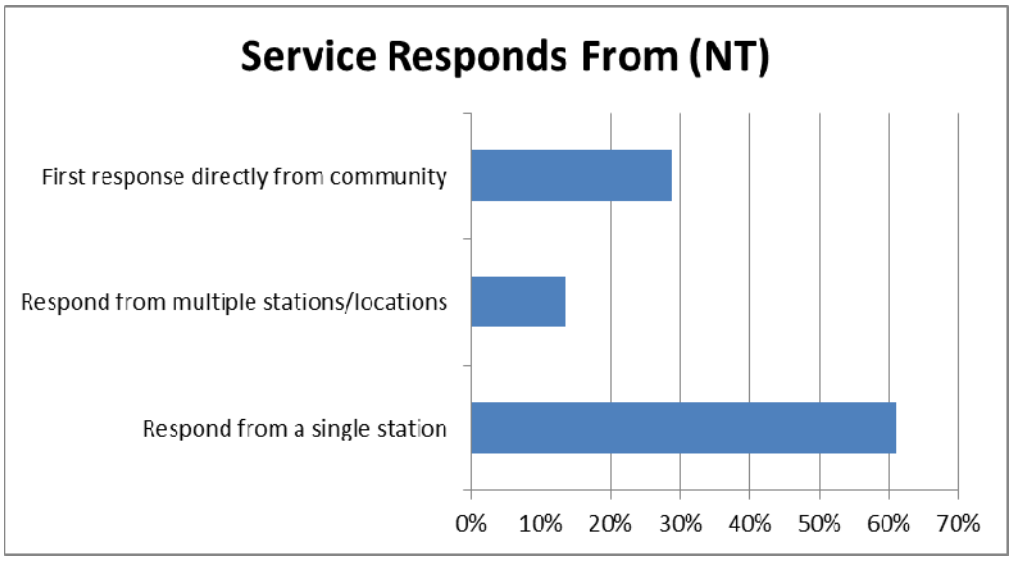
Service Responds From

To identify a key operational aspect to EMS service resource deployment across NH, respondents were asked to identify where they respond to EMS calls from. More than 2/3 report responding from a single station while over ¼ has multiple stations or locations. Only one service reported responding from ambulance posting locations for this question, which differs slight from the next question.

Transporting Services:

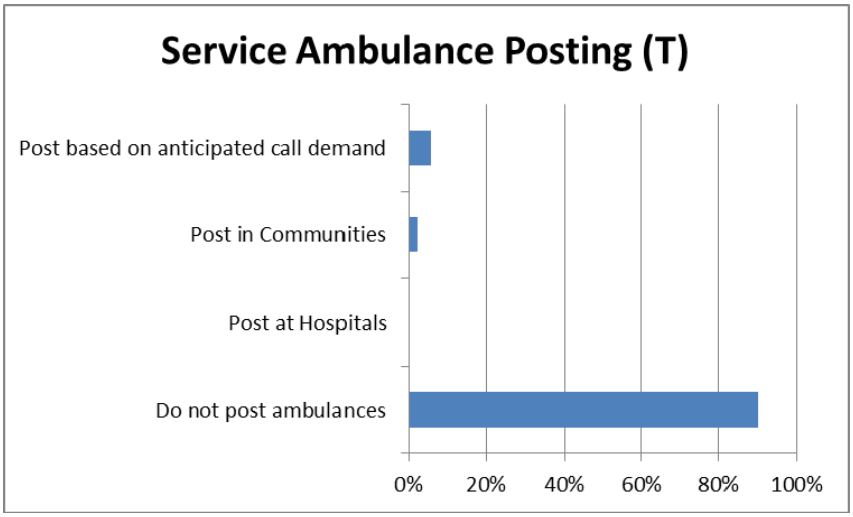


Non-transporting Services:



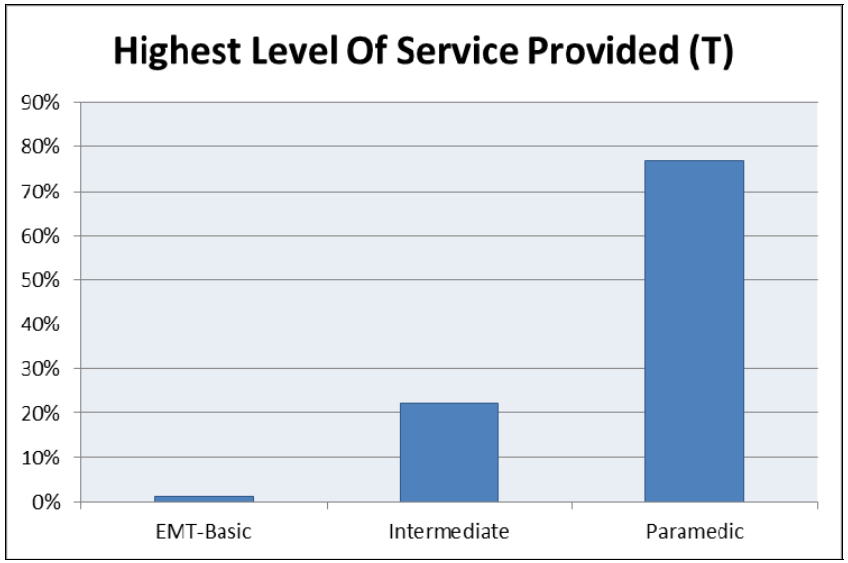
Service Ambulance Posting

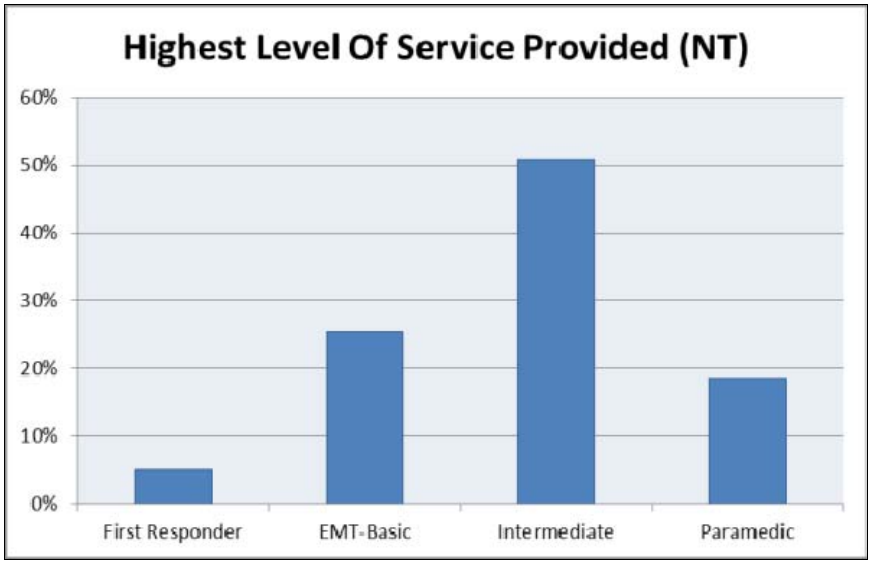
A common EMS management method distributes ambulance resources across a response area to "post" to minimize the time required to reach a particular location and to optimize operational efficiencies. There are a number of different methods that can be used for this, one of the more commonly used is known as System Status Management and includes a detailed system status planning process.



What is the highest level of service provided by your organization?

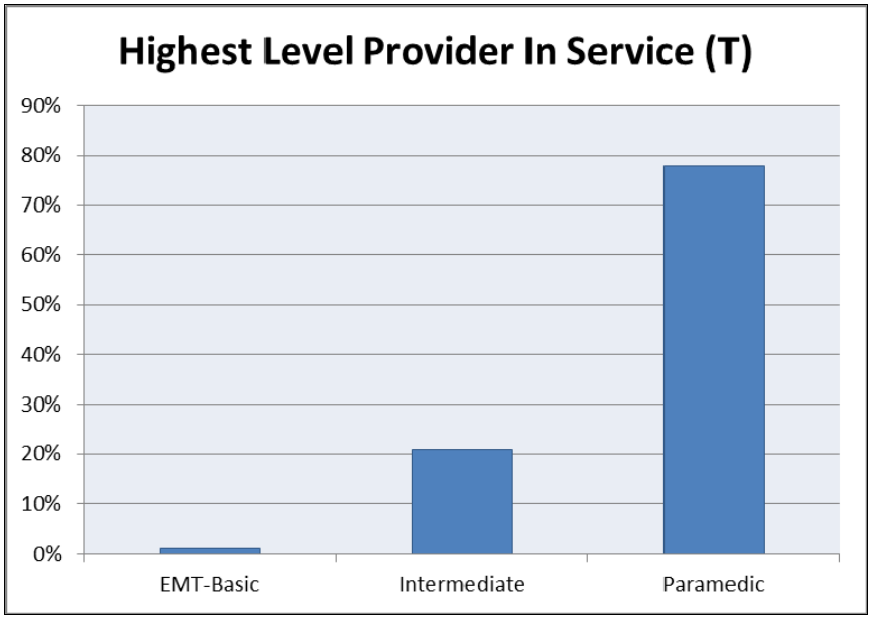
The highest level of service provided by transporting agencies is most often at the paramedic level. Nearly all organizations reported at the EMT-Intermediate or Paramedic levels. For non-transporting agencies this is not the case, almost a third are providing BLS level with more than 50% providing Intermediate level. Note that this indicates the highest level of service that the unit routinely carries equipment to support. Units can have staff members that are licensed at a higher level than the level of service the units provides.

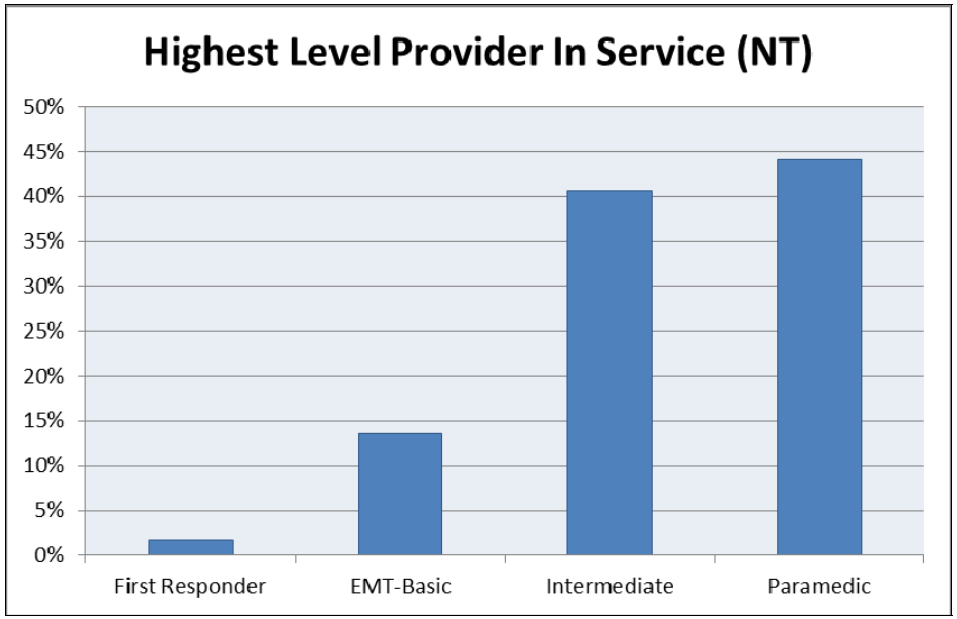




What is the highest level of provider in your organization?

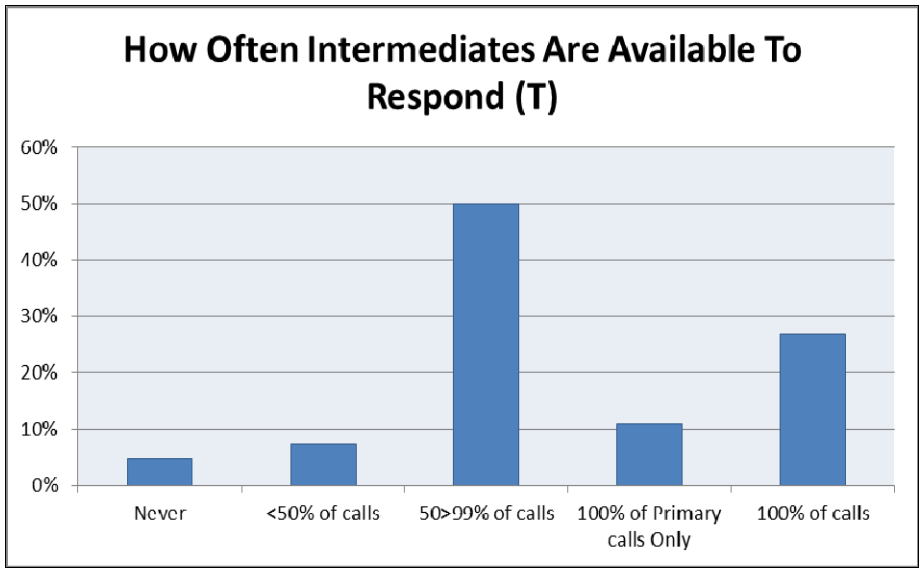
The highest level of provider employed by an agency closely corresponds to the highest level of service provided for transporting agencies. There is a greater discrepancy for non-transporting agencies with a stronger tendency to have paramedics on staff even if not providing that level of service. This may indicate that paramedics are volunteering with first response agencies when off duty from their primary employer. This may also indicate that non-transporting services may have hired paramedics, but have chosen to only maintain resources at the intermediate level.

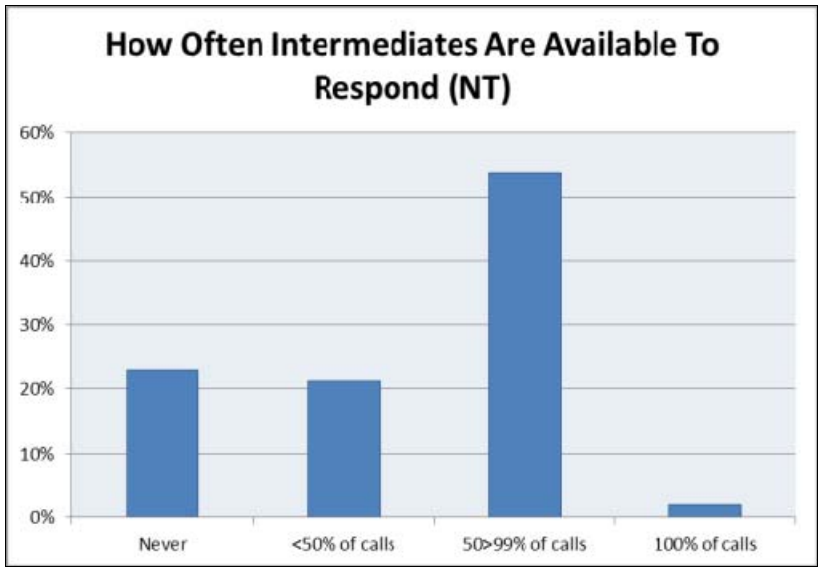




How often are Intermediates available to respond to calls (estimate)?

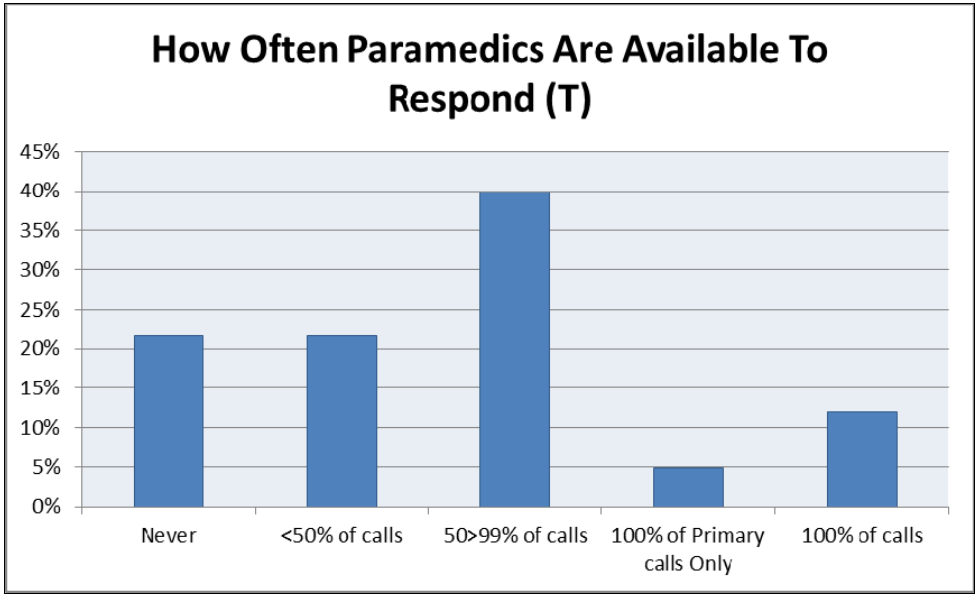
This question assessed the general availability of Intermediate level providers.

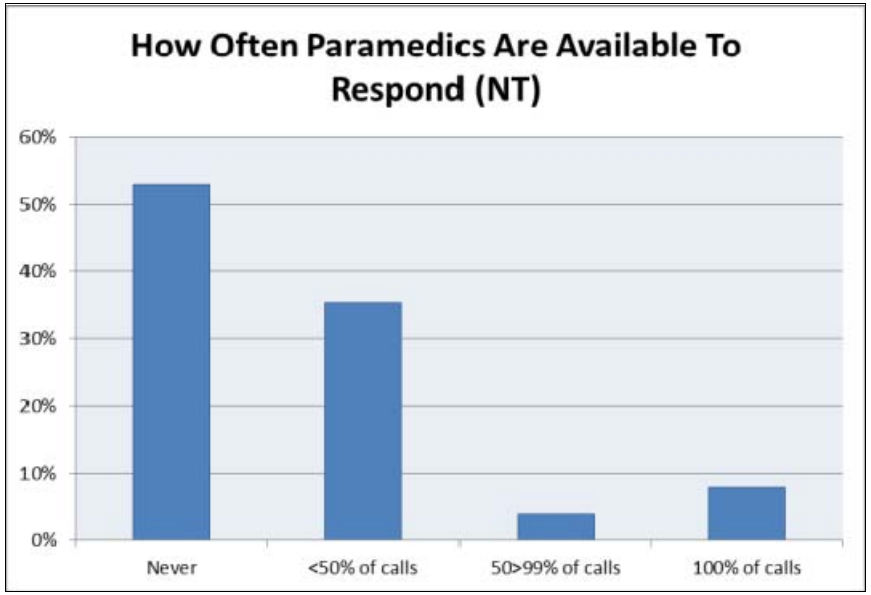




How often are Paramedics available to respond to calls (estimate)?

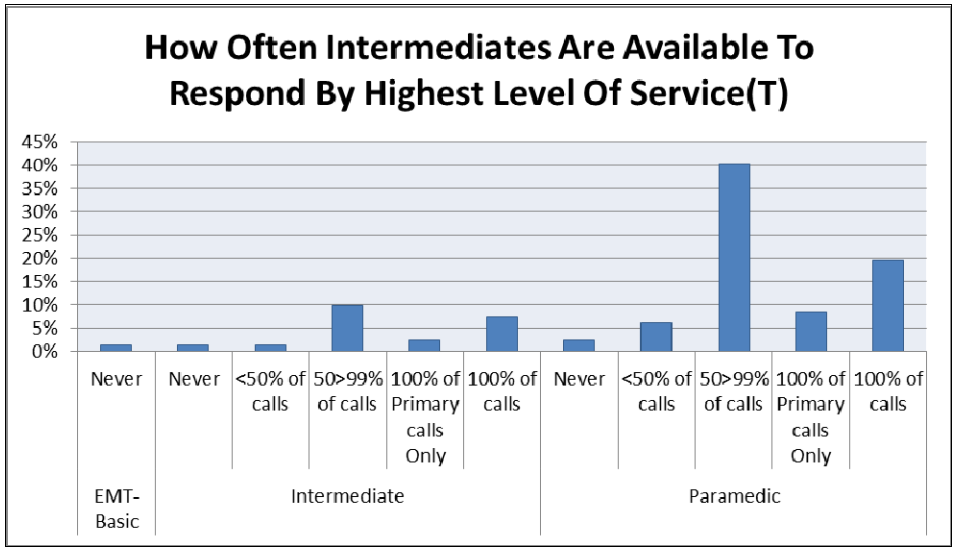
This question assessed the general availability of Paramedics.

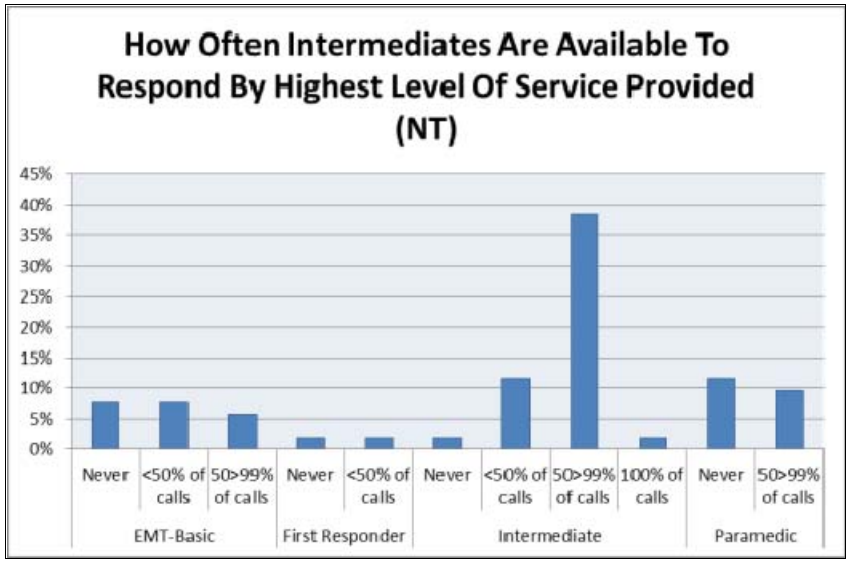




How often are Intermediates available to respond to calls (estimate) by the Highest Level of service Provided?

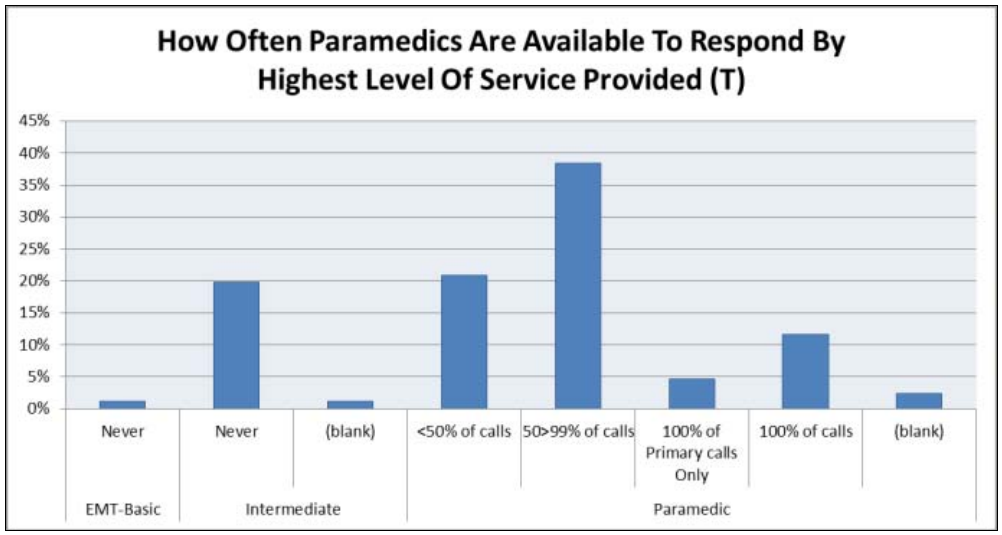
In this cross section of agencies, it is clear that although Intermediates are available sometimes for services licensed at the Intermediate level, most are responding with agencies providing Paramedic level service. For non-transporting agencies they are most likely to be available for those providing Intermediate level service.

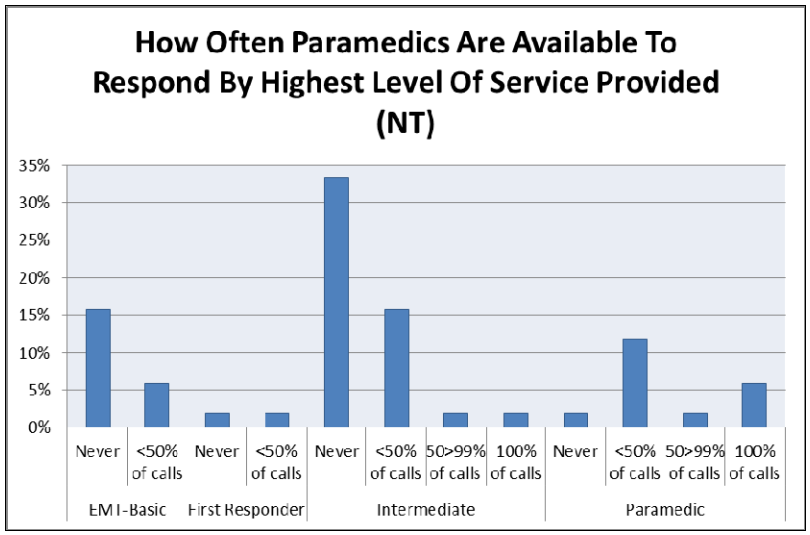




How often are paramedics available to respond to calls (estimate) by the highest level of service provided?

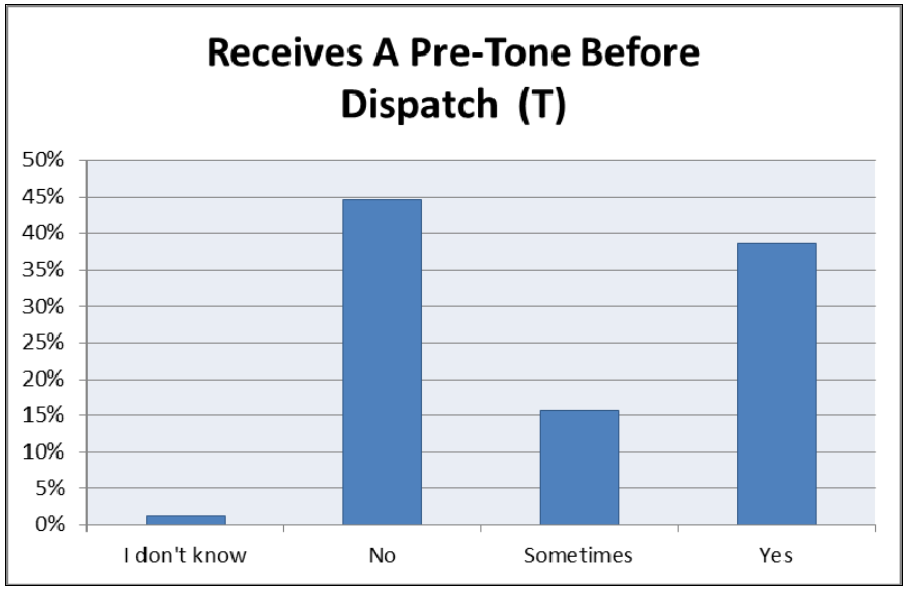
Transporting services providing paramedic level service have paramedics available most of the time, however more than 20% report that some calls do not have paramedics available. For non-transporting agencies slightly more than 5% of those that can provide paramedic level care, actually are them.

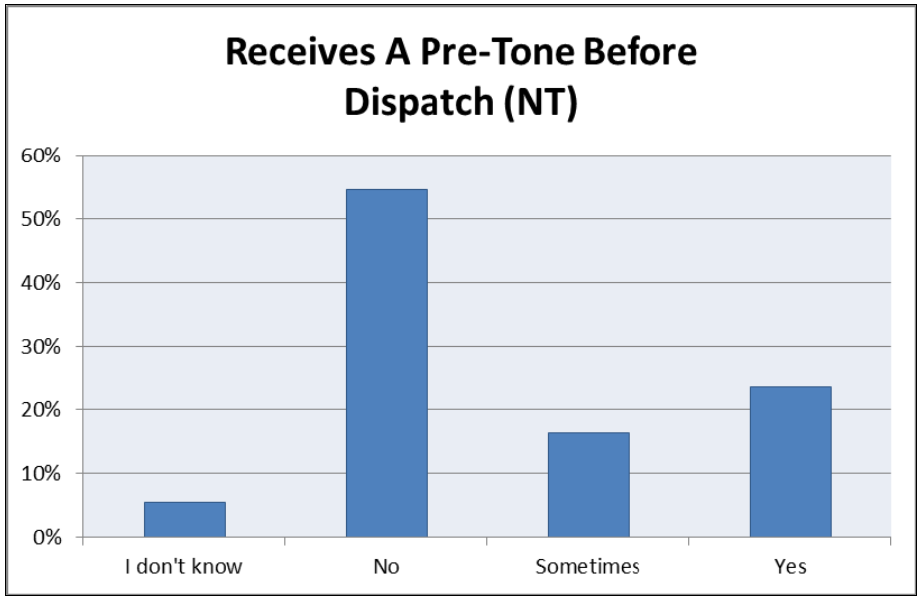




Does your service get a pre-tone warning before your official response dispatch?

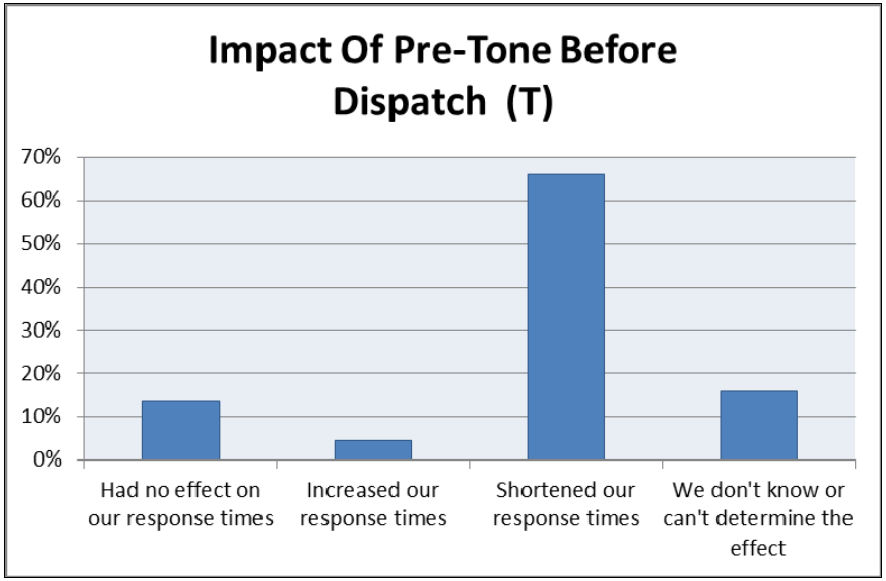
A pre-tone alert can reduce the startling aspect of sudden emergency dispatches for EMS responders, especially during sleep periods. This pre-tone prepares the responder to receive emergency dispatch information, such as the location and reason for the request. It can also allow the responder time to get into the response vehicle while the dispatch call taker is still collecting information about the call.

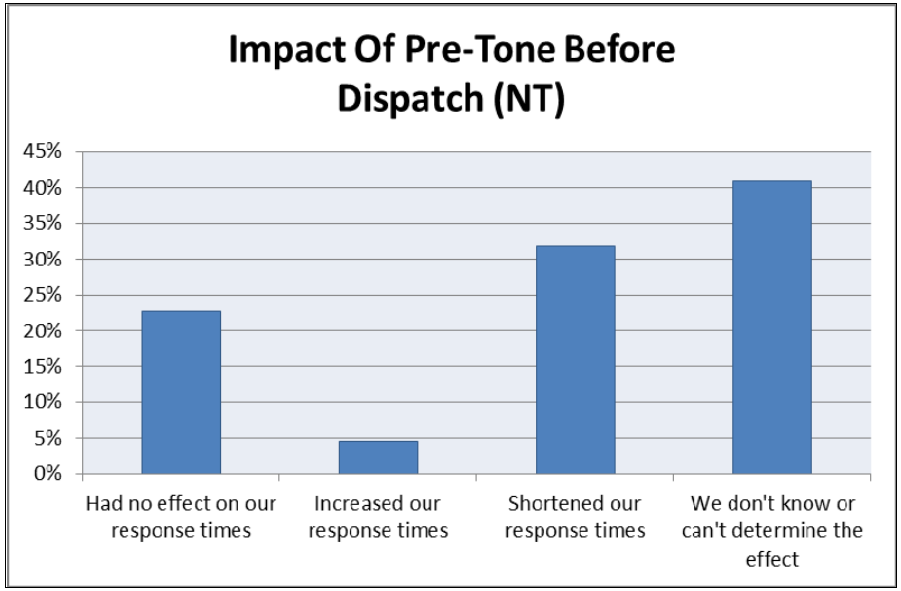




If a pre-tone is sent, what is its impact?

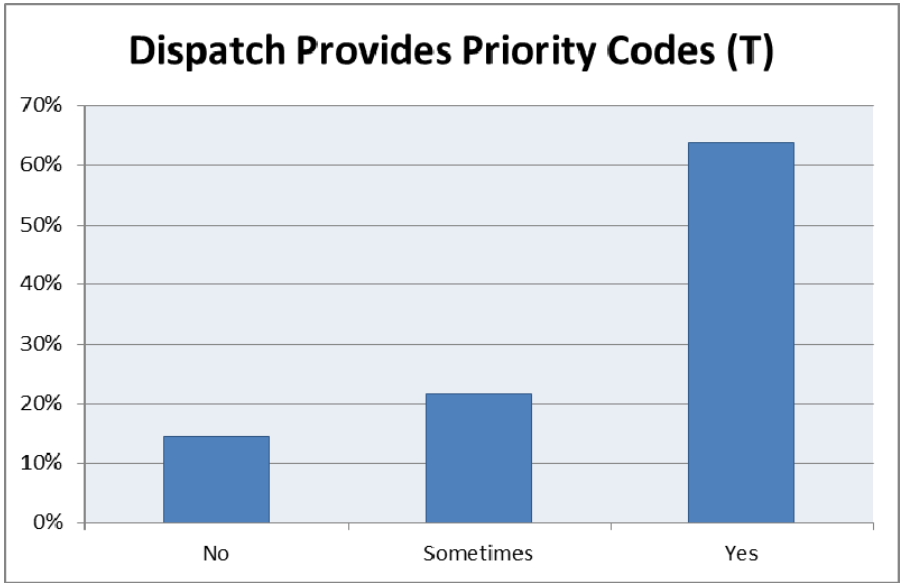
New Hampshire agencies overwhelmingly indicate that pre-tones shorten response times. Surprisingly a few indicated that they have increased their response times.

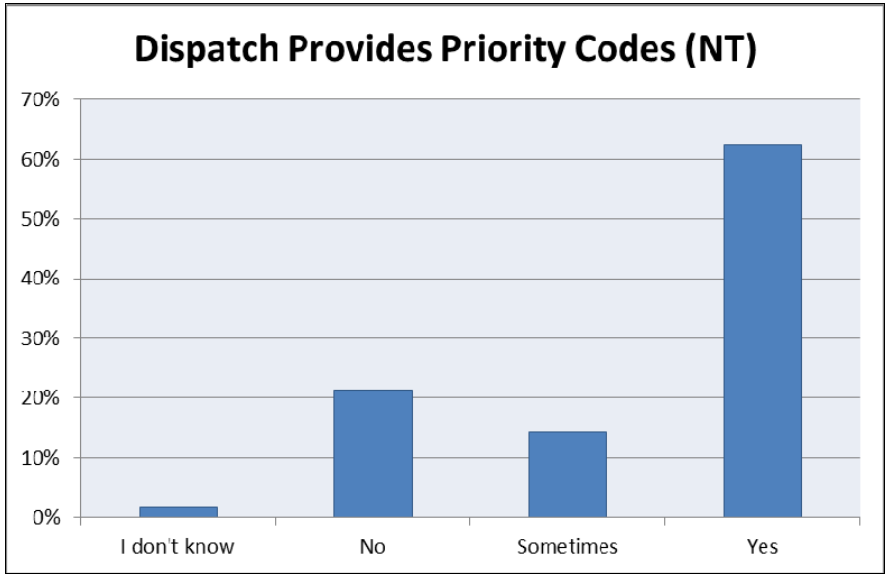




Does your dispatch give you priority codes (such as "Alpha" or "Bravo") when they dispatch you?

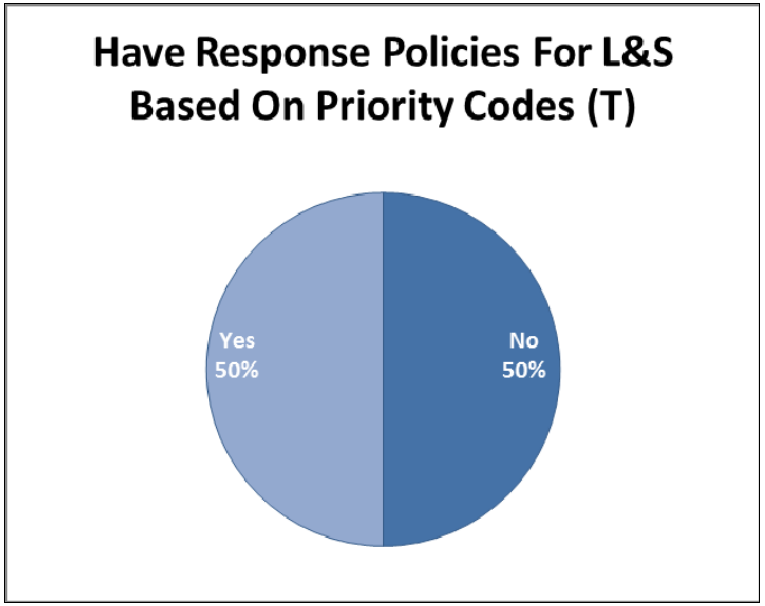
Priority codes are a common and effective way to communicate the relative urgency of one emergency call when compared to another using standardized protocols. In New Hampshire, these codes are provided in nearly 75% of the cases for both transporting and non-transporting agencies.

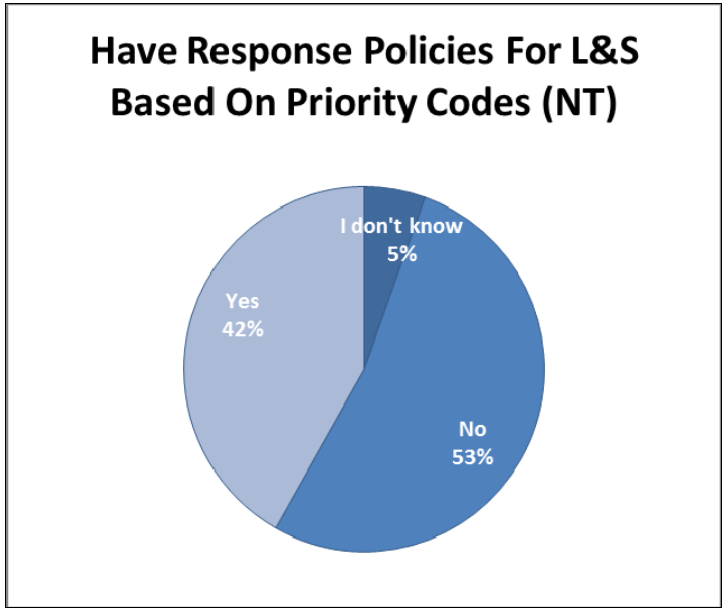




Does your service have response policies for use of lights and sirens based on dispatch priority codes?

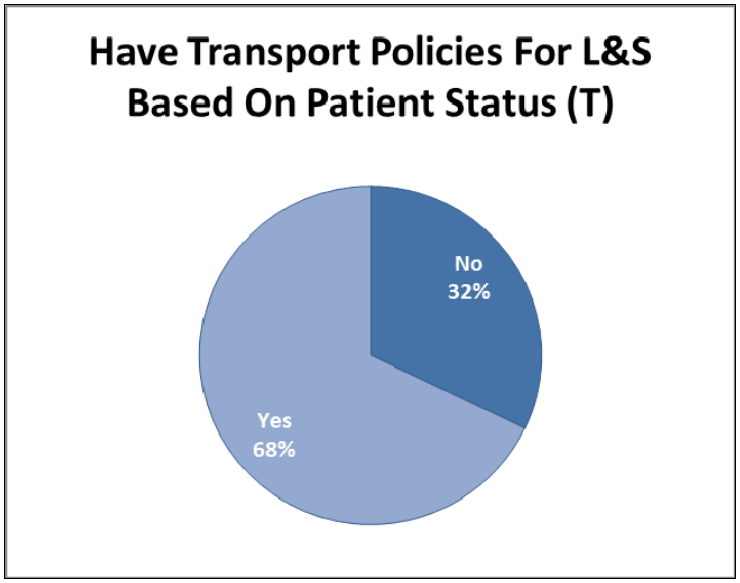
Having policies regarding the use of lights and sirens for emergency responses are a best practice that provide EMS personnel with a consistent and standard expectation for their performance and safety. Only 50% of transporting and 42% of non-transporting agencies report having such policies.





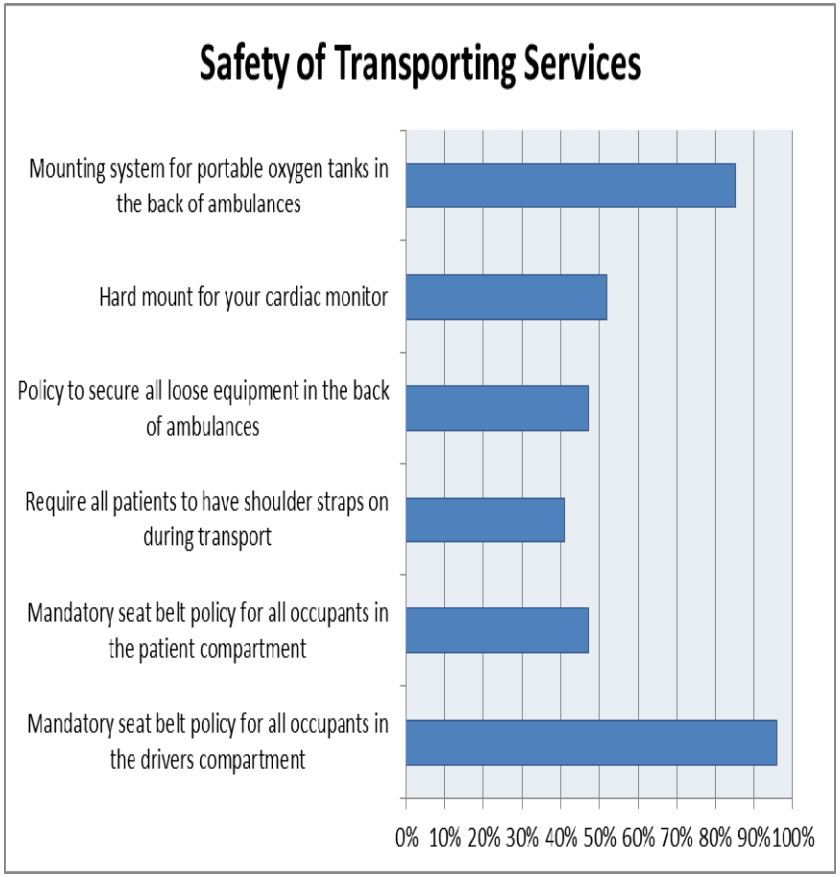
Does your service have transport mode policies for use of lights and sirens when transporting a patient?

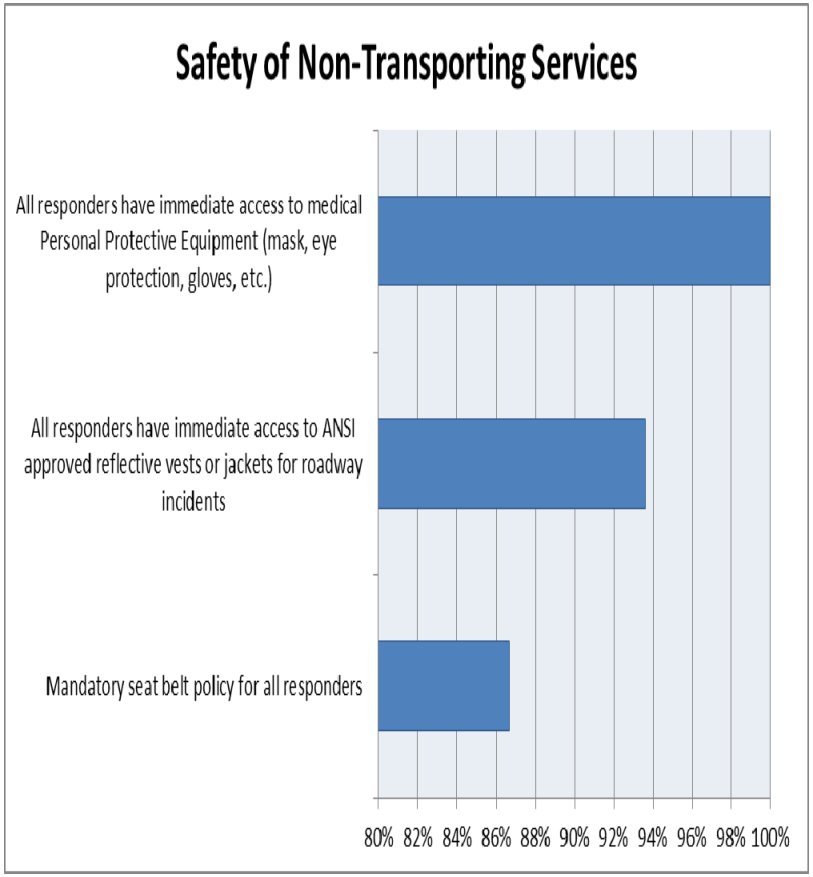
Similar to response policies, having policies guiding EMS personnel during the transport of patients should be considered a best practice. In this area over two-thirds of agencies reporting having policies leaving room for improvement.



N/A Non-Transport

Safety policies and equipment
This demonstrates how NH EMS services are building a culture of safety within their organizations. A future goal should be to achieve 100% for each of these areas.



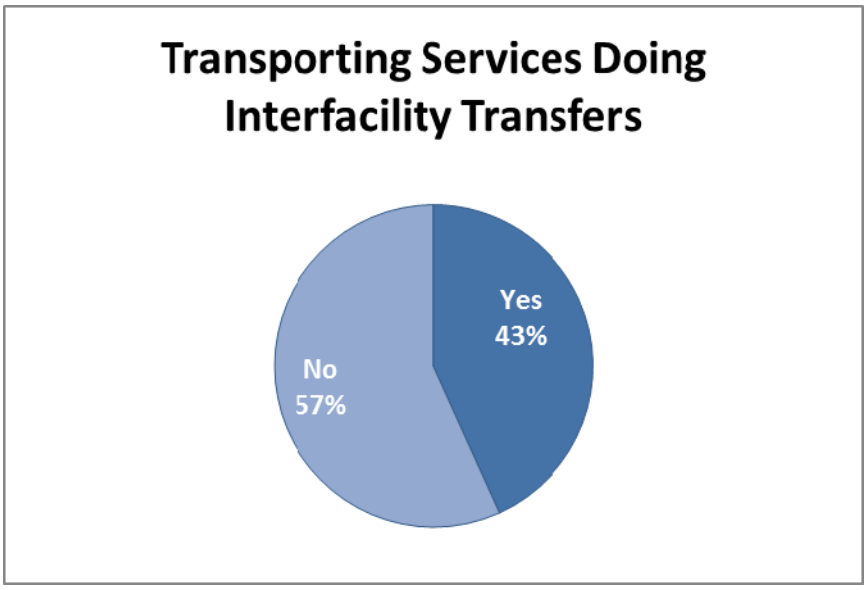


Transport Service Specific Responses

The following responses are specific to transporting services and cover a range of topics including interfacility transfers, ambulance equipment and ambulance purchasing practices.

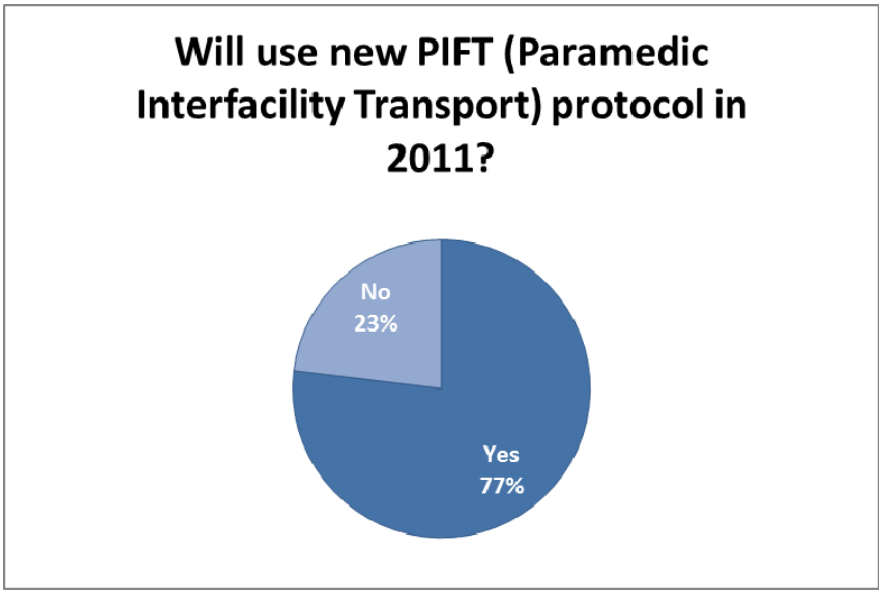
Transporting Services Doing Interfacility Transfers

All transporting services should consider providing interfacility transfers while not engaged in 911 emergency responses. In NH more than half of all transporting services do not provide transfers. This is consistent with the percentage of EMS services that are fire departments. While there are a number of fire departments in NH that have started to perform local transfers to augment their funding and provide a service for local residents, this is generally not the norm for these types of services. Performing interfacility transfers can be a more reliable source of revenue than reimbursement for 911 calls, but may also increase the complexity of staffing and equipment needs for a service.



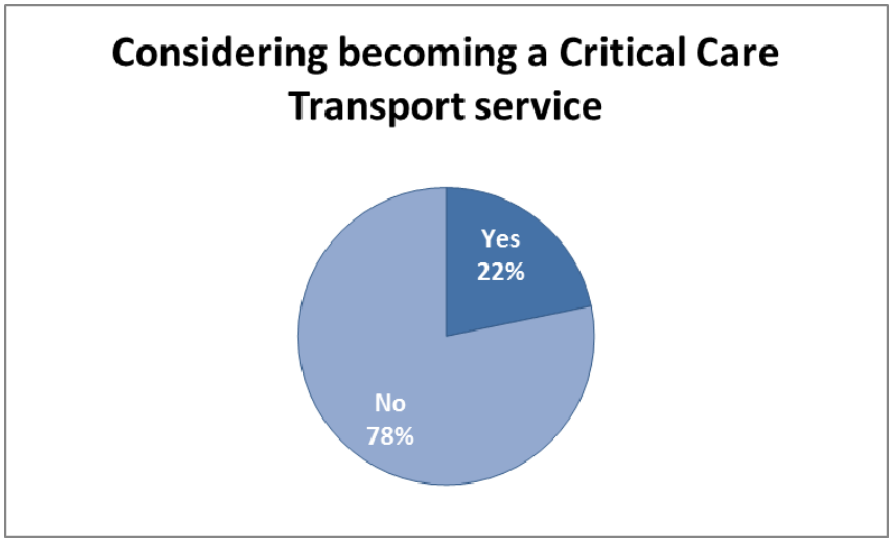
New Paramedic Interfacility Transport Protocol

A new Paramedic Interfacility Transport Protocol (PIFT) was introduced in 2011. A majority of services will use this new protocol.



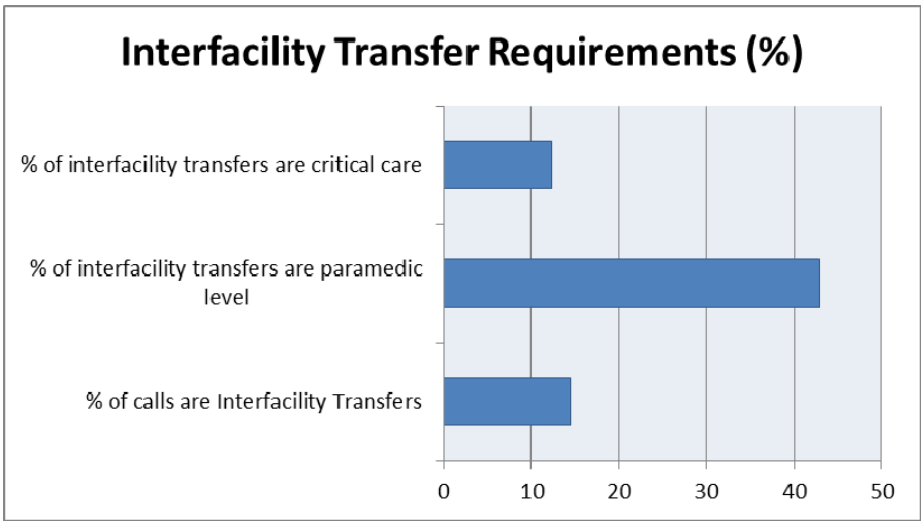
Considering Becoming a Critical Care Transport Service

Less than ¼ of respondents are considering becoming a critical care transport service in NH.



Requirements of Interfacility Transfers

Respondents identified that about 15% of all calls are interfacility transfers and less than 15% of those require critical care skills. Nearly half of all transfers are at the paramedic level, leaving a substantial portion of transfers at the Basic or Intermediate levels.



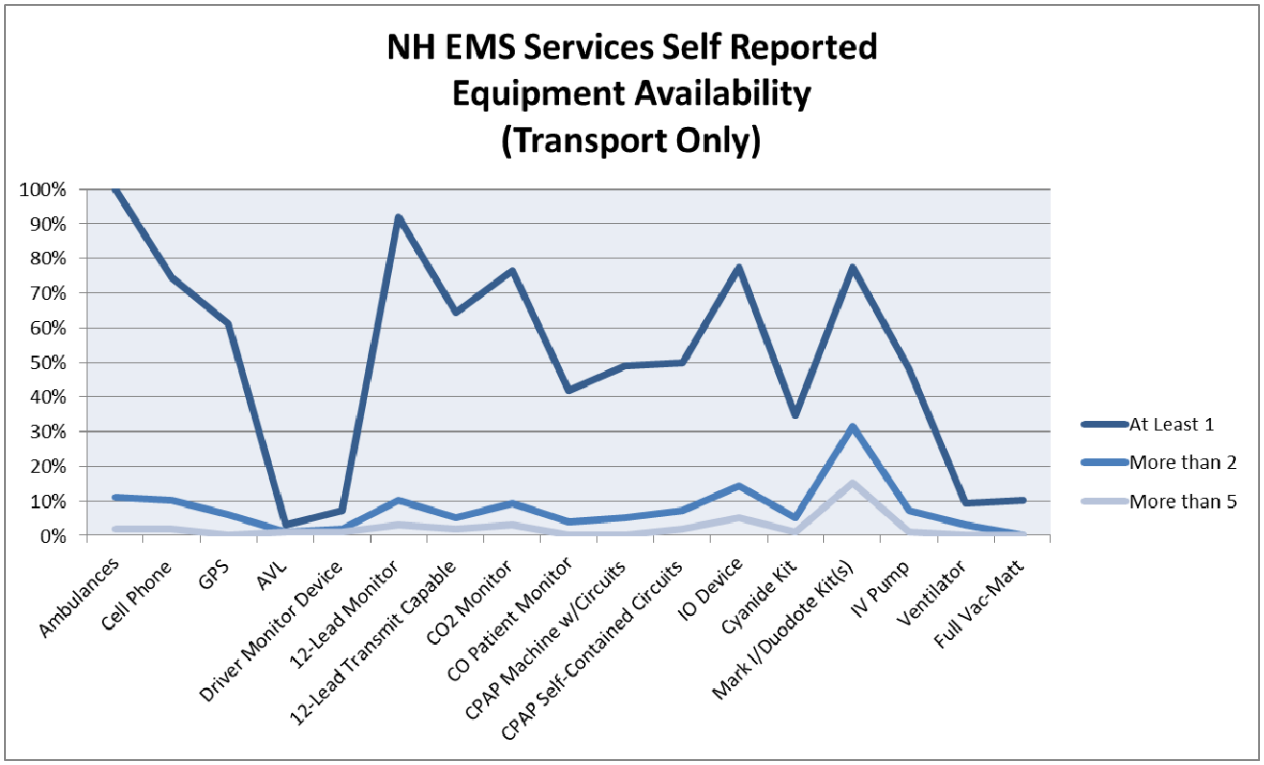
Critical Care Volume

As a barometer of the need for critical care services, respondents were asked to estimate the number of calls per year that would be lost if their service were not a full critical care transport approved service. Ranging between 0 and 50 with an average of 5 suggests that not all EMS services could justify the expense and resource demands of a critical care service and may support a more regional approach to deploying these specialized services.

Calls per year (estimate) not able to transport if not a full critical care transport approved service	
Count	24
Mean	5
Min	0
Max	50
STD	11.23

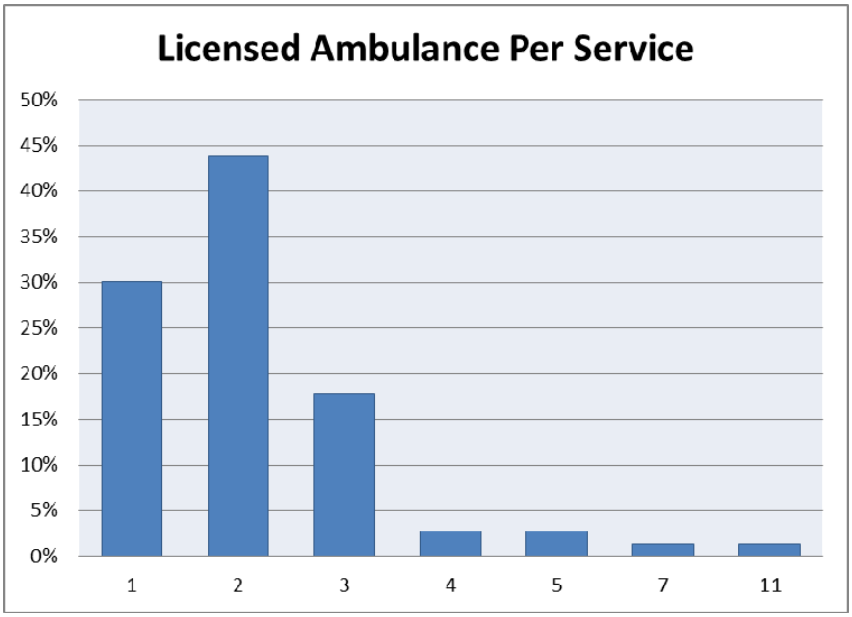
Transport service self-reported equipment availability

Evaluating the availability of equipment for transporting services shows the importance of digging deeper than just "do you have XYZ". More than half of the transporting services have most of the items asked about but only a few services have more than two of those items. This may indicate that not all equipment is available for every ambulance that could be placed into service. If a piece of equipment were to fail to operate, lack of spares or backup devices could be detrimental to patient care.



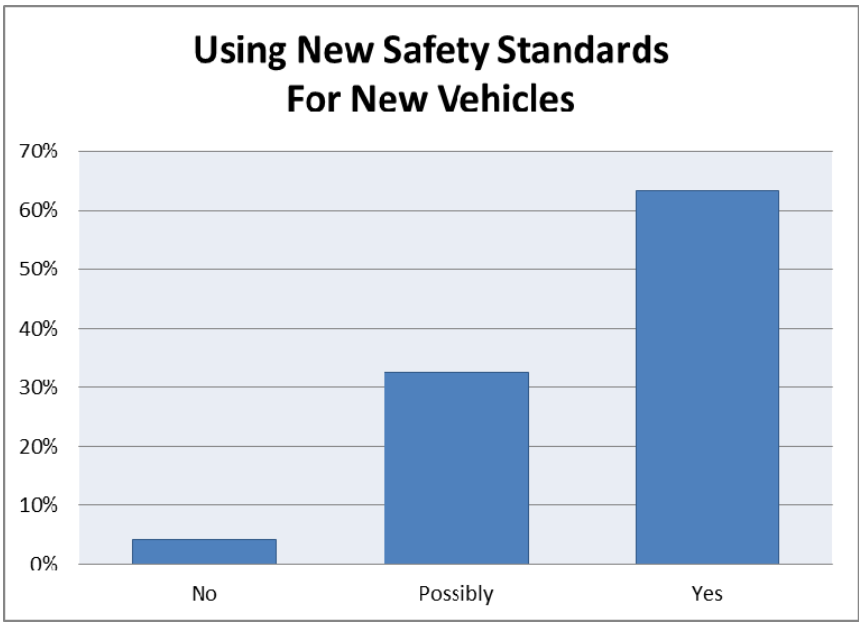
Transport service self-reported vehicle data

While all licensed transporting services do have at least one ambulance, less than 25% have more than two. This pattern is consistent with services having one primary ambulance and one or more secondary or backup ambulances.



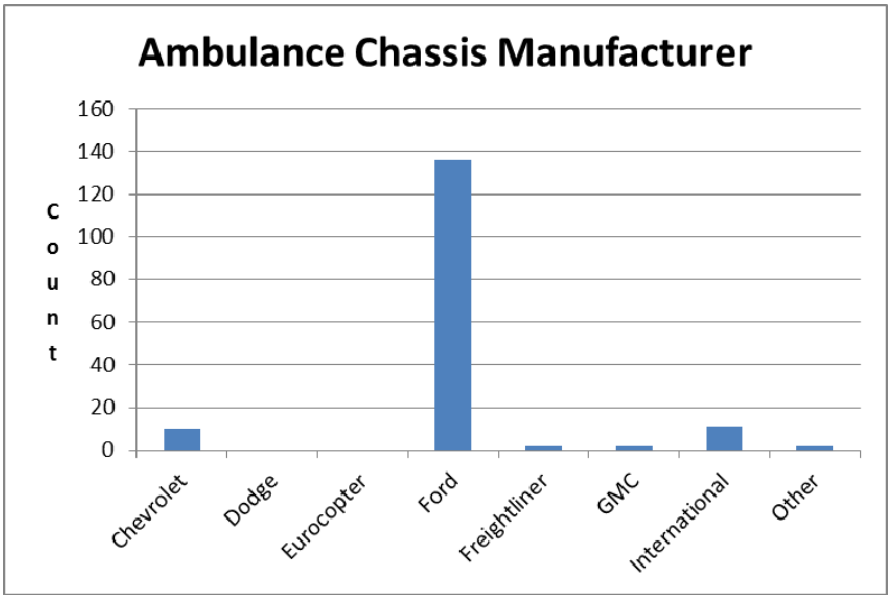
New Ambulance Safety Standards

The National Fire Protection Association has been developing a new series of ambulance safety standards. While not yet implemented, the project team sought to assess the interest in NH providers for improving the safety of ambulances.



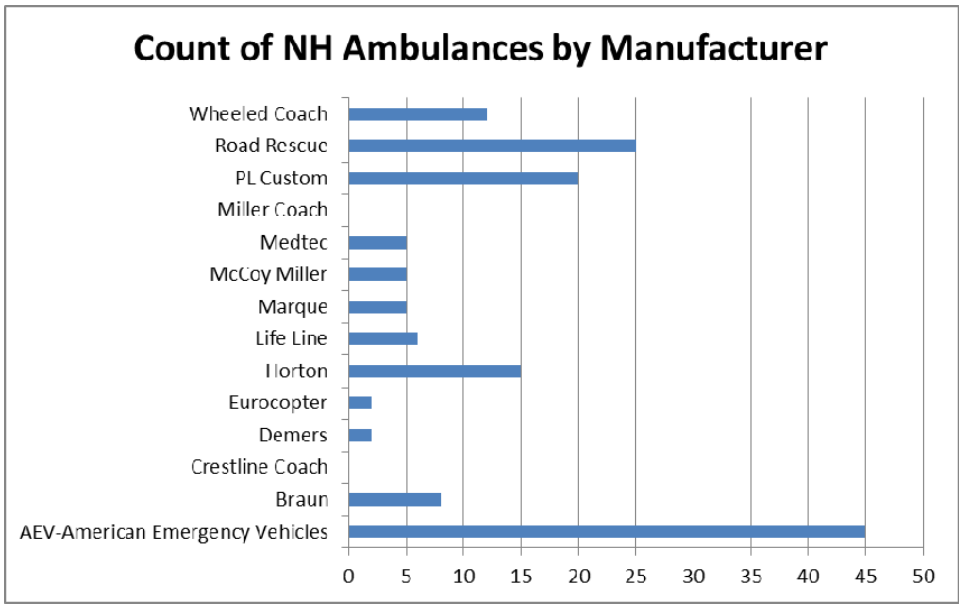
Ambulance Chassis Manufacturers

Most ambulances in NH were built upon a chassis by Ford. This may present an opportunity for Ford dealerships in NH to receive specialized training in ambulance repairs so as to assure competent and safe repairs are made throughout the state.



Ambulance Modification Manufacturers

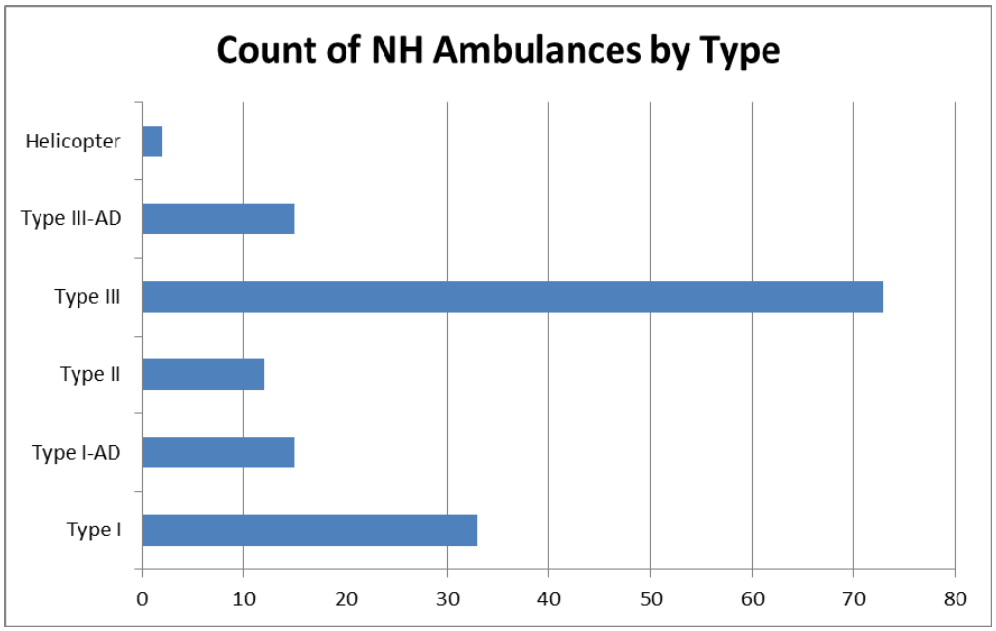
There are five primary ambulance manufacturers found across the state. Having access to parts and service is vital for maintaining a safe fleet with quick access to parts and service.



Ambulances by Type

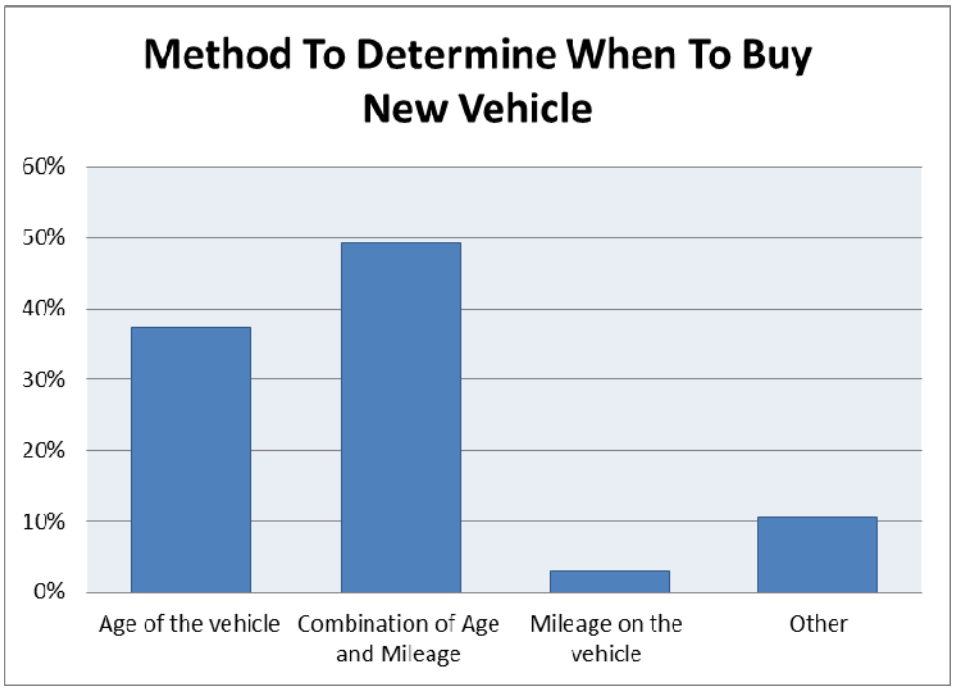
The US DOT has developed five types of ambulance vehicles for use in federal government purchasing. The EMS industry has adopted many of these as de facto standards for all ambulance vehicles. The vehicle type selected by each service reflects the needs of that service and the demands that will be placed upon the vehicle once it is placed into service. The DOT (KKK) standard types as used for this survey are:

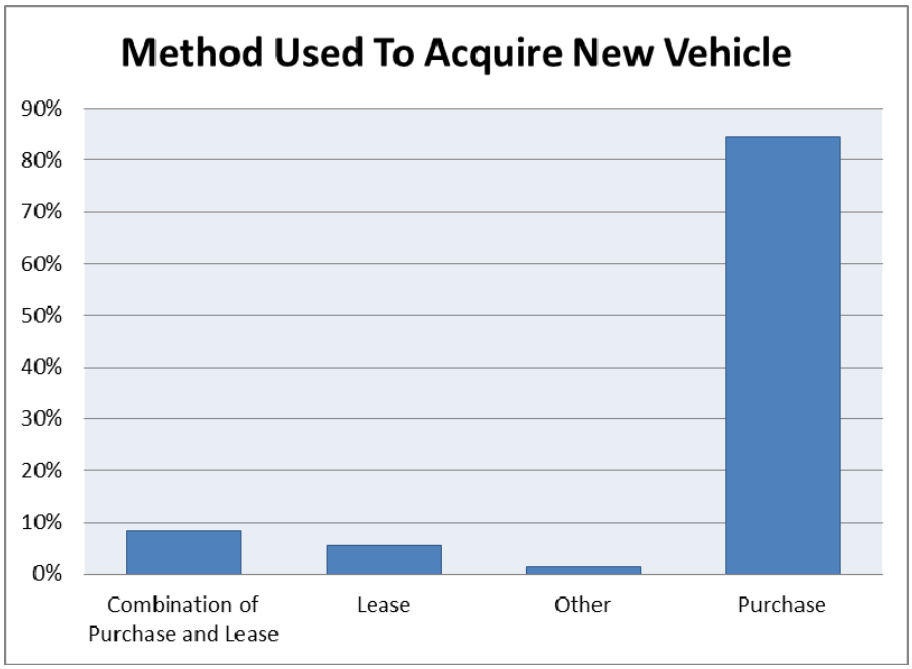
- Type I Ambulance based on the chassis-cab of a light duty pickup-truck
- Type I -AD (Additional Duty = a GVWR of 14001 lbs or more)
- Type II Ambulance based on a modern passenger/cargo van
- Type III Ambulance based on the chassis-cab of a light duty van
- Type III-AD (Additional Duty = a GVWR of 14001 lbs or more)
- Helicopter



Method to Determine When to Buy New Ambulance

EMS leaders frequently are faced with deciding whether to repair or replace an ambulance that has been in service for some time. While there is no golden rule for when this decision makes sense, knowing how other EMS leaders make this decision can provide support for budget and capital requests. NH EMS services most commonly use a combination of the age and mileage of a vehicle to decide to purchase new vehicles.

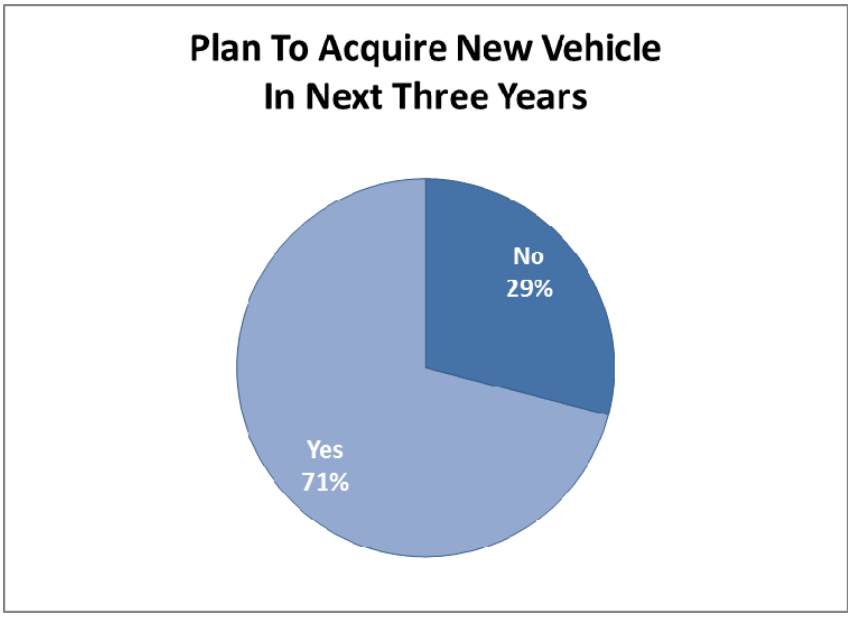


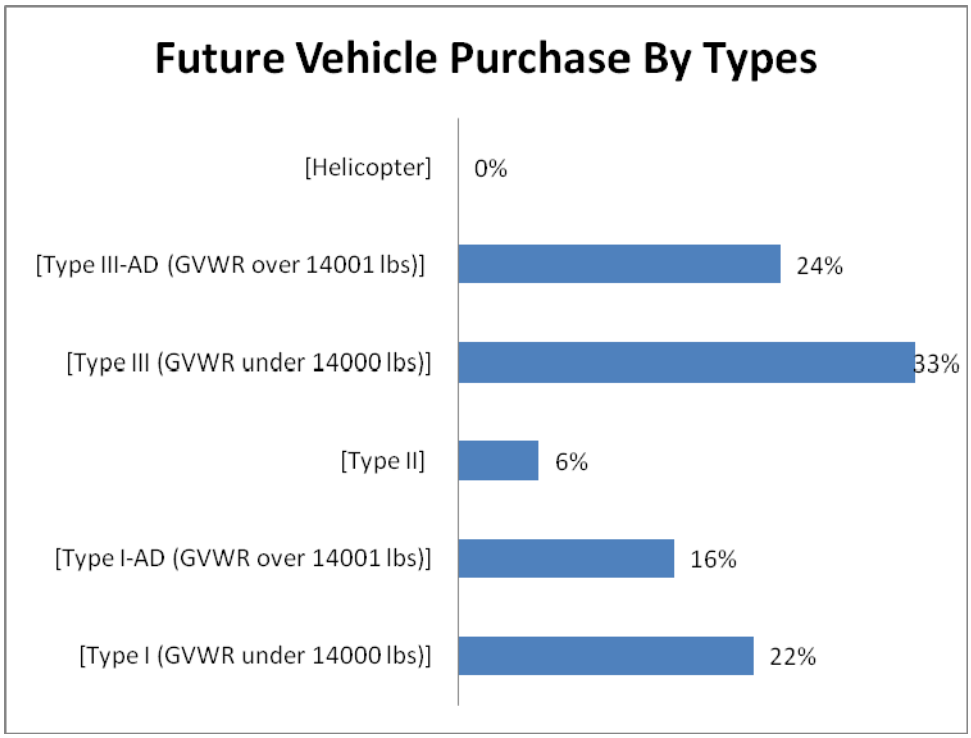


Plan to Acquire New Ambulance

More than 2/3 of all NH EMS services reported they plan to purchase one or more vehicles in the next three years. This may provide an opportunity for the services to combine efforts for group purchasing

discounts and for the movement of the replaced vehicles around to other locations that would benefit from having a backup/secondary vehicle.



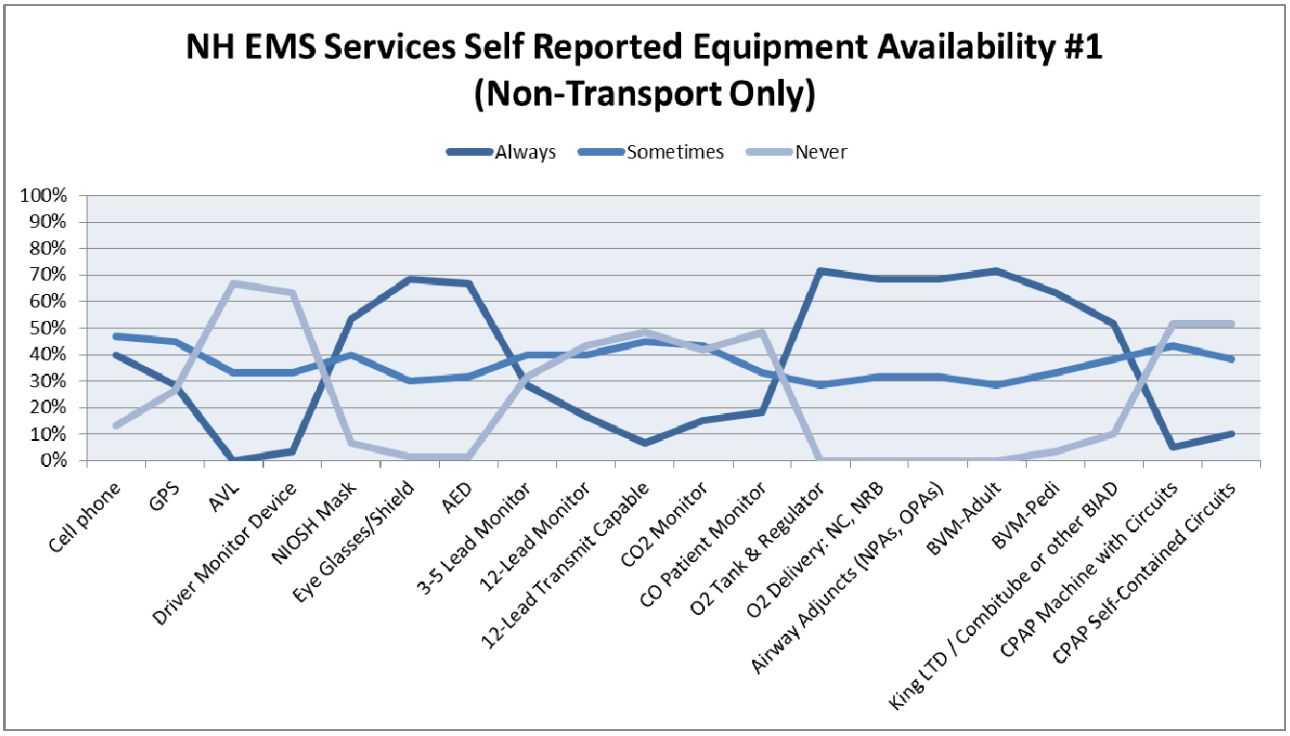


Non-Transport Service Specific Responses

The following responses are specific to non-transporting services and address available equipment and response vehicles.

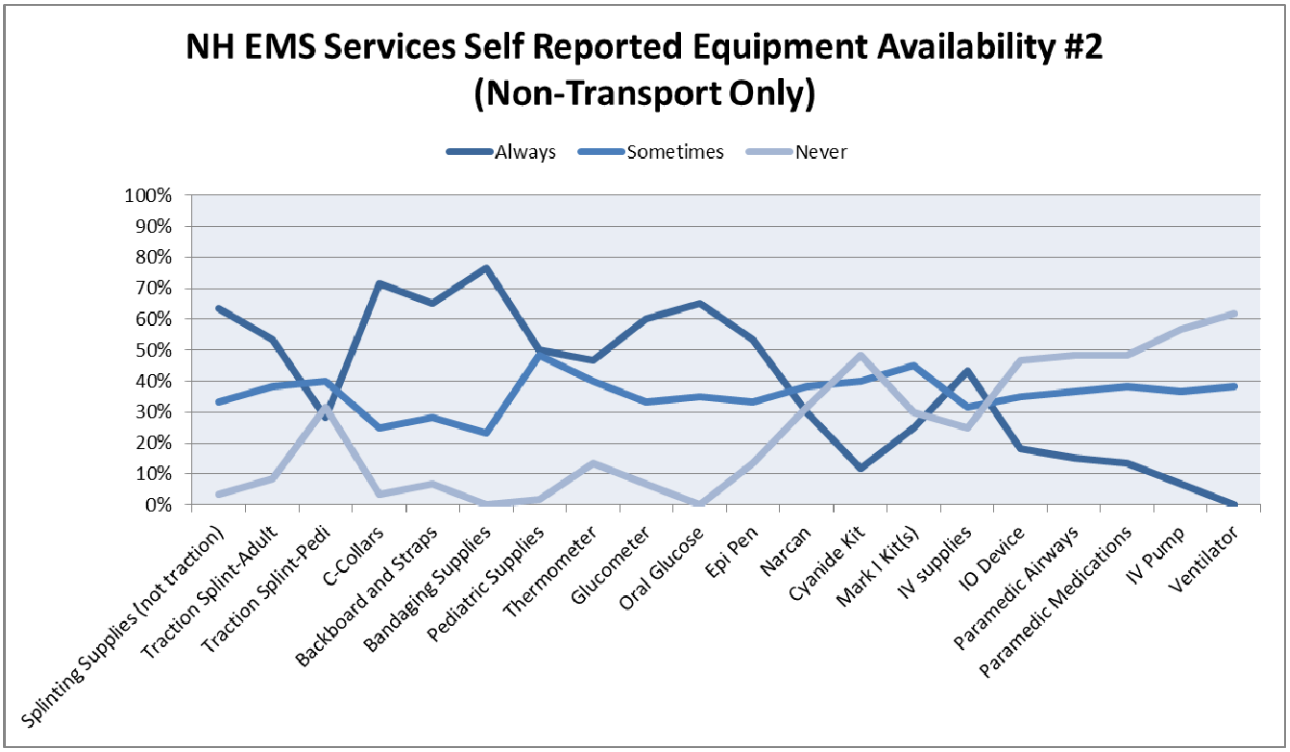
Non-Transport service self-reported equipment availability #1

Evaluating the availability of equipment for non-transporting services also shows the importance of digging deeper than just "do you have XYZ". In most cases these items were either reported as always available or never available with a fairly flat line for sometimes available. This may indicate that some non-transporting services have been selective about the items they carry. For example, nearly half of the non-transporting services either sometimes carries 12-lead monitors with transmit capability while the other half never has them available. As a critical component of a STEMI care system this particular item should receive special attention.



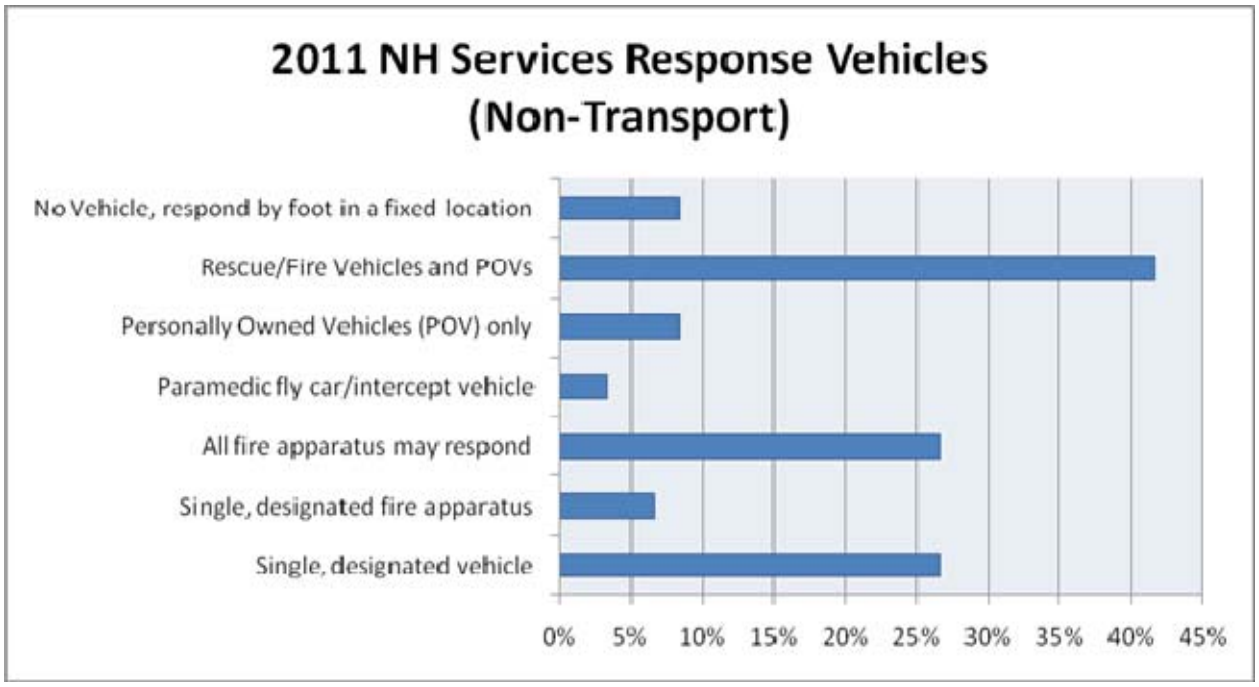
Non-Transport service self-reported equipment availability #2

This graph demonstrates that many non-transporting services are better prepared for BLS emergencies in general with much less support for ALS care. There is also room for improvement in the pediatric equipment and homeland security related equipment.



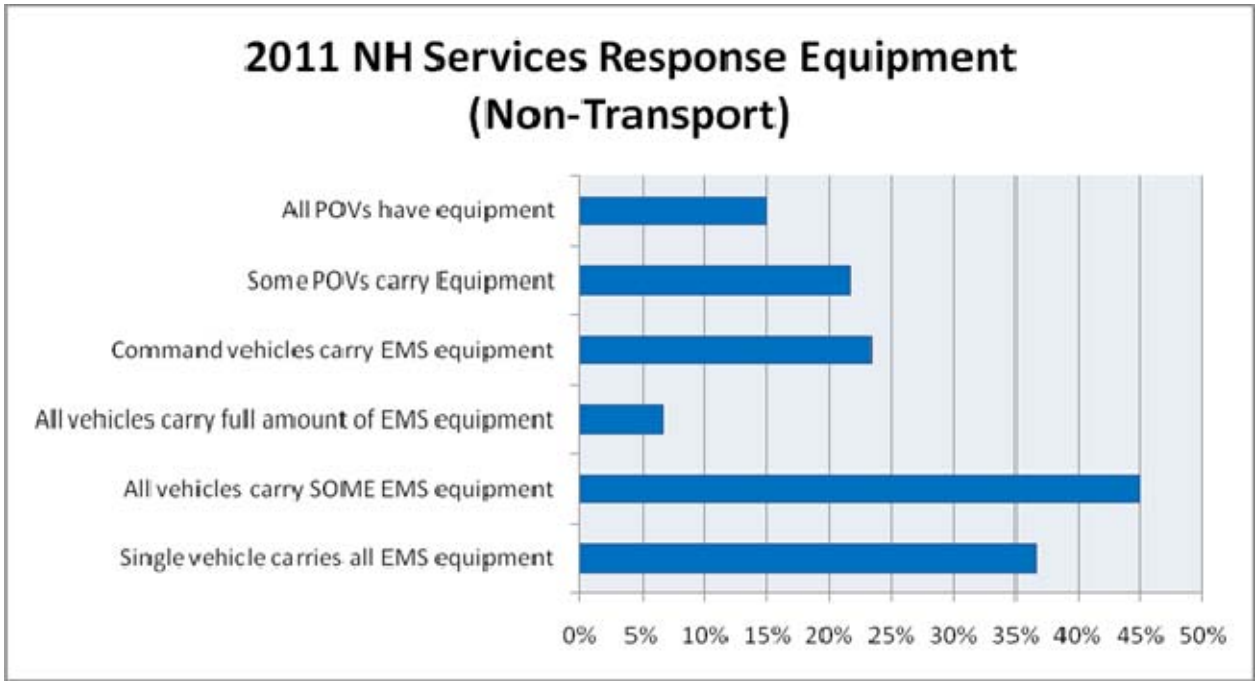
Non-Transport service self-reported response vehicle availability

This chart demonstrates the tendency for non-transport services to utilize service vehicles for responses. Having fully equipped response vehicles is critical for bringing trained, qualified, and prepared responders to the scene of an incident.



Non-Transport service self-reported response equipment availability

Nearly one-third of personally owned vehicles in non-transporting services carry response equipment while 45% of official vehicles do. In contrast, only about 7% of all vehicles carry the full amount of equipment as determined by the service reporting, since there is currently no defined or required equipment list for non-transporting services. This should receive a particular focus so that all vehicles that may be called to the scene of an incident are fully equipped to deliver fully prepared responders to the scene.

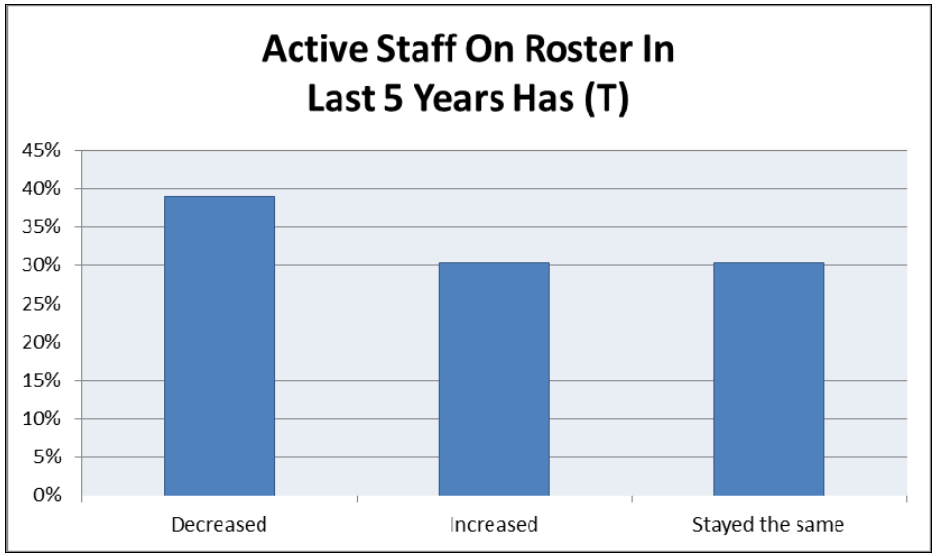


Staff Recruitment and Retention

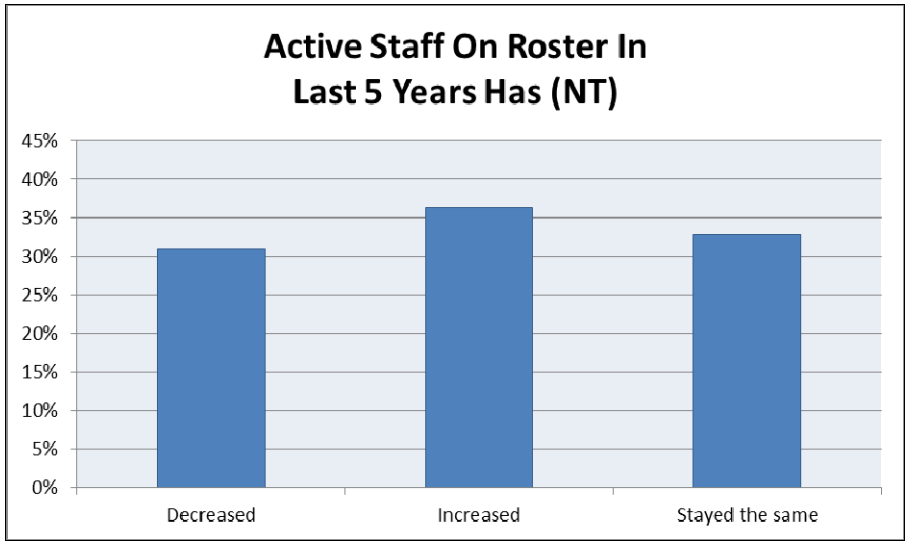
Recruitment and retention is a significant concern for most EMS services. The following data looks at staffing trends and challenges reported by services including difficulty recruiting and shift coverage by types of services.

In the last 5 years, the number of active staff on your roster has?

To determine the overall health of the EMS workforce, the general trend over the last five years was assessed and found to be relatively flat. Transporting services indicate only a slight tendency to a decrease while non-transporting agencies trend towards an increase.



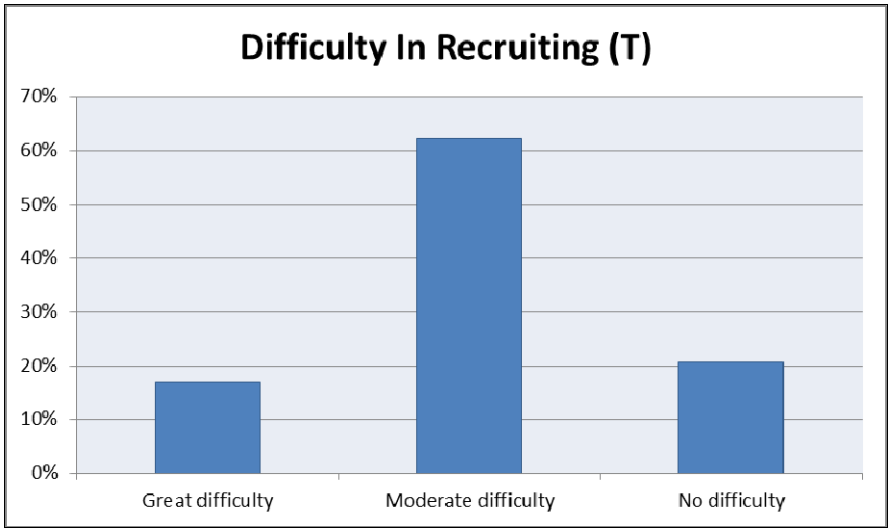
Decreased	36.36%
Increased	28.41%
Stayed the same	28.41%
(blank)	6.82%



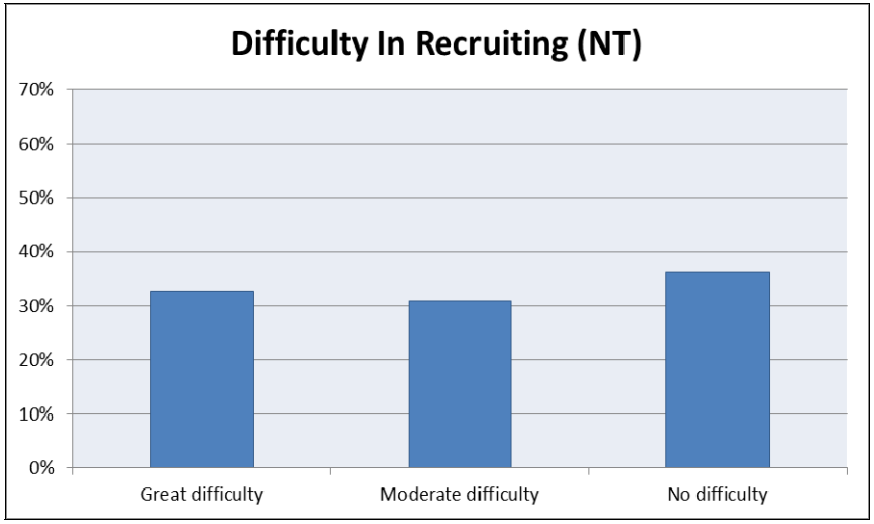
Decreased	28.81%
Increased	33.90%
Stayed the same	30.51%
(blank)	6.78%

To what extent does your service have difficulty recruiting staff?

The level of difficulty in recruiting can be a sign of systemic issues specific to a system as well as those within a community. About 75% of transporting agencies describe having moderate to great difficulty in recruiting new providers while nearly 60% of non-transporting agencies do. The causes for this difficulty warrant further exploration by the New Hampshire EMS community to find an effective and perhaps statewide approach.



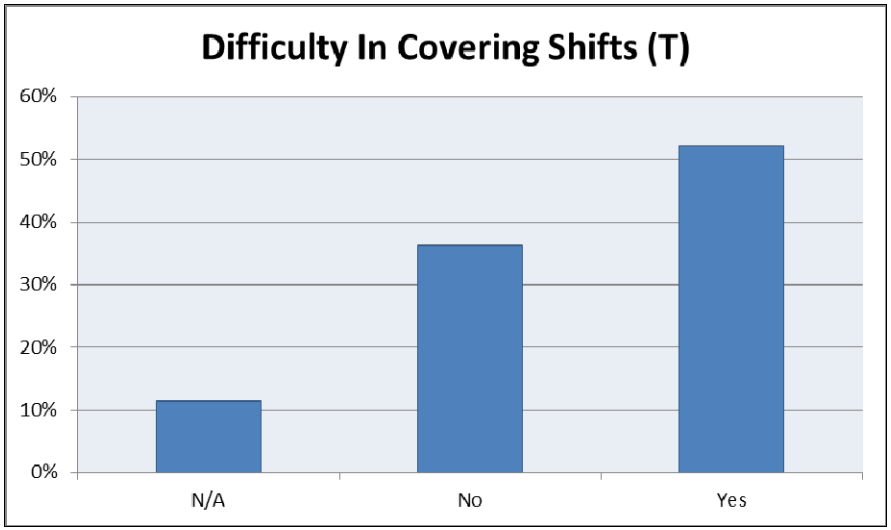
Great difficulty	15.91%
Moderate difficulty	57.95%
No difficulty	19.32%
(blank)	6.82%



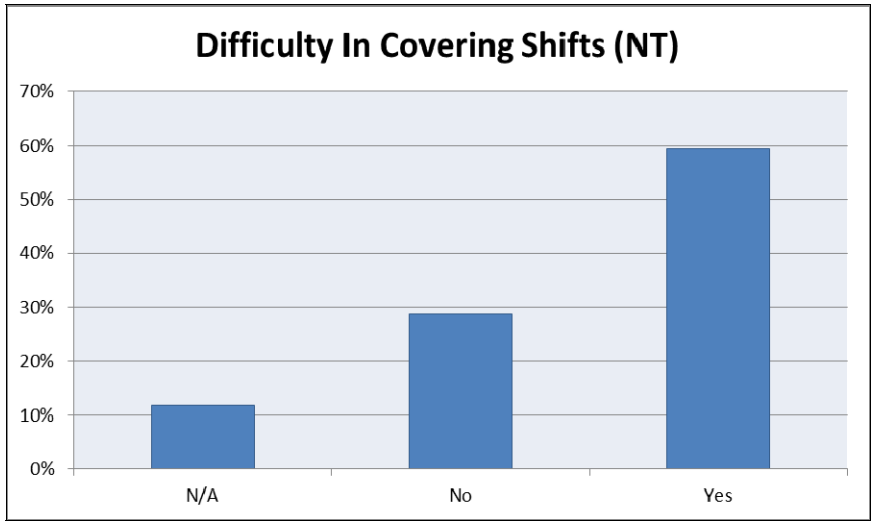
Great difficulty	30.51%
Moderate difficulty	28.81%
No difficulty	33.90%
(blank)	6.78%

Do you have difficulty covering shifts or finding volunteers during certain times of the day?

A little more than half of all agencies report having difficulty covering shifts during certain times of the day.



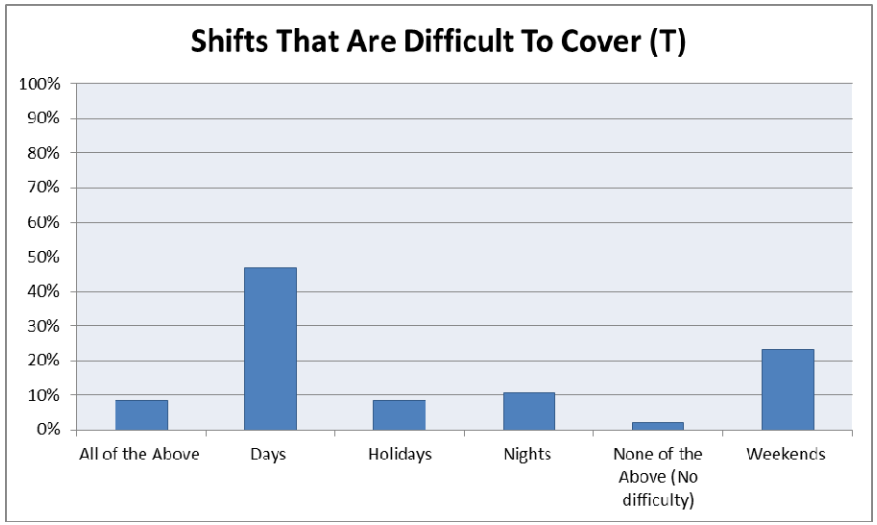
N/A	11.36%
No	36.36%
Yes	52.27%
(blank)	0.00%

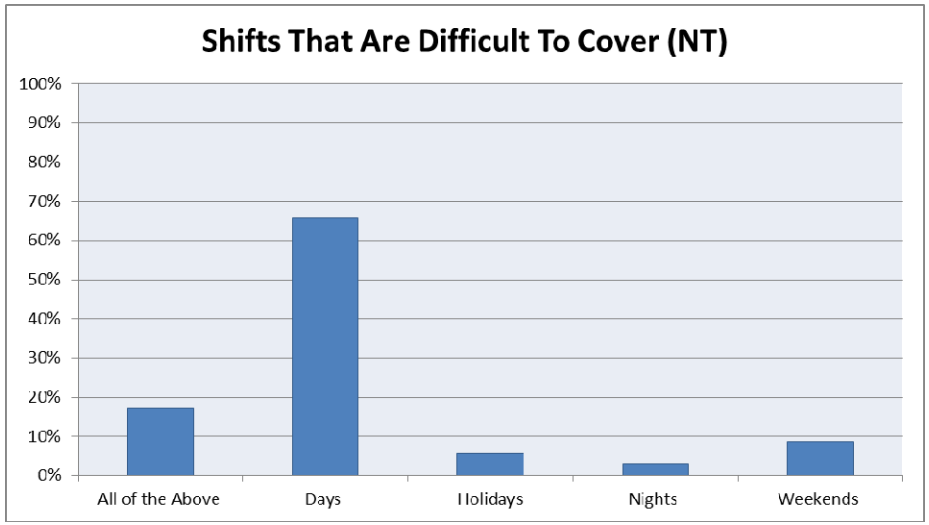


N/A	11.86%
No	28.81%
Yes	59.32%
(blank)	0.00%

Identify the shifts or certain times of the day that are difficult to cover?

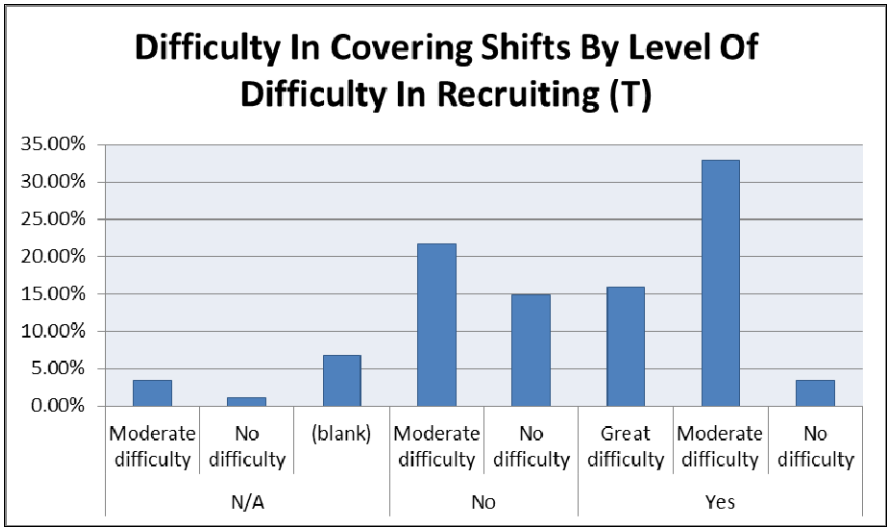
About 2/3 of non-transporting services report it is difficult to cover daytime hours while 17% report all times are difficult. Almost half of transporting services have difficulty during the day while nearly a quarter have difficulty on weekends.



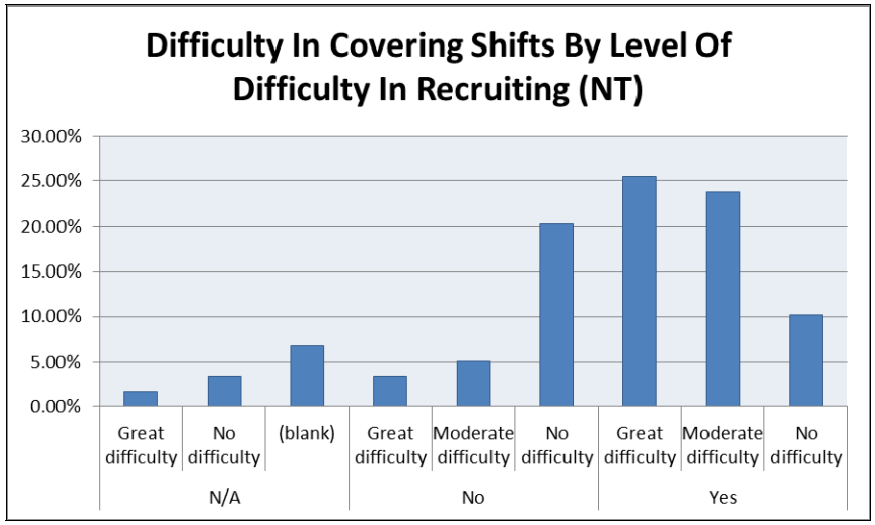


Comparison of Difficulty in Covering Shifts with the Level of Difficulty in Recruiting.
Yes/No/N/A indicates difficulty in Covering Shifts. The level of difficulty relates to recruitment.

There is a strong evidence that those agencies having difficulty recruiting are also having difficulty covering shifts.



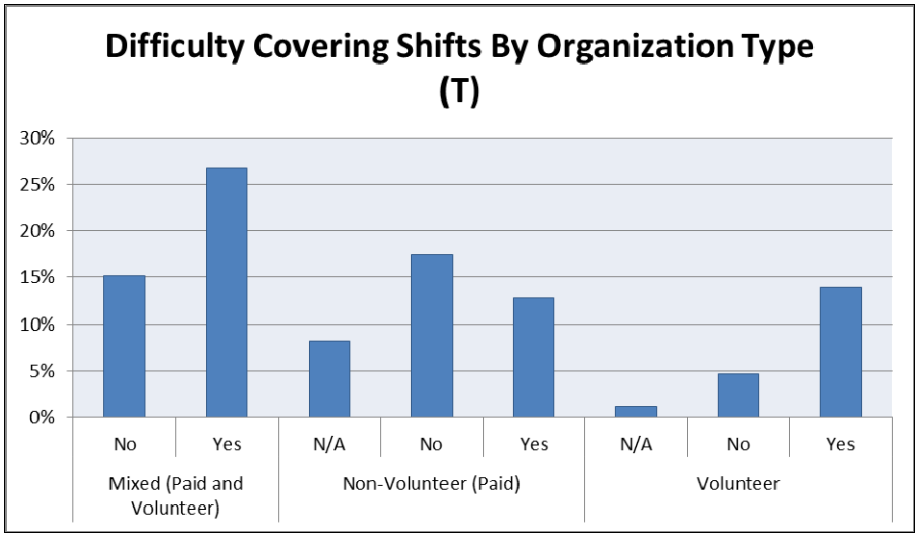
N/A	**11.36%**
Moderate difficulty	3.41%
No difficulty	1.14%
(blank)	6.82%
No	**36.36%**
Moderate difficulty	21.59%
No difficulty	14.77%
Yes	**52.27%**
Great difficulty	15.91%
Moderate difficulty	32.95%
No difficulty	3.41%

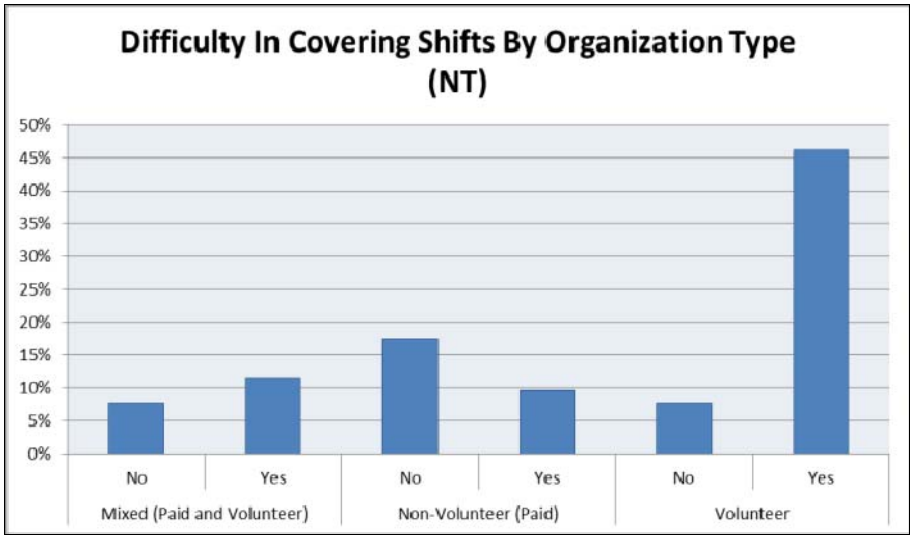


N/A	**11.86%**
Great difficulty	1.69%
No difficulty	3.39%
(blank)	6.78%
No	**28.81%**
Great difficulty	3.39%
Moderate difficulty	5.08%
No difficulty	20.34%
Yes	**59.32%**
Great difficulty	25.42%
Moderate difficulty	23.73%
No difficulty	10.17%

Comparison of Difficulty in Covering Shifts by Organization Type.

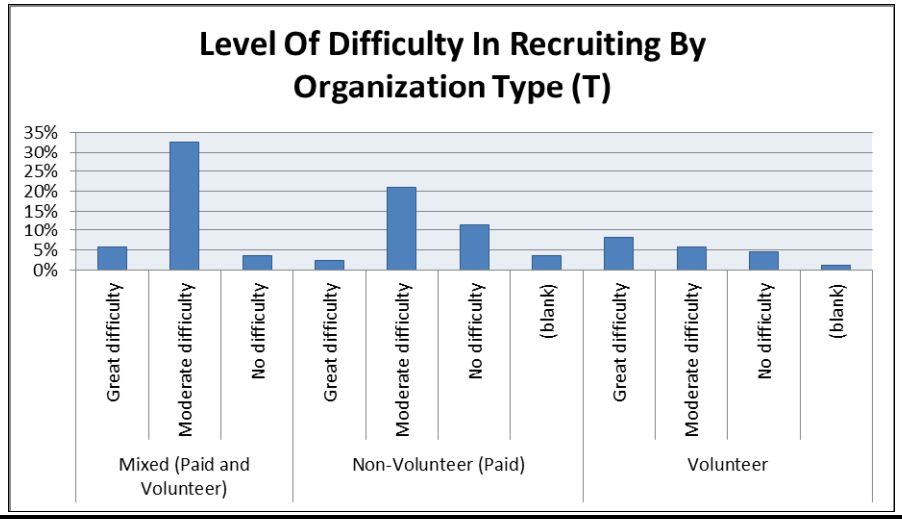
Transporting agencies show a trend to having difficulty in covering when the organization is mixed with volunteer and paid staff. Non-transporting agencies that rely on volunteers overwhelmingly report having difficulty in staffing. These indicate that agencies that are making a slow transition from volunteer to paid staff are facing more significant challenges with staffing.

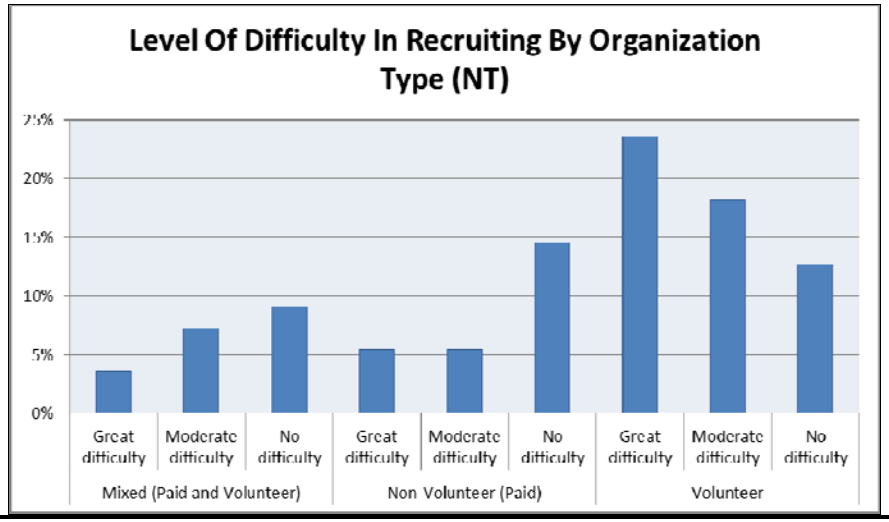




Comparison of Difficulty in Recruiting by Organization Type.

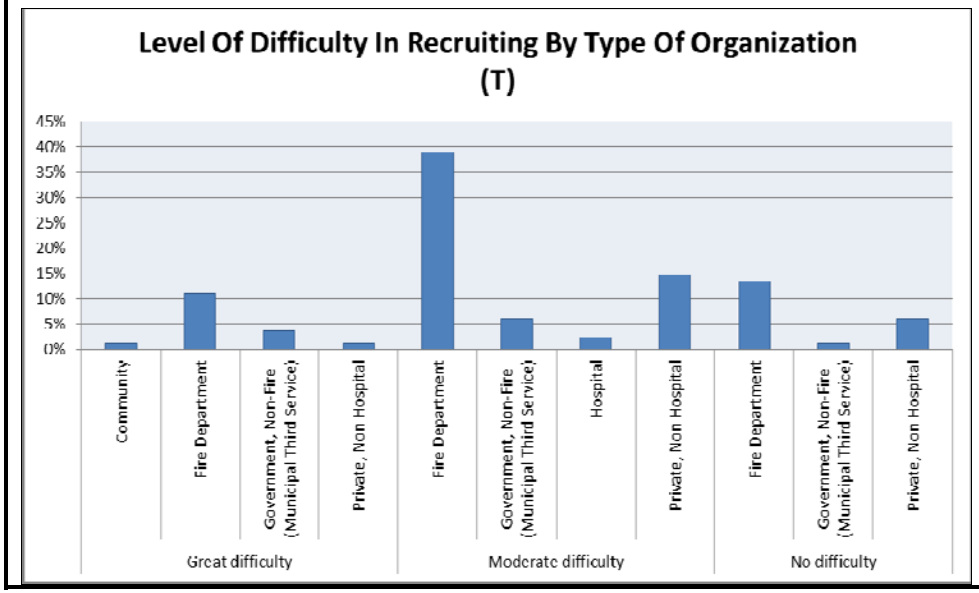
Transporting agencies show a trend to having difficulty in recruiting when the organization is mixed with volunteer and paid staff. Often these mixed agencies have a limited number of paid staff to cover services during the day, but utilize volunteer call personnel to cover during nights and weekends because they had been unable to recruit volunteers to cover during the weekdays. Non-transporting agencies that rely on volunteers overwhelmingly report having difficulty in recruiting. These indicate that agencies making a slow transition from volunteer to paid staff are facing more significant challenges with staffing.

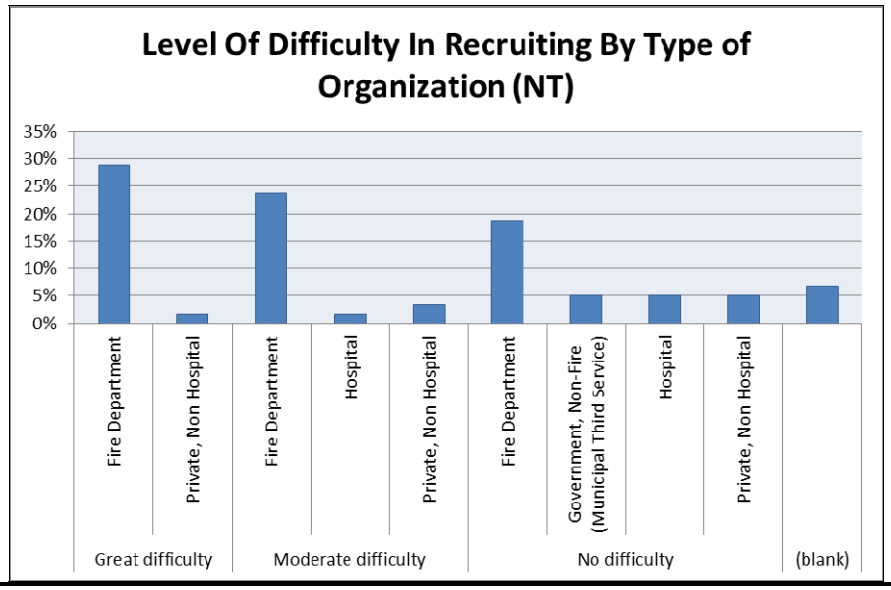




Comparison of Difficulty in Recruiting by Type of Organization.

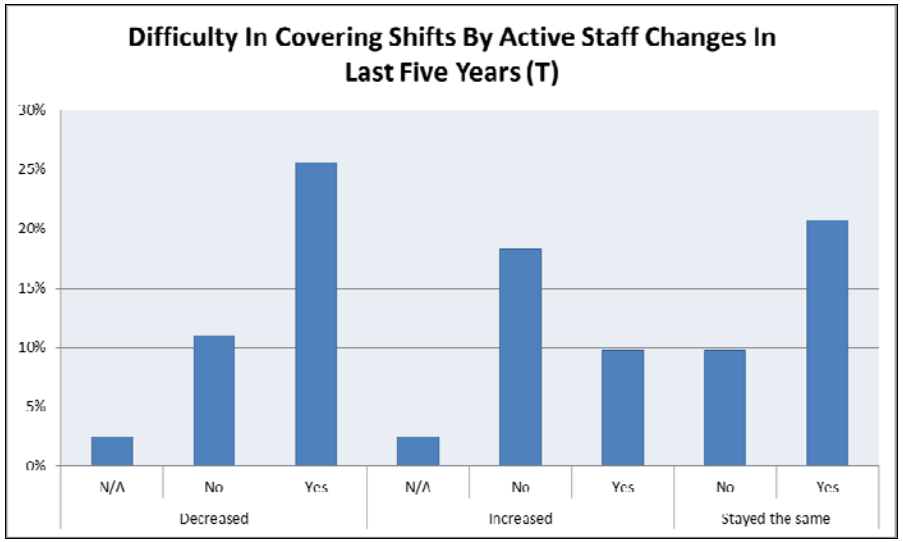
The type of agency also has an effect on the level of difficulty in recruiting. Fire Departments are more likely to report having moderate or great difficulty in recruiting.



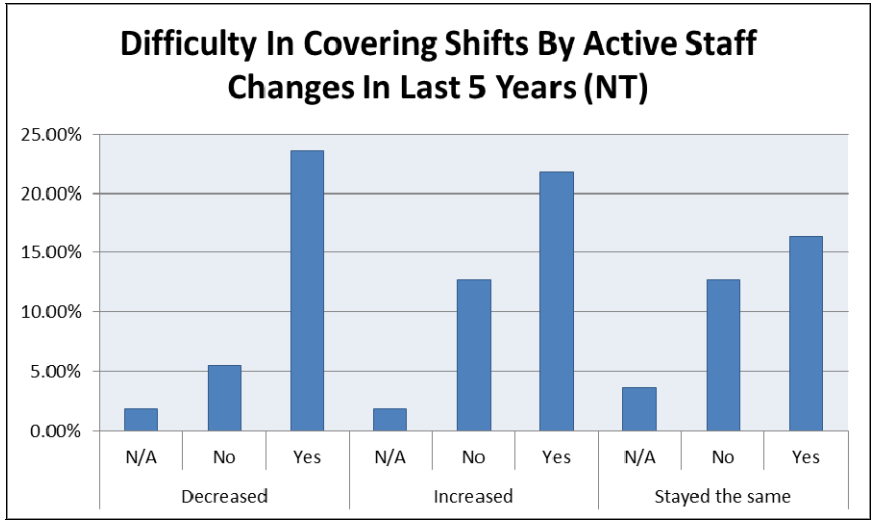


Comparisonof Difficulty in Covering Shifts with the Active Staff Changes over last 5 years.
Yes/No/N/A indicates difficulty in Covering Shifts. The change relates to Active Staff on Roster.

Agencies that have decreased staff in the last five years report having difficulty covering shifts. Non-transporting agencies that have increased staff also report having difficulty.



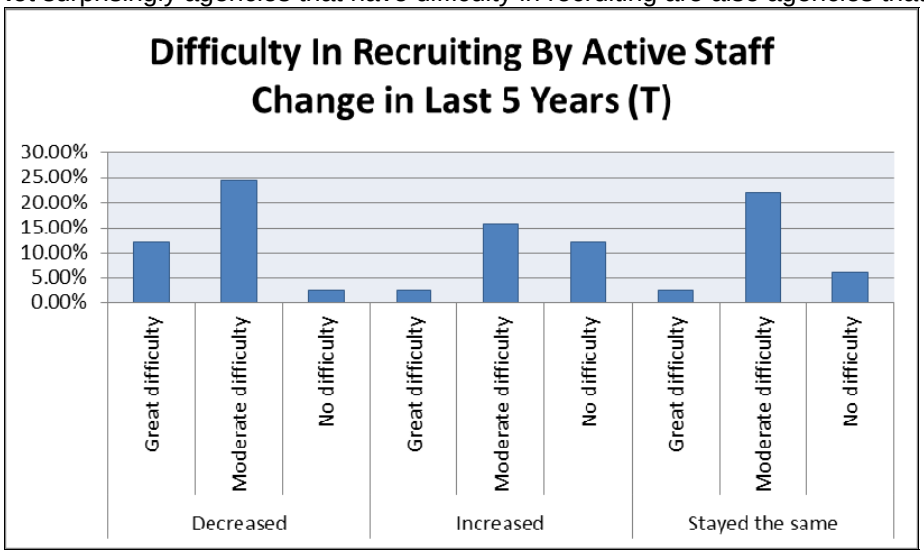
Decreased	**36.36%**
N/A	2.27%
No	10.23%
Yes	23.86%
Increased	**28.41%**
N/A	2.27%
No	17.05%
Yes	9.09%
Stayed the same	**28.41%**
No	9.09%
Yes	19.32%

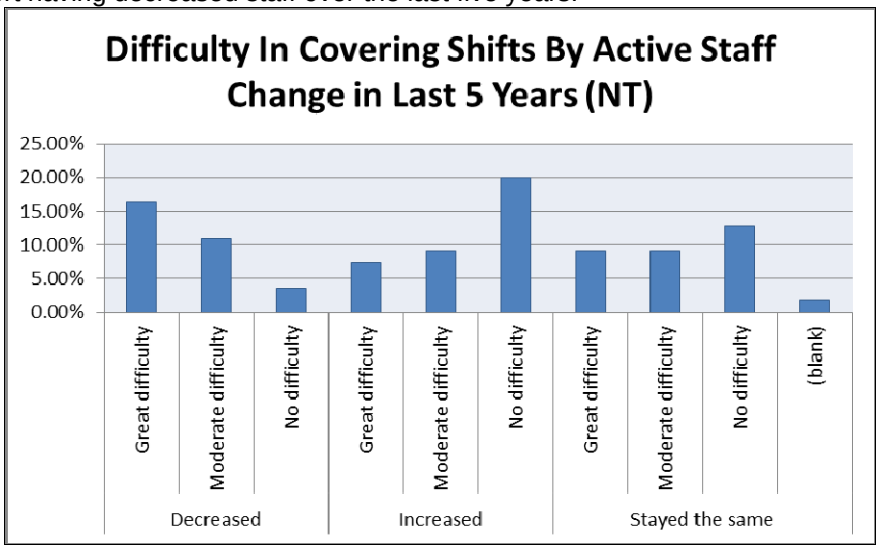


Decreased	**28.81%**
N/A	1.69%
No	5.08%
Yes	22.03%
Increased	**33.90%**
N/A	1.69%
No	11.86%
Yes	20.34%
Stayed the same	**30.51%**
No	11.86%
Yes	15.25%

Comparison of Level of Difficulty in Recruiting with the Active Staff Changes over last 5 years.
The level of difficulty relates to recruitment.The change relates to Active Staff on Roster.

Not surprisingly agencies that have difficulty in recruiting are also agencies that report having decreased staff over the last five years.





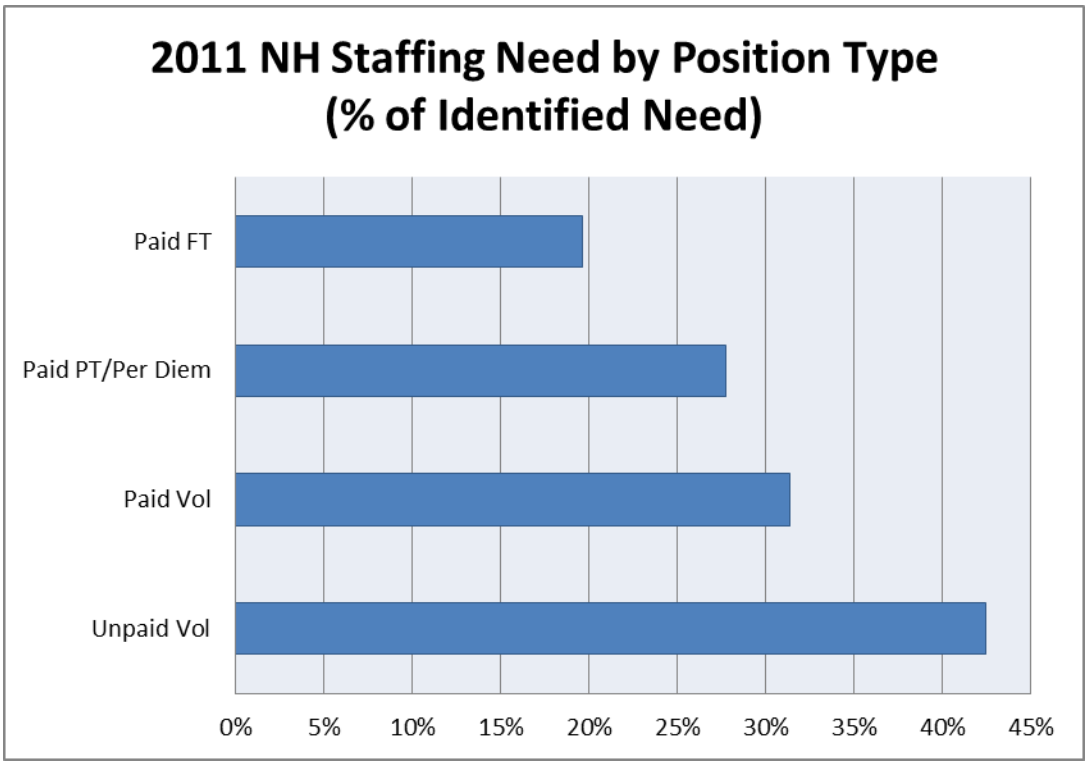
Decreased	**36.36%**
Great difficulty	11.36%
Moderate difficulty	22.73%
No difficulty	2.27%
Increased	**28.41%**
Great difficulty	2.27%
Moderate difficulty	14.77%
No difficulty	11.36%
Stayed the same	**28.41%**
Great difficulty	2.27%
Moderate difficulty	20.45%
No difficulty	5.68%

Decreased	**28.81%**
Great difficulty	15.25%
Moderate difficulty	10.17%
No difficulty	3.39%
Increased	**33.90%**
Great difficulty	6.78%
Moderate difficulty	8.47%
No difficulty	18.64%
Stayed the same	**30.51%**
Great difficulty	8.47%
Moderate difficulty	8.47%
No difficulty	11.86%

Current Staffing and Reported Needs

The following chart and tables look at current staffing and additional needed staff as reported by the services. Services were asked to complete two tables where they identified what staff they had on hand, and what staff they felt they needed by the paid status of the position and the provider levels of First Responder, EMT, Intermediate, Paramedic and Manager. The term "Manager" was not defined and left to services to interpret what that meant to their service.

Determining need is straightforward for paid services, who know they have a certain number of vehicles and shifts that need to be covered based on an established schedule, so it becomes a matter of simple math to come up with a number of staff that is "needed". However, the less structured the staffing plan, the more determining need becomes a best-guess estimate. For instance, a volunteer service who preschedules their staff to cover specific times will have an easier time determining how many more staff they need compared to a volunteer services who does not schedule any coverage and response is based on whoever can show up at a given time. This last scenario obviously becomes hard to quantify and therefore, the service leadership would need to estimate what they thought might be needed to fill the gap. This may also result in services with less structured coverage plans needing relatively more staff on the service compared to full-time paid services to make sure someone can show up for calls. The following chart looks at staffing need by position type. Based on the need reported by the services, unpaid volunteer services identified a 25% greater need for more staff than paid full time services. Likely, this difference is due to a combination of the difficulty in interesting new members to participate for no financial return and the need to inflate the service roster to insure complete coverage.



The following tables compare current staffing and needed staff as reported by services. Transport services, on average, reported an approximate need for 24% more staff to meet their needs. Non-transport services reported a greater average need of 30% more staff. When these numbers are combined, there becomes an overall need of 25 % more staff needed across the board. While these numbers are not statistically significant, we can use them to extrapolate a relative need for more staff across NH and come up overall goals. For example, there was an aggregate need of 27% for EMTs identified. If NH looks at the current number of EMTs in NH (as of this report, approximately 2300) and multiply that by the need, we find that NH may need as many as 620 new EMTs. This can then be used to plan further initial training courses.

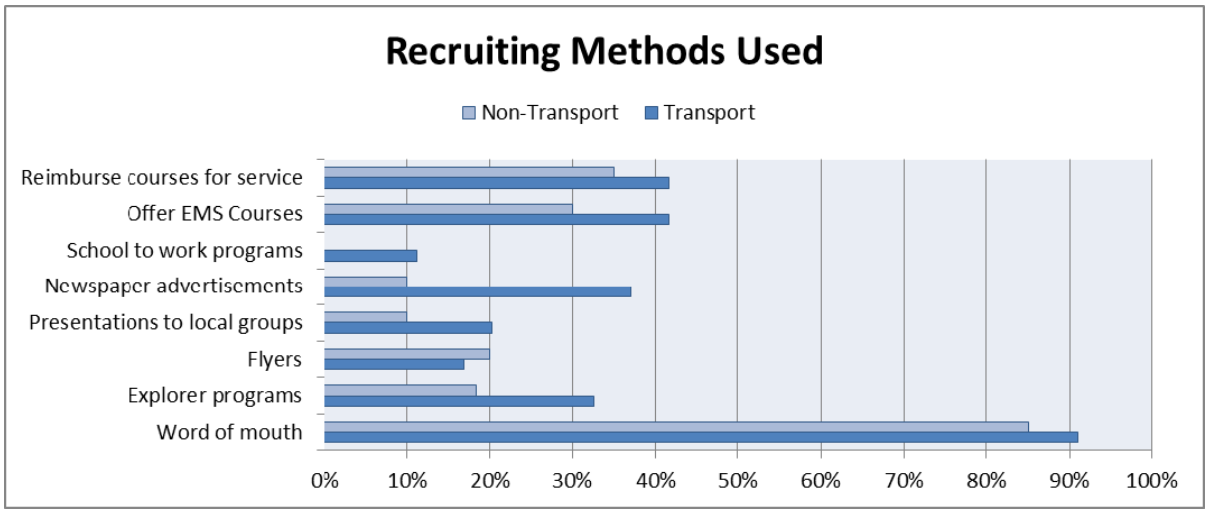
Transport	Current Staff	Needed Staff	Total	% More Needed
First Responder	77	19	96	20%
EMT	146	46	192	24%
Intermediate	154	45	199	23%
Paramedic	124	48	172	28%
Manager	79	24	103	23%

Non-Transport	Current Staff	Needed Staff	Total	% More Needed
First Responder	35	15	50	30%
EMT	61	29	90	32%
Intermediate	55	15	70	21%
Paramedic	37	15	52	29%
Manager	18	11	29	38%

Combined	Current Staff	Needed Staff	Total	% More Needed
First Responder	112	34	146	23%
EMT	207	75	282	27%
Intermediate	209	60	269	22%
Paramedic	161	63	224	28%
Manager	97	35	132	27%

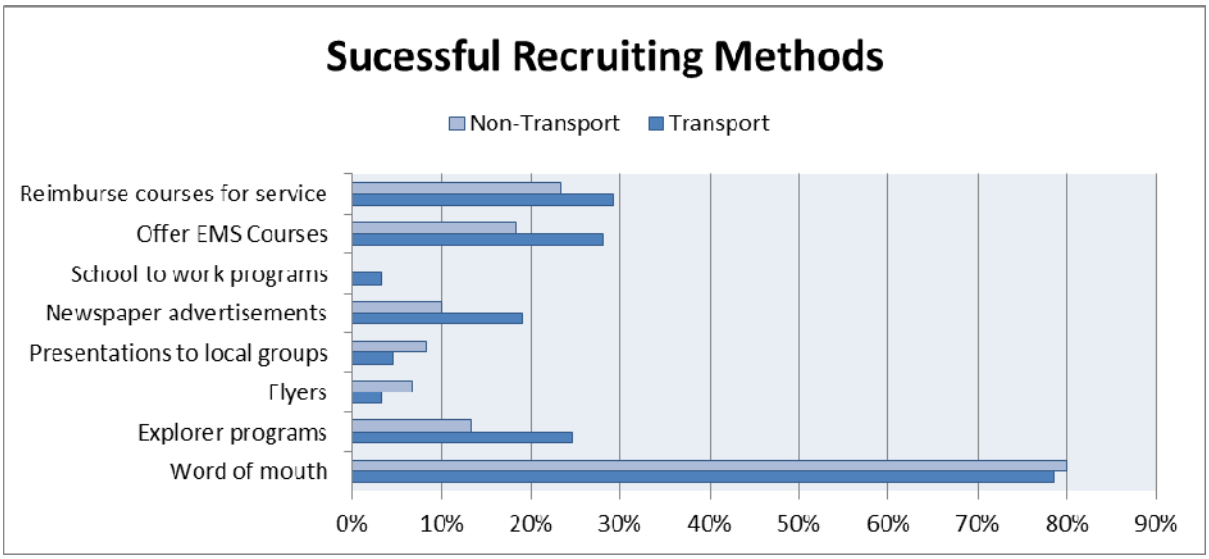
Recruitment Methods Used

To address the recruiting difficulties identified in this survey, one should begin with the recruitment methods that are being used. Respondents were asked to identify those methods that their service has used regardless of how successful those methods were in recruiting new staff.



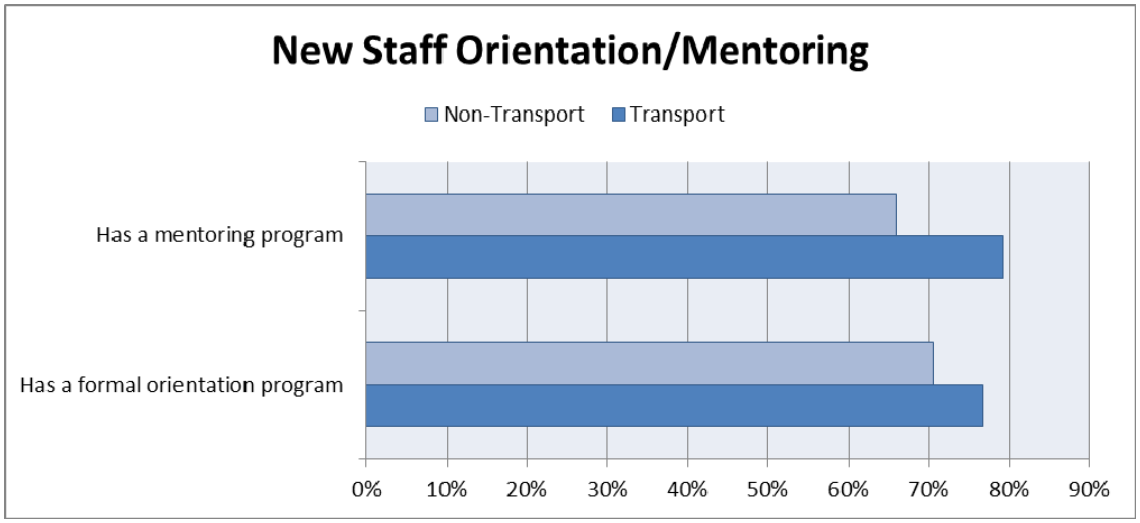
Successful Recruitment Methods

With the recruitment methods identified, getting a better understanding of which methods have been used successfully to recruit new staff provides more insight. While these reported successes may shed some light on the tools that have worked for that service, this does not discount any particular method whether it is listed or not. Novel recruiting tools and methods may be in place that are more detailed than a survey would allow. It is recommended that services communicate with one another about the methods they have used successfully and unsuccessfully so that others may learn.



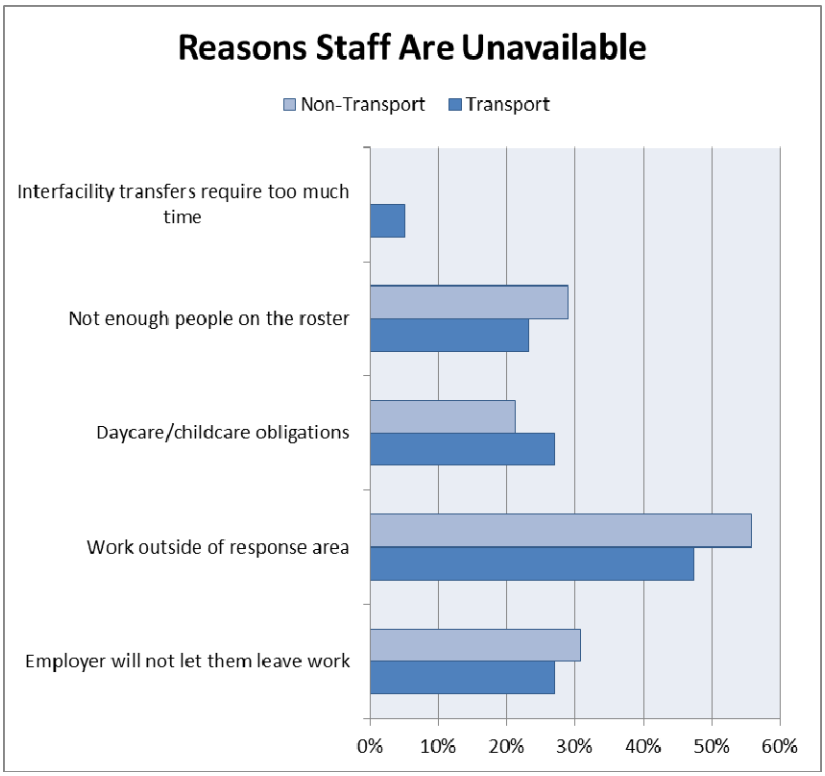
New Staff Orientation/Mentoring

Once a new recruit makes it into the service it behooves all to make sure that new recruit feels welcome and is adequately prepared to be a productive member of the organization. Staff that feel welcomed and connected to the organization are more likely to remain engaged and responsive to the needs of the organization. More than 2/3 of NH EMS services report having formal orientation and mentoring programs for new staff, more so among the transporting services.



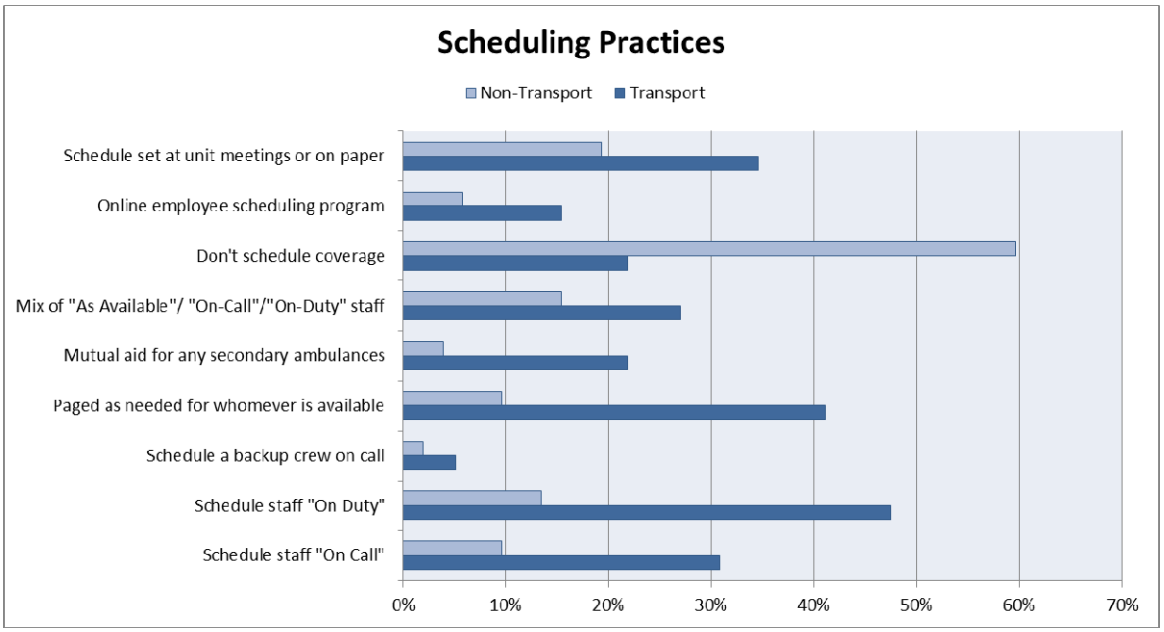
Reasons Staff Are Unavailable

Respondents were asked to identify the reasons why staff is unavailable to respond. This provides a clear picture of some of the challenges being faced so that innovative programs may be developed to increase the availability of trained responders.



Scheduling Practices

Respondents were asked to identify the methods or practices their service follows for scheduling. To assure an adequate response to every call, meaning the right number of responders who are trained and equipped for any given situation, there must be a schedule in place with staff held accountable for responses during their shift. What that means may vary by service but having clear expectations is essential for the service.



Hospital Resources for NH EMS Services

The following section addresses hospital resources available to NH EMS Services. This includes regional specialty care resources for STEMI, Stroke and Trauma care, Air Medical Transport utilization policies, interaction with Medical Resource Hospitals, Medical Directors and EMS Coordinators, the perceived importance of EMS Incident reports to receiving hospitals and the average distance of transport to hospitals.

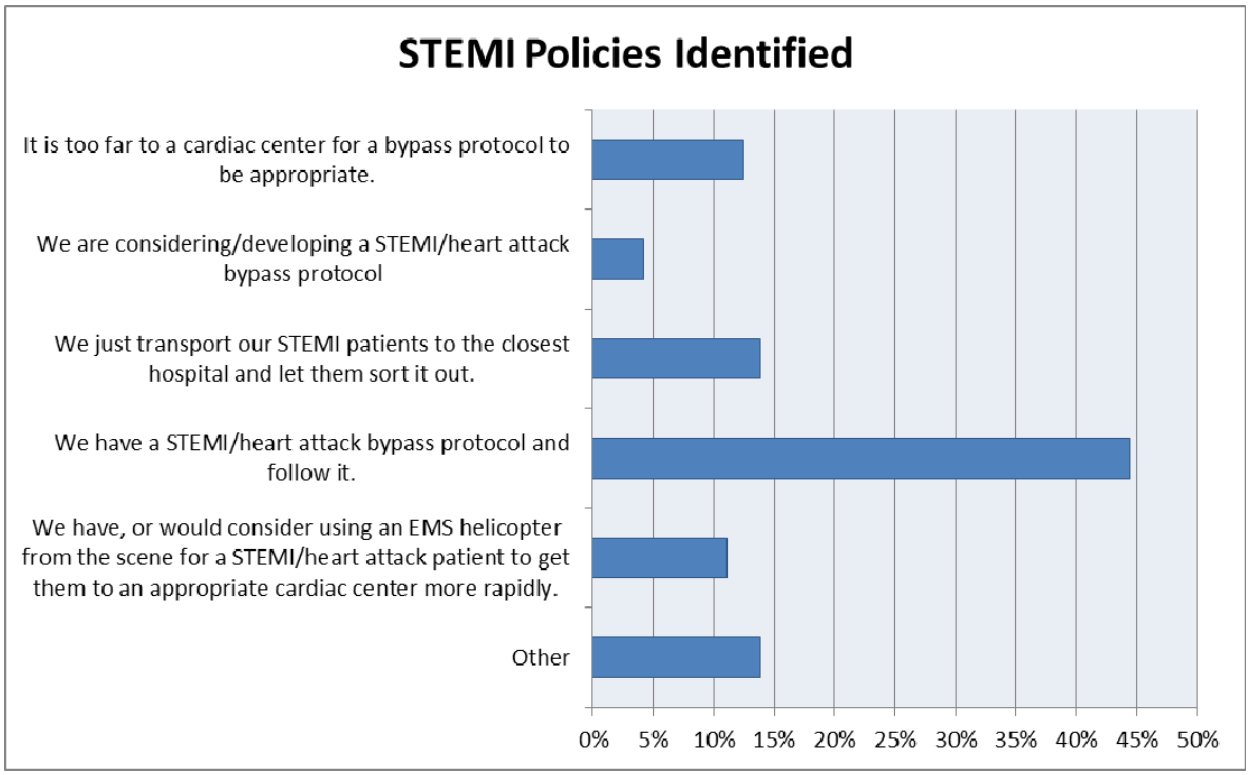
Transport Distance

Transport distance was determined by collecting the average transport distance for the service to the service's top three destinations. Those values were then combined to come up with a mean transport distance for all services of 16.47 miles.

What is the average transport distance for your service to all hospital destinations (in whole miles)? *(Transport Only)*	Count	73
	Mean	16.47
	Min	1
	Max	131
	STD	16.84

STEMI Policies

Less than half of NH services report having a STEMI/heart attack bypass protocol while nearly 30% provided responses that indicate opposition to having such a protocol. STEMI patients in NH will benefit from regional or statewide protocols addressing the appropriate bypass of non-cardiac care centers.

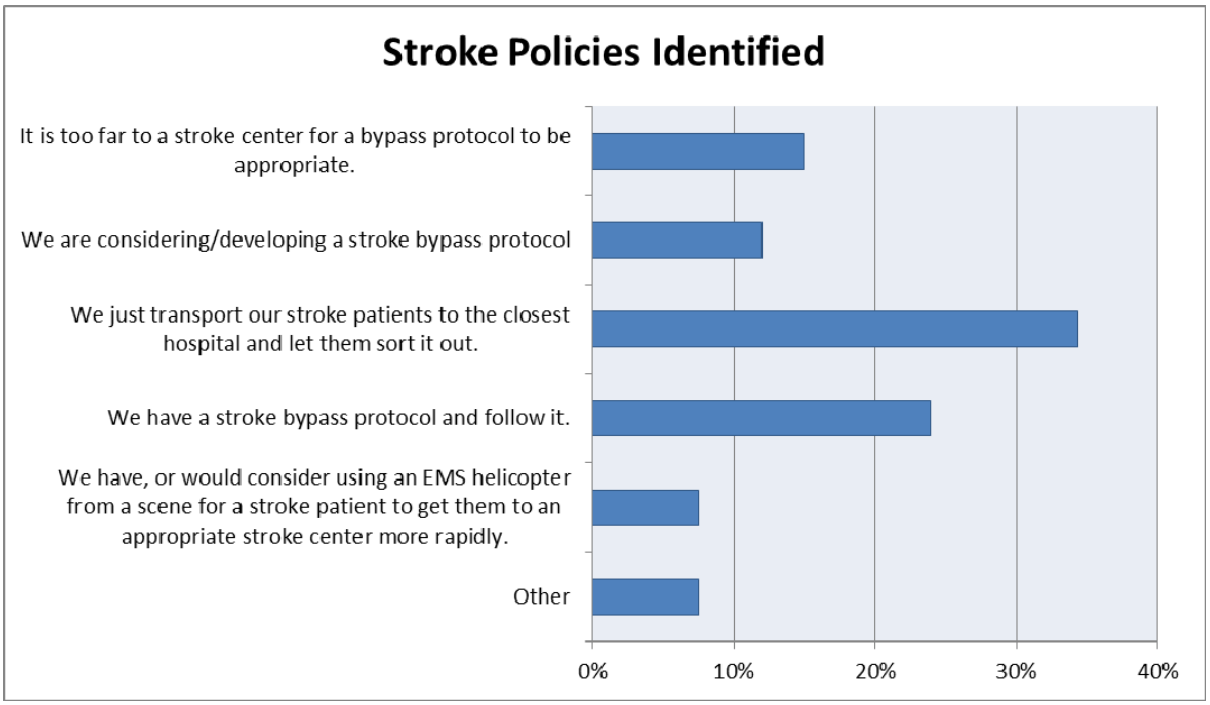


Other

Transport to closest which is CMC (cardiac excellence center)
Medic Choice by proximity
We already primarily transport to a STEMI center
Our MRH is a cardiac center - 80% of our patients are transported there
Both local hospitals have Stemi capabilities
closest appropriate facility, but typically CMC
not eligible because of distance
Our Primary has cath lab and will transfer if needed to Portsmouth if Bypass is needed.
Our closest appropriate facility (Concord) is a STEMI center
GENERAL PRACTICE IS TO TXP TO A STEMI HOSPITAL; NO WRITTEN POLICY

Stroke Policies

More than 1/3 of NH services report they have no specific stroke bypass protocol Stroke patients in NH will benefit from regional or statewide protocols addressing the appropriate bypass of non-stroke care centers.



Other

Both area hospitals have stroke teams

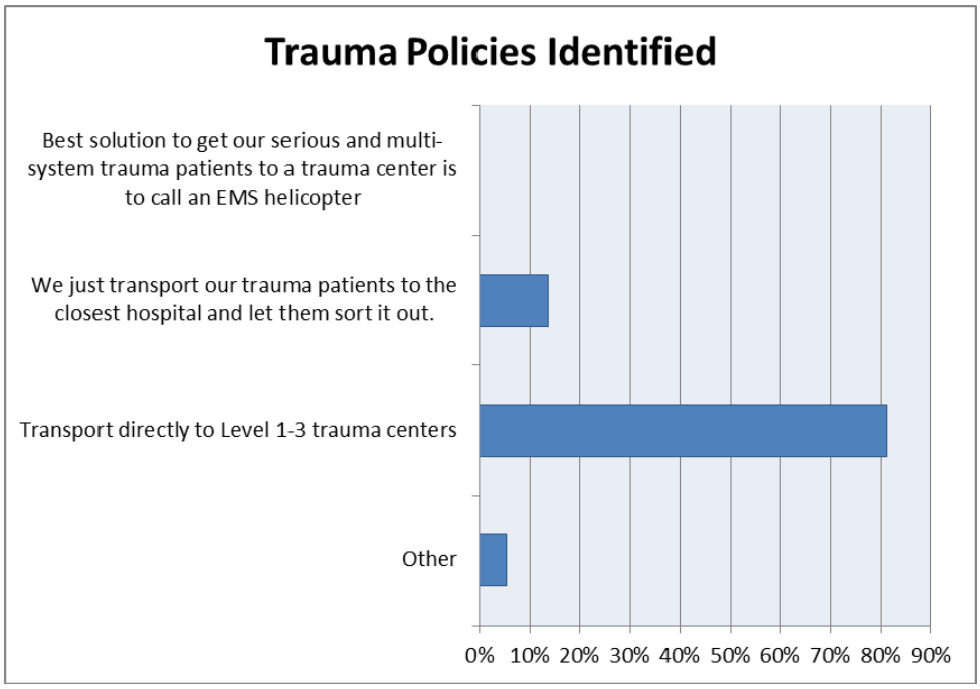
same as above answer

Exeter Has a stroke process with a Boston hospital, Portsmouth has a process for strokes also

GENERAL PRACTICE IS TO TXP TO A STROKE FACILITY; NO WRITTEN POLICY

Trauma Policies

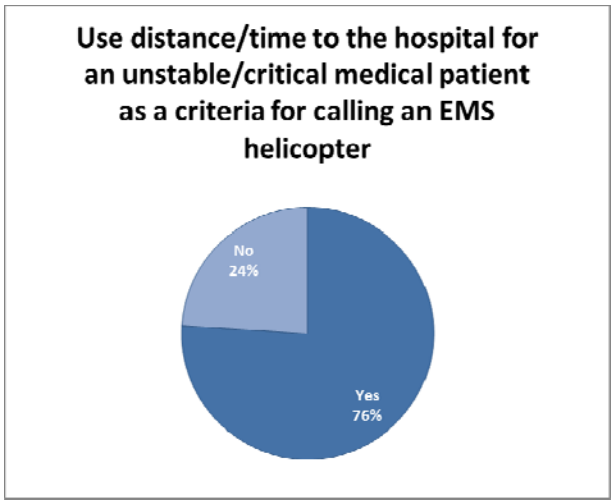
The NH services overwhelmingly report that trauma patients are appropriately transported to designated trauma centers.

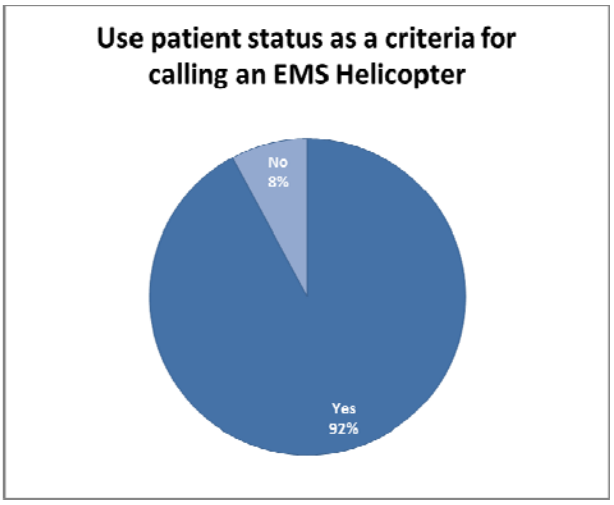


Other: We do both, consider the complaint(s) and determine if a med flight or closest appropriate facility is better.

Criteria for Calling an EMS Helicopter

Among respondents, ¾ use distance/time as a criteria for requesting a helicopter for unstable/critical patients and nearly all will use the patient status as a criteria.





Self-reported contact with Medical Director and EMS coordinator

Active physician involvement with a transporting or non-transporting service leads to improved clinical quality. Although it may seem trivial to have active medical direction involvement in service's that are struggling to find enough responders to go on calls, it is a sign of a healthy EMS system. A service that is concerned about the quality of care delivered by its staff is a service that will have other components of an organization that contributes to the success and well-being of the organization and its members. Less than 10% of New Hampshire services report having contact with their medical director more than once per month.

How often does the Leadership/management of your organization have face-to-face or telephone contact with your:

	Medical Director		MRH EMS Coordinator	
	Count	Percent	Count	Percent
Weekly	9	6%	19	13%
1 time per month	15	10%	18	12%
Several times per year	16	11%	9	6%
Every few months	23	15%	12	8%
Only when paperwork needs to be signed	22	15%	2	1%

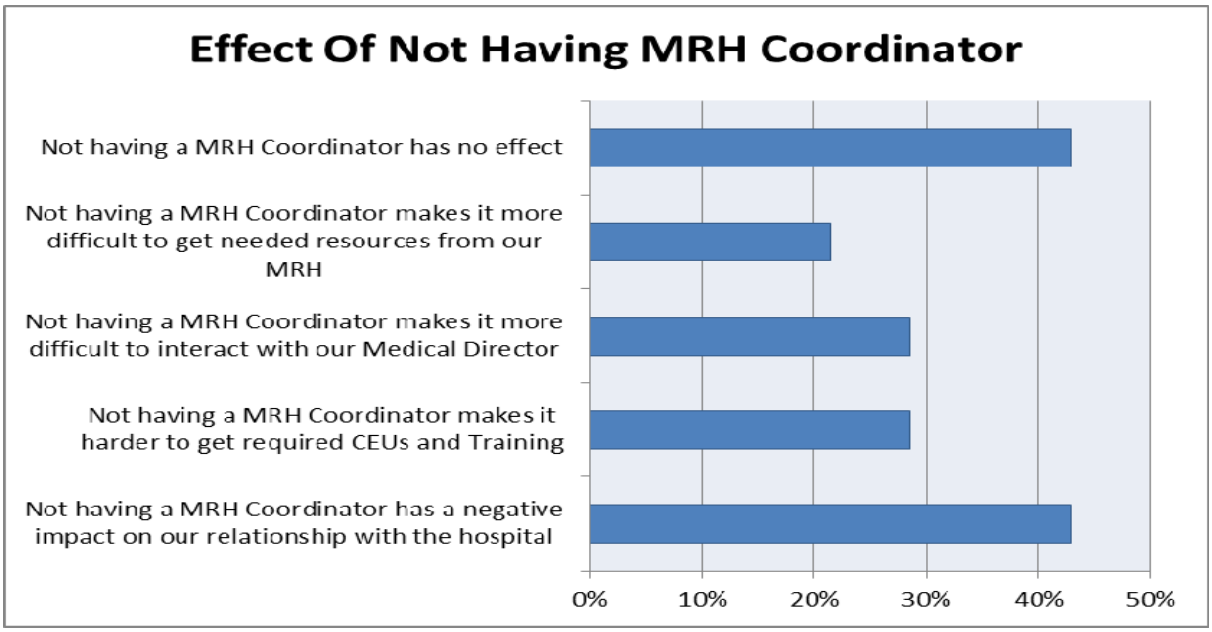
Hospital EMS Coordinator Staffing Status

NH Hospitals are not required by law to have an EMS Coordinator. However, most hospitals choose to maintain an EMS Coordinator on staff because of the important role that the position plays in connecting to the EMS services that rely on the hospitals as Medical Resource Centers. In most cases, EMS Coordinators tend to have additional responsibilities such as Trauma Coordination, Disaster Preparedness or Education. As you can see in the above table, there is an inverse relationship in the frequency of how often services talk to the Medical Director compared to the EMS Coordinator. This demonstrates the important role EMS Coordinators play in the routine interaction with services as the extension of the EMS Medical Director.

Interestingly, respondents did not consistently identify whether their Medical Resource Hospital has a Coordinator or not. For example, 11 departments identified Dartmouth-Hitchcock Medical Center as their Medical Resource Hospital and 7/11 indicated this hospital does not have an EMS Coordinator. Similar inconsistencies were found with Elliot Hospital, Cheshire Medical Center, Valley Regional Hospital, and Franklin Regional Hospital.

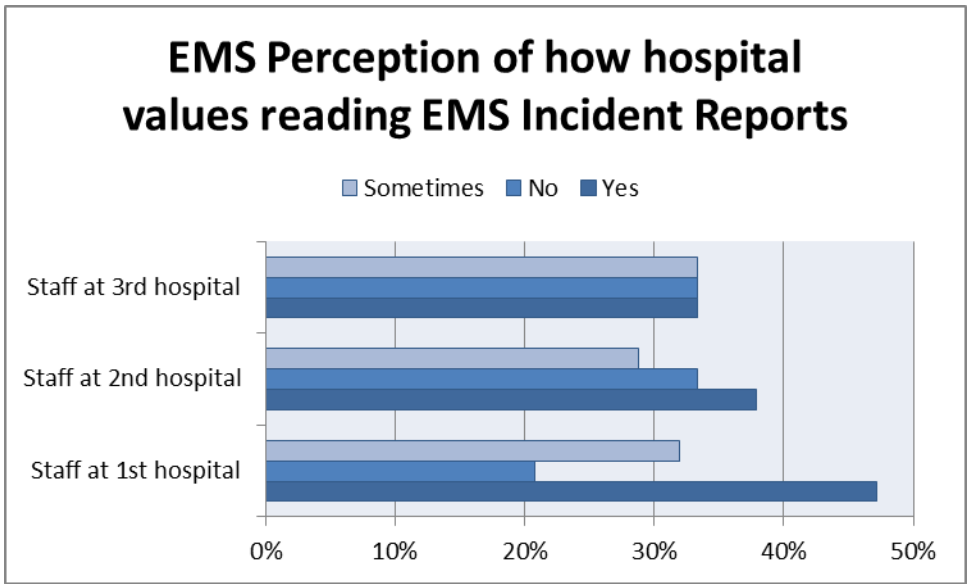
Effect of Not Having MRH Coordinator

Survey respondents were asked if they had an EMS Coordinator. If they answered "No", they were then asked what the effect of not having an EMS Coordinator was on their service. Not having a MRH Coordinator provides mixed results with over 1/3 reporting it has no effect and another 1/3 reporting it has a negative impact. Nearly 1/3 find the MRH Coordinator to be of value in having contact with the medical director, training, and other resources.



EMS Perception of Value of EMS Incident reports to Hospital

The perceived value by EMS providers of their documentation to the hospital may also be an indicator of the relationship between providers, not merely the actual value of the documents. In descending order of the top three destination facilities, by frequency of transport, the perceived value moves from very positive to equivocal.



The most frequently reported hospitals, not including “other”, where the EMS providers perceive that the hospital staff does not value reading the EMS incident reports are identified in the following table:

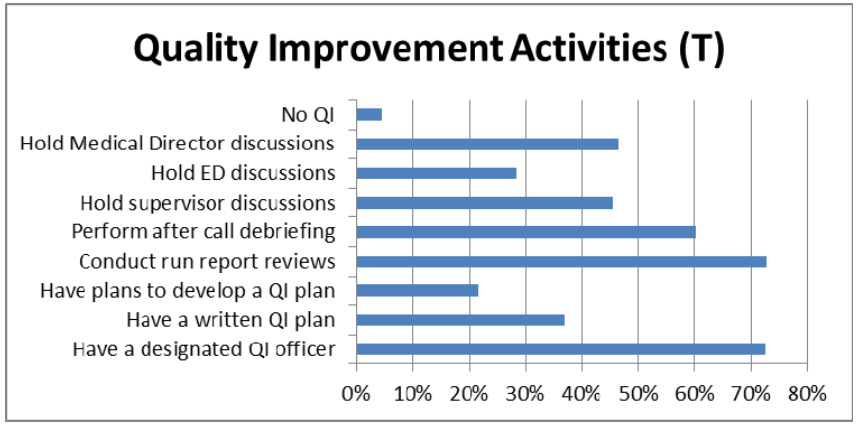
Hospital Name	Count
Dartmouth-Hitchcock Medical Center	6
Elliot Hospital	4
Speare Memorial Hospital	4
Littleton Hospital	3
Alice Peck Day Hospital	2
Catholic Medical Center	2
Cheshire Medical Center	2
Franklin Regional Hospital	2
Huggins Hospital	2
Lakes Region General Hospital	2
Monadnock Community Hospital	2
Southern NH Medical Center	2
Weeks Medical Center	2

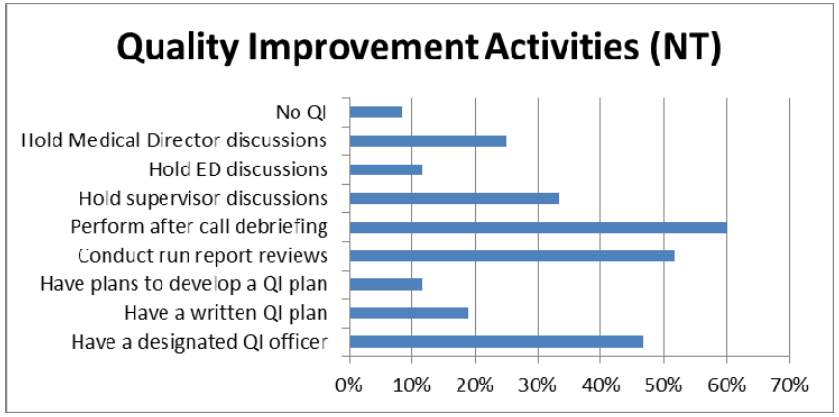
Only the following three hospitals were identified as valuing the EMS Incident Report AND not also identified by another department as not valuing the EMS Incident Report:

- Cottage Hospital
- Portsmouth Regional Hospital
- Upper Connecticut Valley Hospital

Quality Improvement Activities

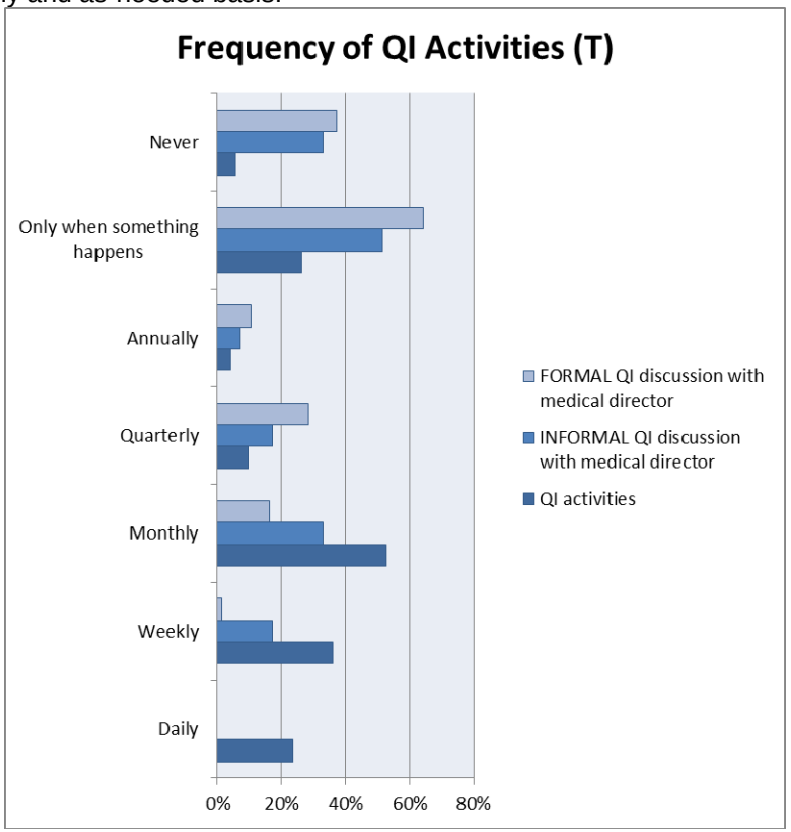
The Quality Improvement Activities of transporting and non-transporting services are nearly identical. In general, NH EMS services report a relatively mature level of QI processes within their services although only about 30% have written QI plans.

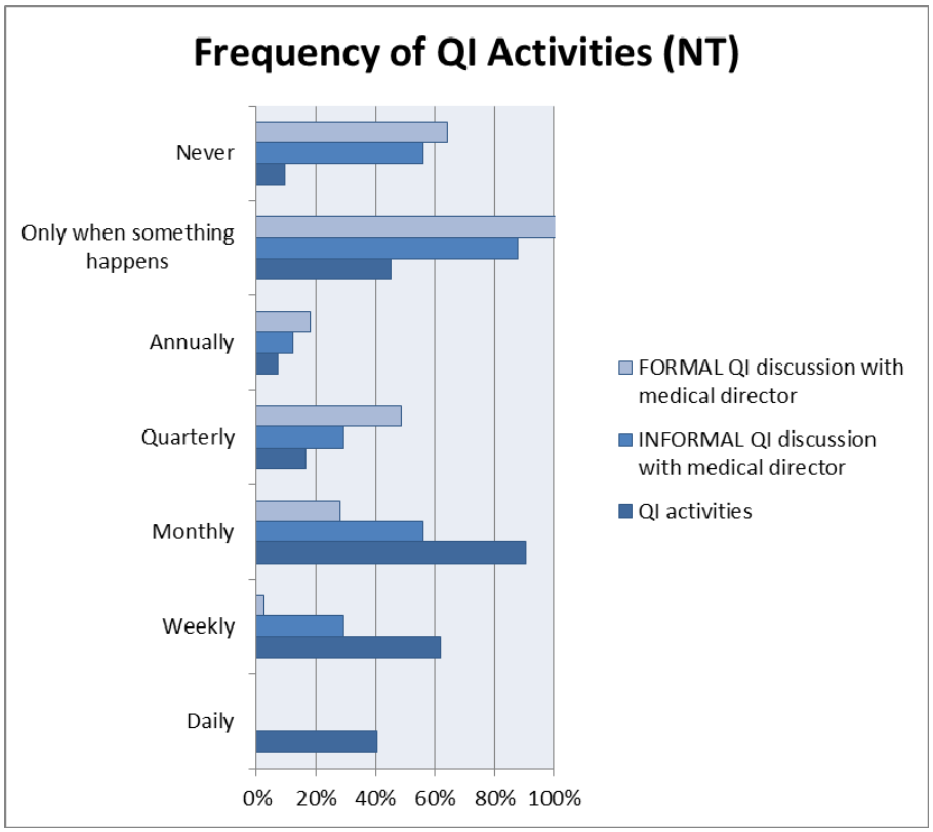




Frequency of Quality Improvement Activities

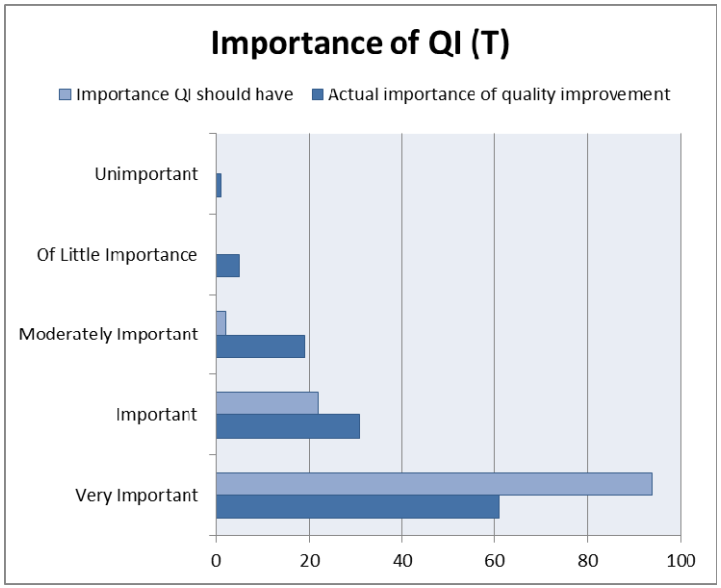
Another measure of Quality Improvement is the frequency in which various QI activities are performed, these may range from daily to never performed. About 10% of NH services reported they never perform QI activities, leaving room for improvement. Generally services involve their medical director in service QI on a monthly and as-needed basis.

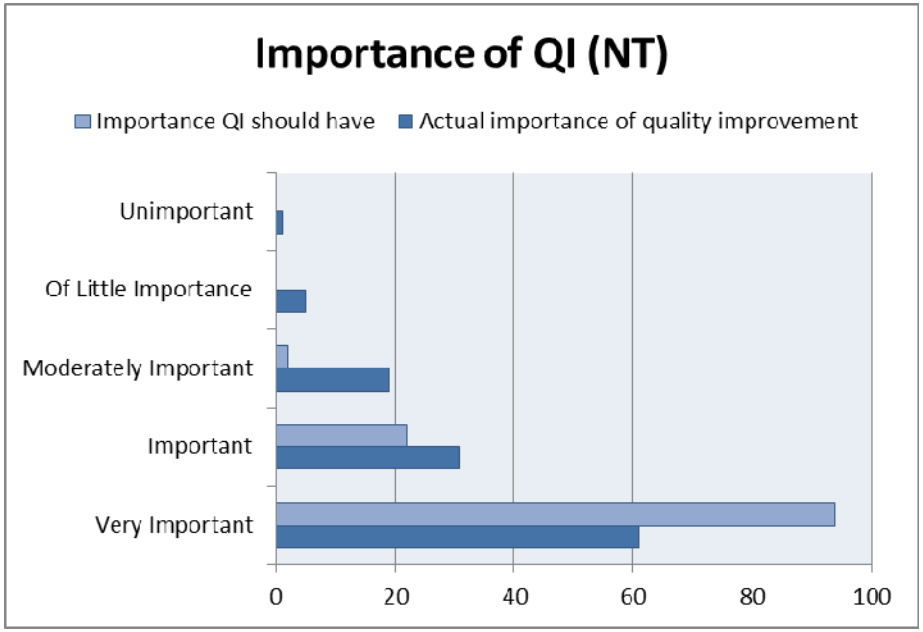




Importance of Quality Improvement

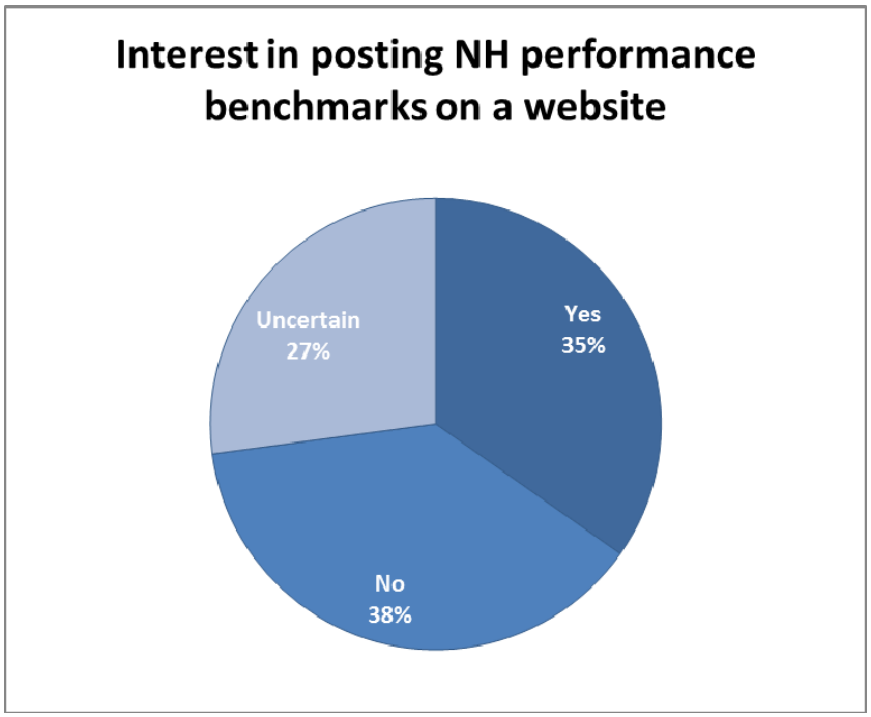
Most respondents identified a significant gap between how important QI should be to their organization and how important it actually is. In this, nearly all reported it should be elevated to being Very Important.





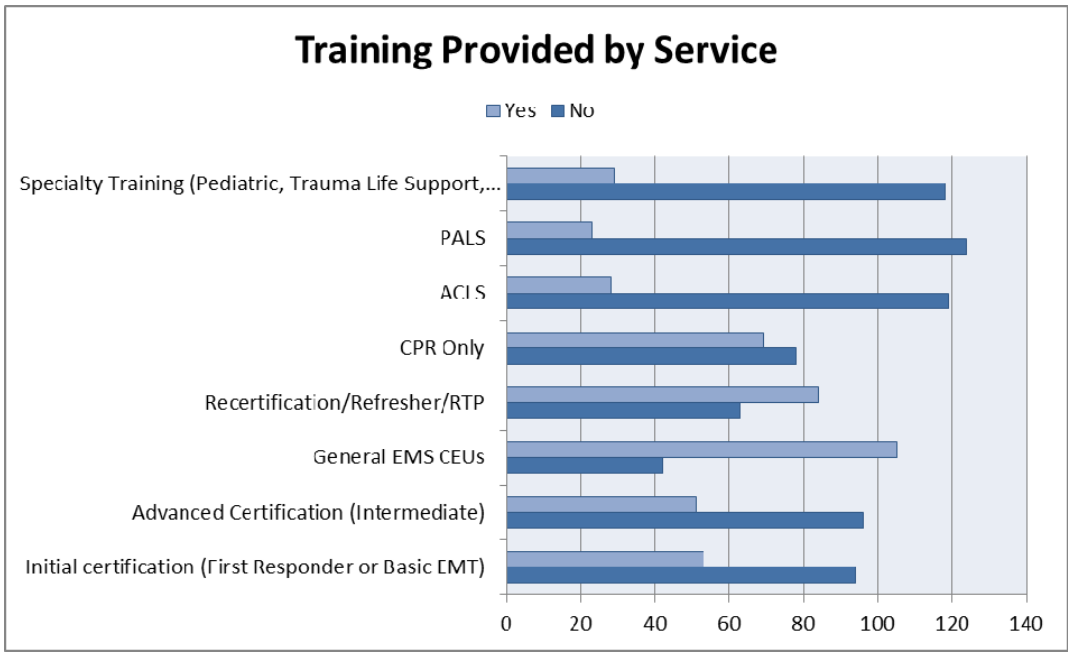
NH EMS Performance Benchmarks

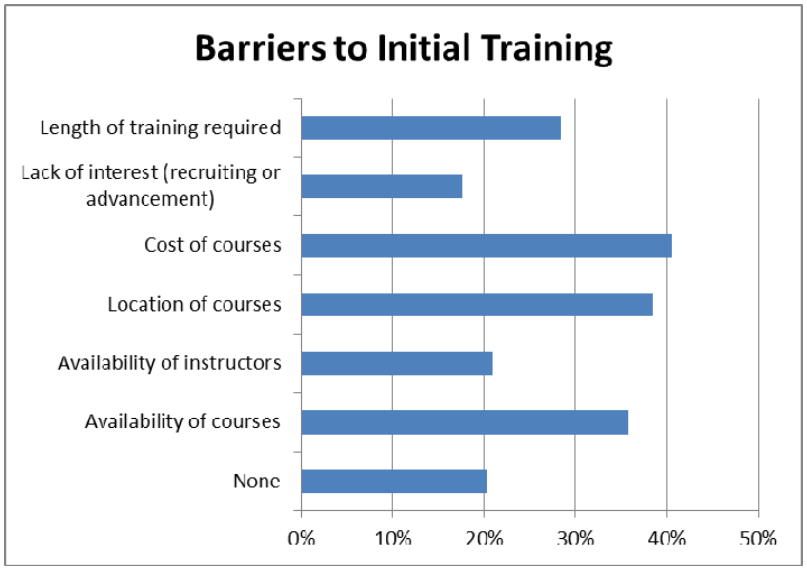
Respondents were asked, with very little explanation or detail provided, whether they would be interested in posting statewide benchmarks of NH EMS performance.

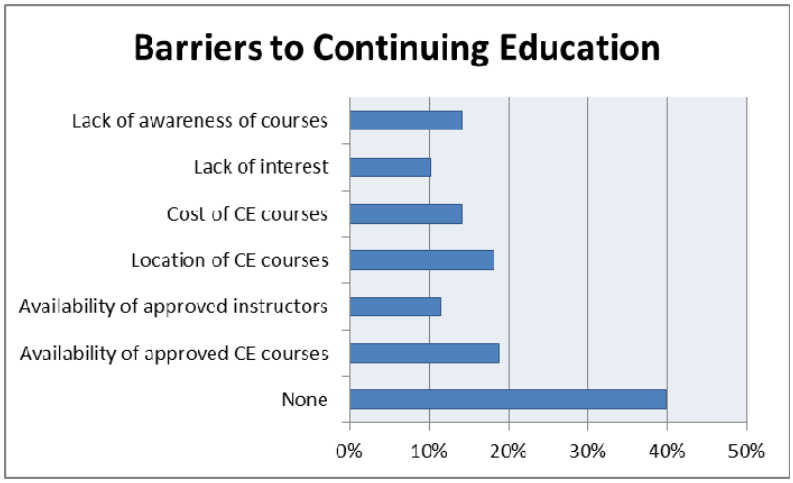


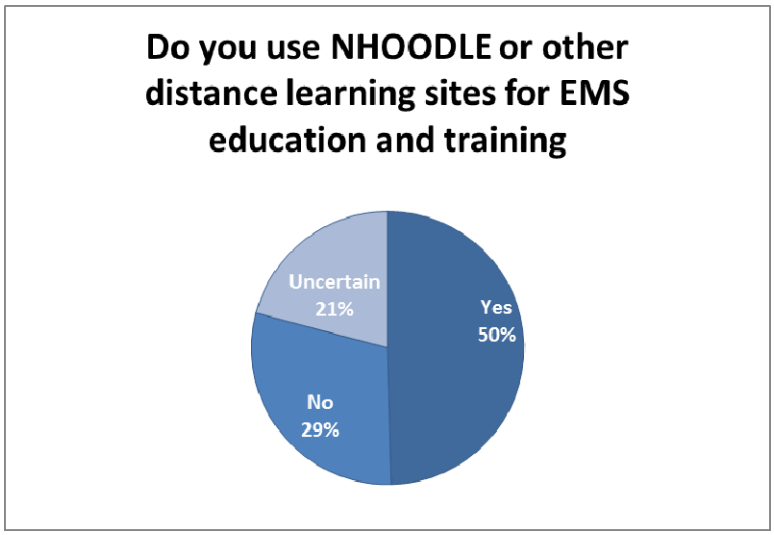
EMS Training

Respondents were asked to identify training provided by their service and about barriers to initial and continuing education.



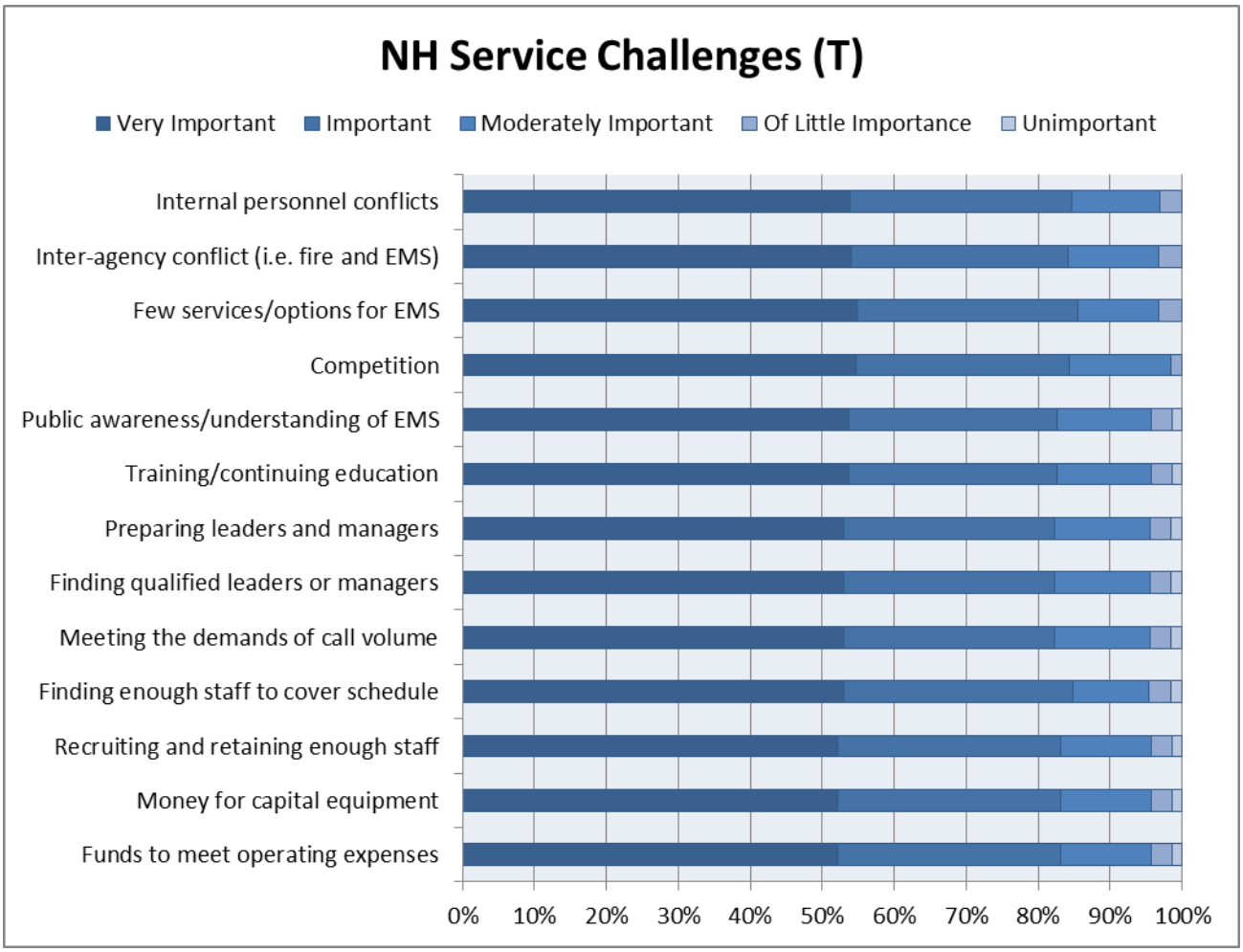

Barriers to Initial Training
Length of training required
Lack of interest (recruiting or advancement)
Cost of courses
Location of courses
Availability of instructors
Availability of courses
None
0%
10%
20%
30%
40%
50%

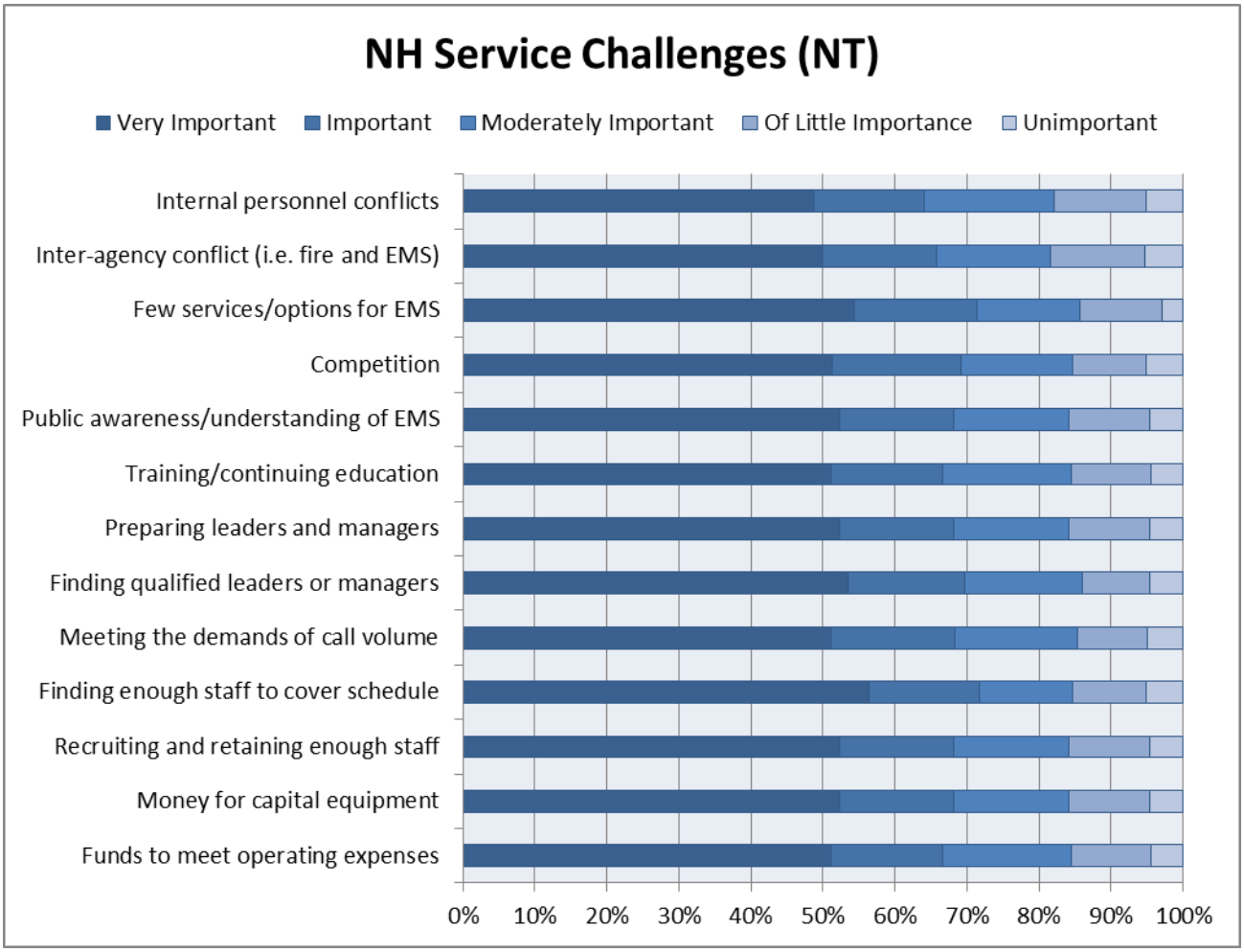

Barriers to Continuing Education
Lack of awareness of courses
Lack of interest
Cost of CE courses
Location of CE courses
Availability of approved instructors
Availability of approved CE courses
None
0%
10%
20%
30%
40%
50%


Do you use NHOODLE or other distance learning sites for EMS education and training
Uncertain 21%
Yes 50%
No 29%

EMS Service Challenges

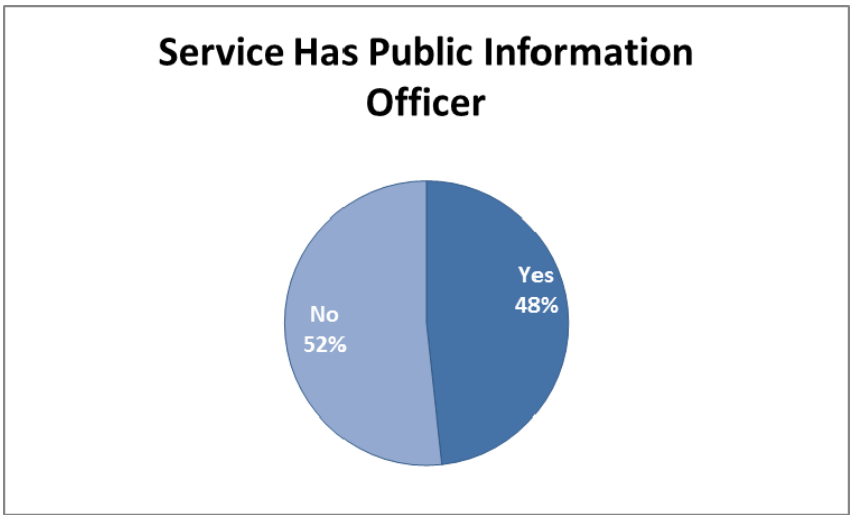
Respondents were asked about various forms of challenges.




NH Service Challenges (NT)
Very Important
Important
Moderately Important
Of Little Importance
Unimportant
Internal personnel conflicts
Inter-agency conflict (i.e. fire and EMS)
Few services/options for EMS
Competition
Public awareness/understanding of EMS
Training/continuing education
Preparing leaders and managers
Finding qualified leaders or managers
Meeting the demands of call volume
Finding enough staff to cover schedule
Recruiting and retaining enough staff
Money for capital equipment
Funds to meet operating expenses
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%

Public Information Officer

Fewer than half of services have a designated Public Information Officer (PIO) and 70% are interested in PIO training.

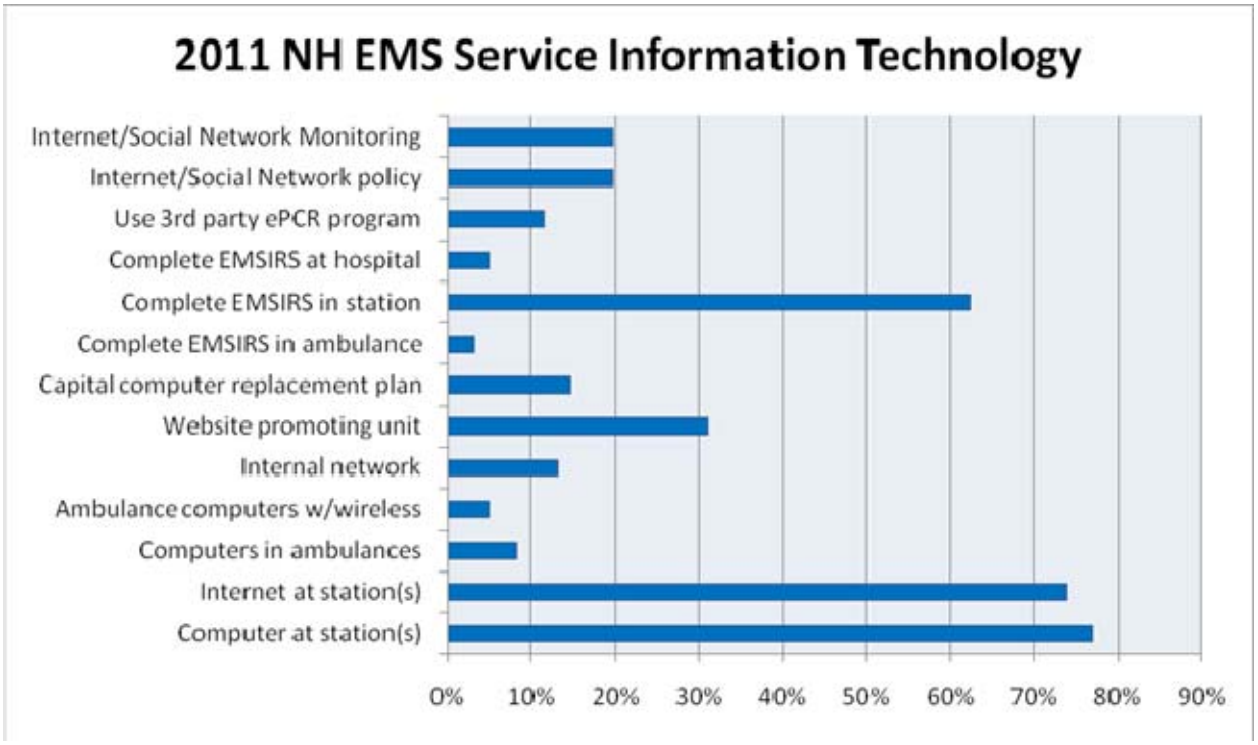


Self-reported Information Technology availability

Many services have installed internet access in their stations and most of those have the capability of completing the EMSIRS in the station. The majority of units complete their EMSIRs at their stations. Currently, there is software available to use on a laptop, so EMSIRS could be completed in the ambulances during transit between the hospitals and the stations.

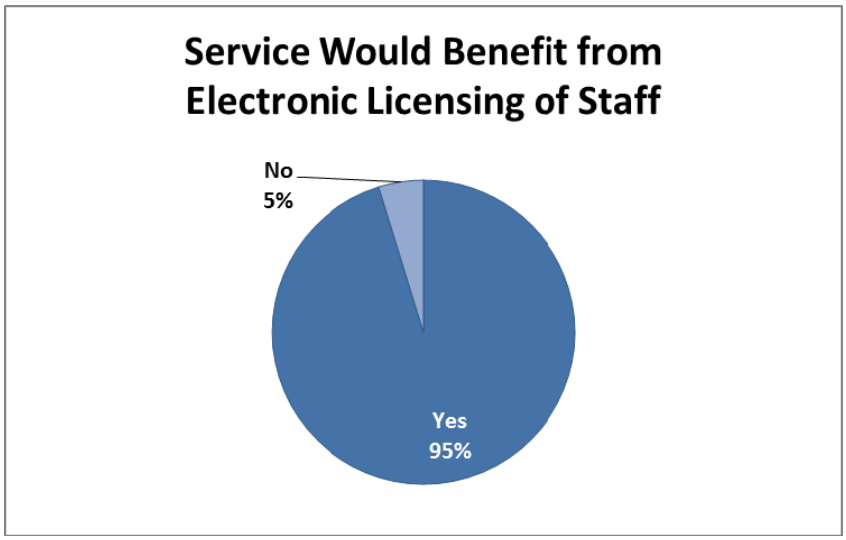
However, ruggedized laptops are expensive making it difficult for many services to obtain even one, much less several. In the near future, the available state software will become compatible with less expensive tablet devices, which may begin to see a trend toward more completion of EMSIRs in the field, rather than at the stations.

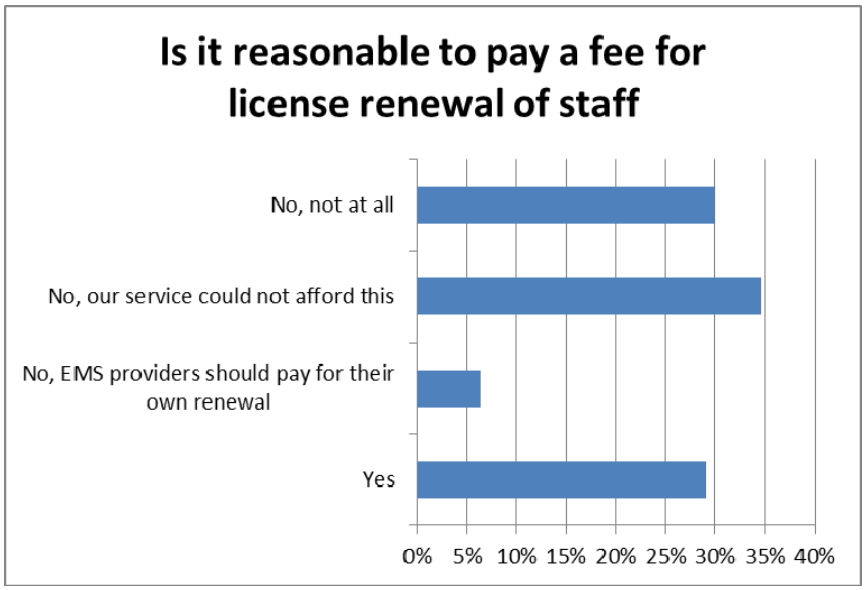
Having a website promoting the service can also improve recruiting efforts. Services that do not have a website were 5.4 times more likely to indicate they have "Great Difficulty" recruiting than those that do have a website. This may or may not be directly attributable to the website as much as an indication of the service conducting innovative recruitment programs.



Benefit from Electronic Licensing of Staff

Nearly all respondents reported they would benefit from having the ability to electronically license their staff. Only about 1/3 reported it is reasonable to pay a fee for licensing but among those the average reasonable amount was $17.

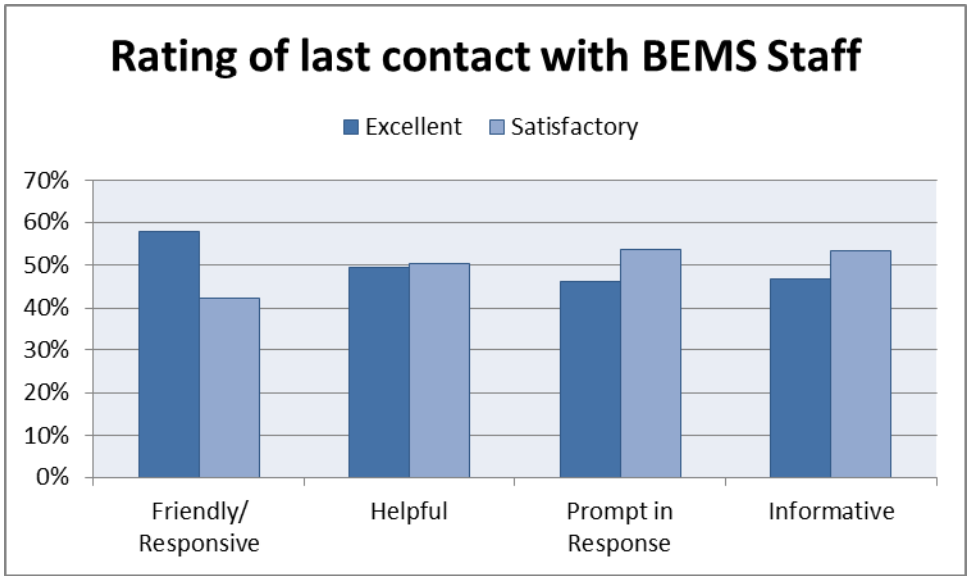




Reasonable Licensing Fee	$
Mean	17
Min	10
Max	50
STD	10.09

Bureau of EMS Customer Service

Respondents were asked if they had contact with Bureau of EMS personnel in the last 6 months and 68% of respondents reported they had. They were then asked to rate their last contact (none reported unsatisfactory).



[1]Kelly GC. Class Action Success for the Fee Schedule.*Emerg Med Serv.* 2003;32:22.
[2]Wingrove G. EMS under the new Medicare fee schedule.*Emerg Med Serv.* 2001;30:31-34
[3]Shipley T. In defense of the new fee schedule.*Emerg Med Serv.* 2001;30:146-173.
[4]United States General Accounting Office. Rural Ambulances: Medicare fee schedule payments could be better targeted. GAO/HEHS-00-115. 2000. Washington D.C., U.S. General Accounting Office.
[5]Hauswald M, Jambrosic M. Denial of ambulance reimbursement:--Can reviewers determine what is an emergency? *PrehospEmerg Care.* 2004;8:162-165.