2016 Rural EMS Sustainability Survey Results

DEPARTMENT OF HEALTH
OFFICE OF RURAL HEALTH AND PRIMARY CARE

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Contents

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Abbreviation List

- ALS – Advanced Life Support
- BLS – Basic Life Support
- EMR – Emergency Medical Responder
- EMS – Emergency Medical Services
- Flex – Medicare Rural Hospital Flexibility Program
- MAA – Minnesota Ambulance Association
- MDH – Minnesota Department of Health
- CEMS – Minnesota Department of Health Center for Emergency Medical Services
- EMSRB – Minnesota Emergency Medical Services Regulatory Board
- ORHPC – Office of Rural Health and Primary Care
- PT-ALS – Part-time Advanced Life Support
- REMSSC – Rural Emergency Medical Services Sustainability Committee
- SLS – Specialized Life Support

Executive Summary

The sustainability of rural emergency medical services (EMS) has been a concern of EMS professionals, policymakers and citizens for many years. Many issues have been documented in the past, but industry leaders and policymakers have only anecdotal data to describe the current realities of rural EMS. Thus, this survey was developed and distributed to all rural EMS providers in Minnesota, in order to identify and quantify areas where partnering agencies, stakeholders, and policymakers may provide assistance in supporting rural EMS.

This survey incorporated questions and concepts from state and national discussions about the sustainability of rural EMS. The results will supplement previous findings with updated and new information about the status of rural EMS operations. It may also support future legislative and policy discussions to ensure sustainability of rural EMS in Minnesota.

For purposes of this survey, "rural EMS" was defined as all services that do not serve the Metro EMS Region plus three Metro services that serve primarily rural populations (total of 230). An astounding 81 percent responded, making these results an objective and valuable contribution for long-term solutions to rural EMS sustainability in Minnesota.

Key findings for each section follows below.

Characteristics of Rural EMS Agencies

Key Findings

Most rural EMS agencies provide basic life support services to relatively small populations spread across large geographic areas. Along with low daily call volumes, these realities exacerbate the inability to create sustainable business and staffing models.

- The median call volume is nearly one call per day
- Over half of the agencies cover more than 200 square miles; 37 percent cover more than 300 square miles
- Over half of the agencies serve populations of less than 5,000

Workforce and Staffing

Key Findings

Staffing shortages are a major challenge for rural EMS agencies. Eighty (80) percent utilize some version of volunteers to staff their operations. Roster sizes are decreasing, many staff are trained for multiple public functions and many call schedules are not covered 24 hours prior to the shifts.

- The active staff roster decreased for half of the agencies from the previous year
- Weekday daytime hours are the most difficult shifts to cover. However, all weekend and holiday shifts are also difficult to cover
- About 60 percent of agencies have inadequate staff to cover their call schedule without undue burden to the agency.
- Fifty-nine (59) percent of agencies do not have their shifts 100 percent covered at least 24 hours in advance

Recruitment and retention of ambulance personnel continues to be a significant challenge even though:

- Emergency Medical Responders (EMRs) are now widely used to actively staff rural EMS agencies
- Most agencies cover the full cost of the continuing education courses for their staff
- Most eligible recipients take advantage of state EMS training reimbursement

Agency Leadership and Financial Management

Key Findings

The largest problems that rural EMS agency managers face today, as in the past, are recruitment of staff and filling call schedules. These two management tasks seem to form a Maslow's Hierarchy of basic management needs (see Appendix C, Question 24). It may be that efforts to address other management issues will be fruitless and/or unwelcomed until these basic needs are addressed.

- Sixty-nine (69) percent of rural EMS managers report difficulty recruiting staff despite the fact that 57.5 percent have a recruitment plan
- Over half of rural EMS managers report difficulty staffing their schedule

High leadership turnover was defined in this survey as an EMS agency having had three or more managers in the past five years. Using this definition, there is remarkably low turnover of rural EMS managers. A high majority of EMS managers have an active role in developing their budgets, but generally are not directly involved in billing.

- Eighty-six (86) percent of services did not have high turnover of their managers
- Eighty-one (81) percent of rural EMS managers have a role in developing their annual budgets
- Eighty-one (81) percent use other resources to bill, with billing agencies as the most common at fifty-two (52) percent

Medical Direction

Key Findings

The results from this survey do not support previously documented problems in hiring and retaining medical direction for rural Minnesota EMS agencies. This may be due to an increase in participation in a medical direction consortium. Twenty-six (26) percent now participate in a medical direction consortium.

- Eighty-eight (88) percent of services report that they do not have difficulty recruiting or retaining a medical director
- Twenty-six (26) percent of rural EMS agencies participate in a medical direction consortium

However, according to survey respondents some responsibilities of the medical director required by statute are not universally provided to all rural EMS agencies regardless of the medical direction model (see Appendix C, Question 37). These duties include:

- Develop protocols and orders
- Review and approve protocols
- Approve continuing education for staff
- Quality improvement: review run reports
- Investigate complaints

Community Relations

Key Findings

Rural EMS agencies seem to have inconsistent engagement with their communities. A large majority provide additional non-response services to their communities, such as conducting public CPR/AED classes and first aid training. These visible services likely foster a sense of collaboration between EMS and the community. However, most EMS services do not have a community advisory board, which ideally is a place to bridge discussions between EMS and the community about short and long-term strategies for sustainability. Community Advisory Boards can also help build awareness about the necessity of EMS services and the role of EMS as a member of the greater community health care system.

- Ninety-four (94) percent of rural EMS agencies provide additional non-response services to their communities
- More than 62 percent of agencies believe that community support for EMS is similar to other public services
- Eighty-two (82) percent do not have a community advisory board

Summary

The survey results suggest that with some small exceptions, rural EMS has remained the same in Minnesota from 2002 - 2016. The same business problems of economics and structure exist, for example:

- Low transport volumes
- Low and sparse populations served
- The implicit population changes in seasonal density and distribution
- Large geographical primary service areas to cover
- Availability of a sustainable EMS workforce, including dependence on volunteers
- Need for fully engaged medical directors
- Need for non-transport revenue

The survey results also suggest the need for further and deeper assessment of what the results may indicate or mean[1]. Subject matter experts are encouraged to do just that, because EMS is a vital link in the healthcare continuum. Without it, patients in need of time critical care for conditions such as trauma, stroke, allergic reactions and cardiac emergencies will suffer unnecessary disability and death. EMS must survive for Minnesota's rural citizens and visitors to have the best chance to survive these and other emergencies.

[1] For instance, the importance of and need for Community Advisory Boards is a growing EMS leadership concept that this survey did not explore in detail.

Background

Past Efforts to Understand and Address EMS Sustainability

The sustainability of rural emergency medical services (EMS) has been a growing concern of EMS professionals, policymakers and citizens for many years. The first attempt to qualify and quantify these issues was in 2002. That year the Minnesota Department of Health (MDH) conducted an in-depth study of EMS sustainability. The publication resulting from this work is, "*A Quiet Crisis: Minnesota's Rural Ambulance Services at Risk."* The report made 16 recommendations for state policy changes to improve EMS sustainability. But from 2002 to 2015 very little long-term systemic progress was accomplished. Numerous independent initiatives addressed some of the recommendations, but there was no singular coordinated effort to strategically address the issues at a state level.

Then in April 2015, the Greater Northwest EMS Region and the Minnesota Ambulance Association (MAA) hosted a Rural EMS Summit. The Office of Rural Health and Primary Care (ORHPC) at MDH funded part of the summit using funds from its Medicare Rural Hospital Flexibility (Flex) Grant Program. The goal of the summit was to "engage a broad segment of EMS leaders and stakeholders from across Minnesota in a discussion about rural EMS sustainability and use the collective knowledge and experiences to identify strategic trends, issues, challenges and directions."[2] Seventy EMS leaders from across the state participated. The group set goals in seven areas of concern and identified recommendations in the following areas:

- Lead State EMS Regulatory Agency
- Local EMS Leadership
- Workforce Sustainability
- Community Awareness
- Certification/Education/Recertification
- Funding
- Medical Direction

Current Efforts to Understand and Address EMS Sustainability

The MAA assumed responsibility to follow-up on the 2015 Summit recommendations. In partnership with the Minnesota EMS Regulatory Board (EMSRB) and the MDH-ORHPC, MAA established the Rural EMS Sustainability Committee (REMSSC) to lead the effort. This group continues to meet to discuss the recommendations identified at the Summit.

Concurrently, The MDH Flex Program at the ORHPC began development of a new EMS survey for rural EMS agencies. MDH CEMS[3] provided oversight and staff support for this initiative in partnership with the EMSRB and MAA (see Appendix A for details). The purpose of the survey was to gather information on rural ambulance service demographics, workforce, leadership and operations in Minnesota.

[2] Report on the Rural Minnesota EMS Sustainability Summit Meeting. SafeTech Solutions, LLP. 2015. Available at https://mnems.org/rural-ems-resources/

[3] The MDH Center for EMS (CEMS) is an informal group that coordinates activities among programs and initiatives at MDH who work with EMS in Minnesota. Representatives from EMSRB and other key stakeholders regularly participate with CEMS.

The survey results can inform stakeholders and policymakers about the status of rural EMS operations. These results can also support future legislative, State agency, designated regional EMS system, regional health care coalition and EMS agency organizational and policy changes in support of rural EMS sustainability.

Results

Summary of Survey Response Rates

Two-hundred thirty surveys were sent to rural EMS services in all eight EMSRB designated EMS regions. Completed surveys were received from 80.9 percent of respondents or 186 licensed ambulance services. The Southwest EMS Region has the largest number of EMS agencies totaling 57). The Southeast EMS Region had the highest response rate, 100 percent. The Metro EMS Region has three EMS agencies that serve rural communities; one agency completed a survey (Table 1).

Table 1. EMS agency survey responses (Total 186)

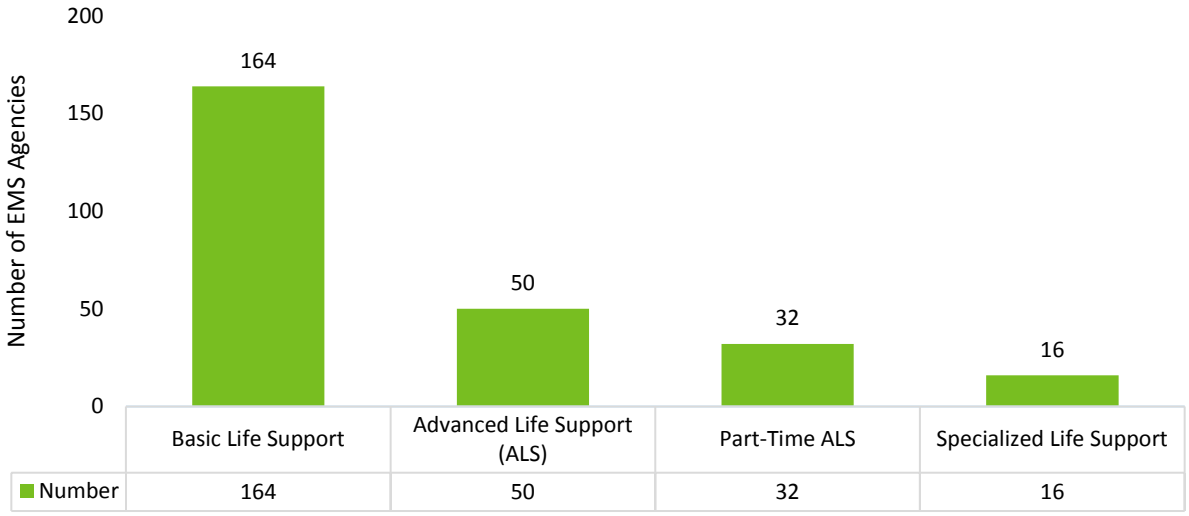
EMS Region	Number of Surveys Sent	Number of Surveys Completed	Survey Response Rate
Southeast	39	39	100.0%
South Central	30	27	90.0%
West Central	19	17	89.5%
Northwest	21	17	81.0%
Central	29	22	75.9%
Southwest	57	40	70.2%
Northeast	32	20	62.5%
Metro	3	1	33.3%
Missing[4]	0	3	0.0%
All regions (Total)	230	186	80.9%

[4] Completed surveys did not indicate region.

Characteristics of Rural EMS Agencies

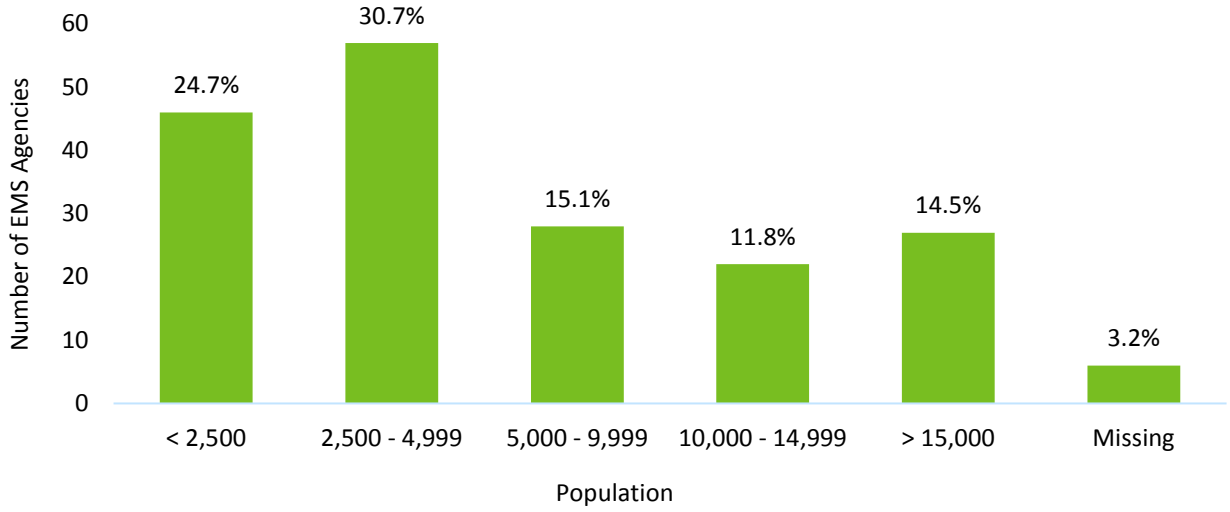
The majority of EMS Agencies in rural Minnesota provide Basic Life Support service (88.2 percent). Other types of ambulance licenses include Advanced Life Support (26.9 percent or 50 EMS Agencies), Part-time Advanced Life Support (17.2 percent, 32 ambulance services) and/or Specialized Life Support, which includes air ambulance services (8.6 percent or 16 ambulance services) (Figure 1 – it was possible to select multiple options).

Figure 1. Type of license[5]



Over half of EMS agencies (55.4 percent) serve populations that are less than 5,000 people (Figure 3). Twenty-seven EMS agencies (14.5 percent) serve populations larger than 15,000 people. Almost 10 percent of agencies service tribal regions (Appendix C, Question 2).

Figure 3. Population size served by EMS agency



[5] It was possible to select multiple options.

The median EMS agency call volume is equivalent to less than one response per day. Most agencies in Minnesota provide 911 emergency response and patient transport. Many also provide inter-facility patient transport (this survey did not differentiate between scheduled and non-scheduled transfers) (Table 2).

Table 2. According to MNSTAR[6], what was your call-volume in 2015?

Type of Call Response	Number of Agencies	Median Call Volume	Range
911 Call Volume	151	305	16 - 11,000
Inter-facility Transport Call Volume	139	40	0 - 8,000
Total Call Volume	167	319	1 - 26,500
Total Transports	161	265	0 - 19,300

The ownership of EMS agencies varies across the state (Table 3). Public ownership is the most common (60.8 percent).

- Public organizations that own EMS agencies include fire departments, public hospitals, cities, counties or other public entities
- City or county ownership is the most common type of public ownership (45.2 percent)

Private ownership accounts for 39.2 percent of agencies.

- Private organizations that own EMS agencies include hospitals, non-profit organizations, for-profit organizations and sovereign nations
- A non-profit organization or hospital are the most common type of ownership

Other than ownership, a health system can provide EMS agencies with management or other types of support. Fifty-one EMS agencies (27.4 percent) report that they have a management or supportive relationship with a corporate health system (Appendix C, Question 7).

Table 3. Type of agency ownership

Types of Ownership	Number of Agencies	Percent
Public Ownership	**113**	**60.8%**
Fire Department	19	10.2%
City or County	84	45.2%
Public Hospital	7	3.8%
Other	3	1.6%
Private Ownership	**73**	**39.2%**
Non-Profit	32	17.2%
Hospital	31	16.7%
For-Profit	9	4.8%
Sovereign Nation	1	0.5%
Missing	**1**	**0.5%**

[6] MNSTAR is an online database for EMS agencies. Agencies are required to submit ambulance data in order to report and review prehospital data for quality assurance and administrative purposes.

Discussion

Similarities between the 2002 and 2016 survey results exist regarding the quantity of BLS license holders in rural Minnesota. For ALS, EMS agencies held 35 ALS license in 2002[7]. In 2016, 50 services reported offering ALS, 32 provided part-time ALS and 16 held a specialized life support license. However, it is unclear if the 2002 survey counted part-time ALS license holders, which makes it difficult to compare the number of licenses held then to 2016. But it does appears that access to ALS services in rural Minnesota increased between 2002 and 2016.

The majority of EMS agencies in Minnesota are publicly owned (60.8 percent). For-profit organizations own fewer than 5 percent of rural ambulance agencies. This is similar to the 2002 study in Minnesota[8]; however, 2002 included urban ambulance services. A national study of EMS directors in 2008 documented that 40.2 percent of non-metro ambulance services were city and/or county-affiliated.[9] This closely aligns with Minnesota's 45.2 percent.

EMS agencies in Minnesota serve geographically diverse areas, varying greatly in size and population. With the exception of the metro region, all regions include three or more agencies that cover more than 300 square miles. Nationally in 2008, the median service area for rural agencies was 150 square miles.[10] Minnesota EMS agencies seem to have larger geographic territories than their national, rural counter-parts.[11] The realities that most rural EMS agencies provide emergency services to relatively small populations spread across large geographic areas, with a median call volume of one transport per day, exacerbates the inability to create sustainable business and staffing models.

[7] A Quiet Crisis: Minnesota's Rural Ambulance Services at Risk. Minnesota Department of Health. 2002.
[8] A Quiet Crisis: Minnesota's Rural Ambulance Services at Risk. Minnesota Department of Health. 2002.
[9] Issues in Staffing Emergency Medical Services: A National Survey of Local Rural and Urban EMS Directors. Rural Health Research and Policy Centers. 2008.
[10] Issues in Staffing Emergency Medical Services: A National Survey of Local Rural and Urban EMS Directors. Rural Health Research and Policy Centers. 2008.
[11] This national study collected data on geography differently than this survey making it difficult to make direct comparisons about geographic territory.

Workforce and Staffing

Recruitment

When asked about changes to the size of their active staff roster, 49.7 percent of EMS agencies reported a decrease in their staff from the previous year and 21.1 percent reported an increase in staffing (Table 4). The remaining agencies (29.2 percent) reported no change to their staffing numbers.

Table 4: Has the number of active staff on the roster changed in the last year?

Type of Change	Number of Agencies	Percentage
Decreased	92	49.7%
Increased	39	21.1%
Same	54	29.2%

Most EMS agencies (57.5 percent) had a recruitment plan in place (Appendix C, Question 15), but 62.9 percent reported difficulty in recruiting new ambulance staff (117 agencies) (Table 5).

Table 5: EMS agencies that have difficulty recruiting staff

Difficulty Recruiting Staff	Number of Agencies	Percentage
Yes	117	62.9%
No	7	3.8%
Sometimes	63	33.3%

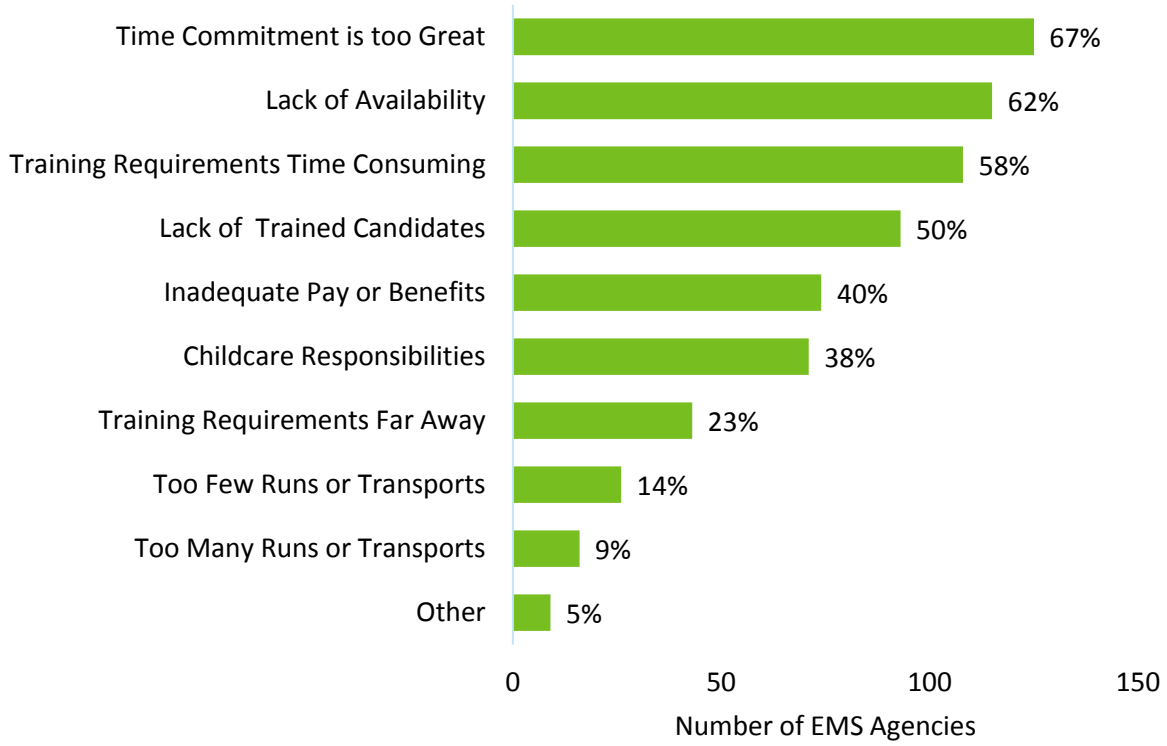
The three most frequently reported obstacles to recruiting staff were time-related:

- Time commitment is too great (67.2 percent)
- Lack of availability (61.8 percent)
- Training requirements were too time consuming (58.1 percent)

Figure 6 provides the full list of reported recruiting obstacles (multiple responses were permitted). Obstacles to recruitment in the category of "other" include 9 agencies:

- Difficulty finding local businesses that allow ambulance staff to leave work to respond to a call
- Many community members working outside of the community and unavailable for weekday hours
- Lack of support and understanding from the city about the requirements of managing and maintaining an ambulance service

Figure 6: Obstacles to recruiting EMS staff[12]



Approximately three quarters of responding agencies report that they cross-train ambulance staff in other public service duties such as law enforcement or fire suppression (Appendix C, Question 17).

Nearly sixty percent of EMS agencies (110) report having Emergency Medical Responders (EMRs) as active members of their staff (Appendix C, Question 11). An EMR has the lowest level of training required by the EMSRB for registration and certification in Minnesota. An EMR is a registered individual who, "upon arriving early to an incident or emergency, assumes immediate responsibility for the protection and preservation of life, property, evidence and environment." EMRs can provide patient care in the ambulance alongside an Emergency Medical Technician (EMT).

[12] Values do not sum to 100 because multiple responses were permitted.

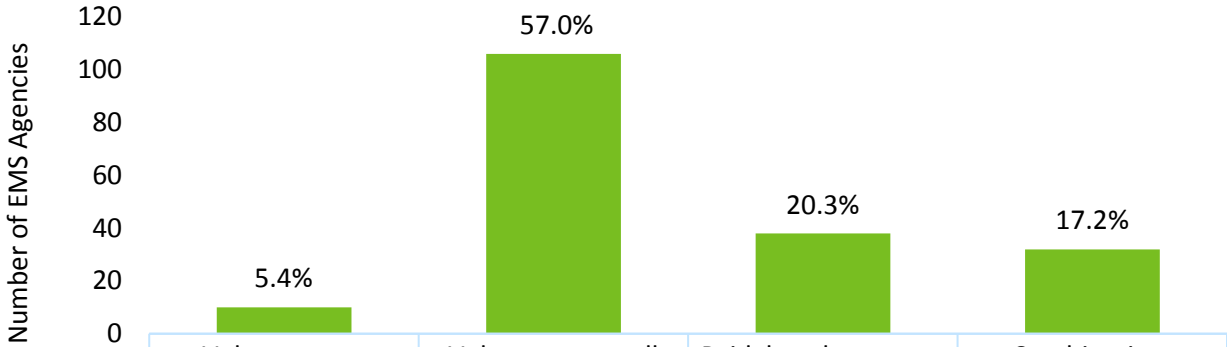
Compensation

Compensation in this survey refers to EMS agency staff, excluding the staff director. The majority of EMS agencies (106 or 57.0 percent) staff their services with volunteers who receive some type of compensation (Figure 7). Some of the compensation models include:

- Nominal hourly pay while scheduled for on-call ambulance coverage
- Hourly pay while on a call
- Flat fee per call (which may vary with the distance transported)
- Special compensation for on-call weekend or holiday coverage
- A combination of the above models

Only 38 or 20.3 percent of EMS agencies exclusively utilize non-volunteer paid staff who receive an hourly salary. A smaller group of 32 agencies uses a combination of paid and volunteer staff (17.2 percent). The least common model is a volunteer that does not receive compensation (10 agencies or 5.4 percent) (Appendix C, Question 9). One-third of EMS agencies reported that their staff receive less compensation than other public safety agencies in their community (24% were not sure how they compare to other public safety agencies) (Appendix C, Question 12).

Figure 7: EMS agency staff compensation[13]



**Minnesota Statute 144E.001, Subd. 15. https://revisor.mn.gov/statutes/?id=144E.001*

[13] This question asked about ambulance staff, excluding the ambulance staff director.

Retention

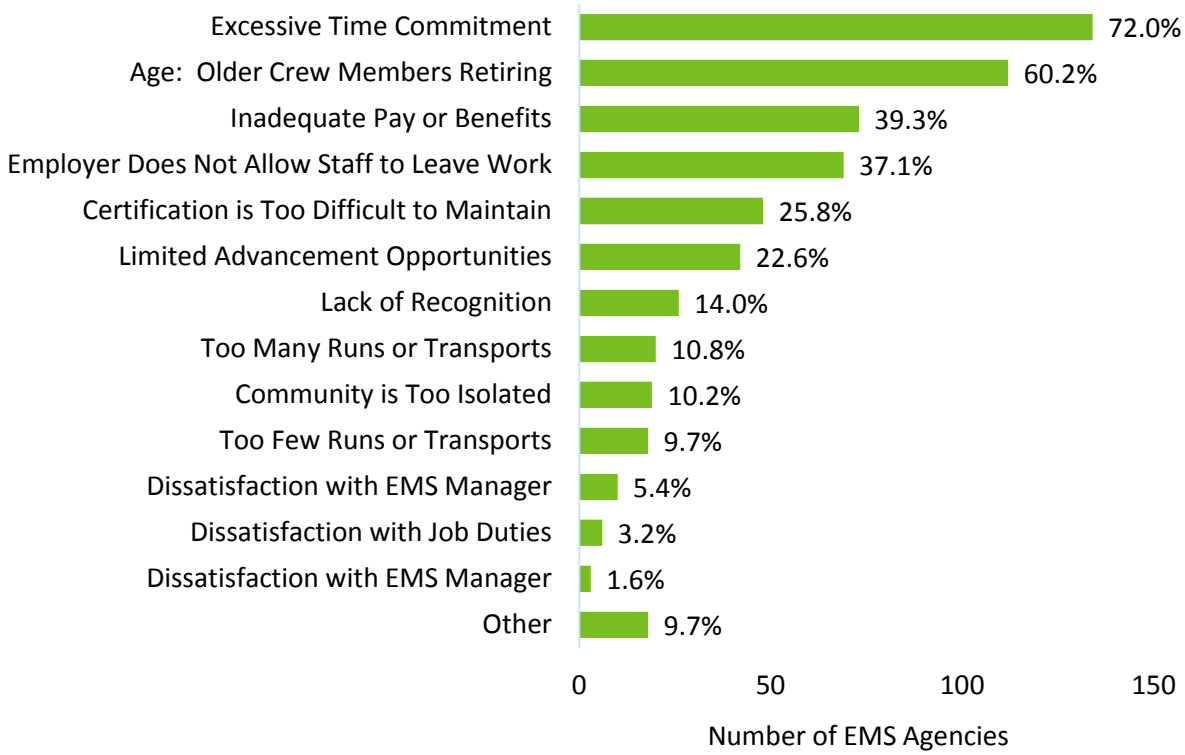
Half of the managers reported they have a retention strategy for EMS agency staff (Appendix C, Question 19); however, almost all indicated that they sometimes or always have difficulty retaining staff. Only a small group reported they never have difficulty with retention (Table 6).

Table 6: Agencies with difficulty retaining staff

Difficulty retaining staff	Number of Agencies	Percentage
Always	19	10.2%
Never	10	5.4%
Sometimes	157	84.4%

The most common obstacles to retaining staff include excessive time commitments, retirement of older crewmembers and inadequate pay or benefits (Figure 8).

Figure 8: Obstacles to retaining staff[14]



Eighteen EMS agencies reported "other" obstacles to retention, which included on-call requirements, college students who leave the community, staff moving out of the area, employment by multiple EMS agencies, staff uncomfortable working in the ambulance, family responsibilities and work conflicts with their primary job (Appendix C. Question 21).

[14] Multiple responses were permitted.

Scheduling

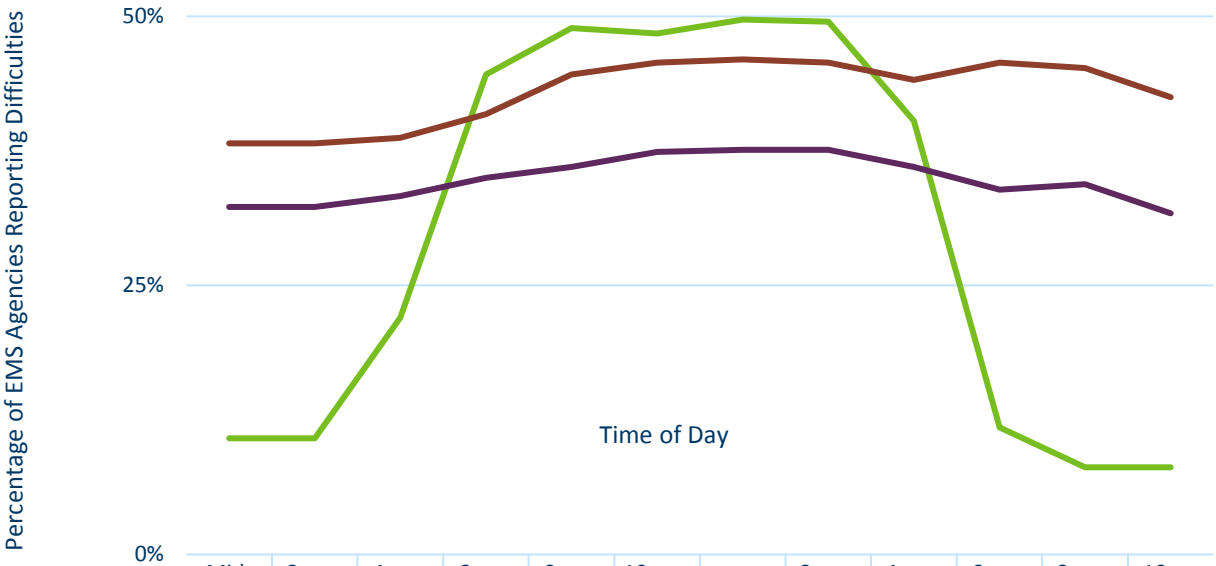
About 60 percent of respondents reported having inadequate staff to cover their call schedule without undue burden to the agency (Appendix C, Question 13). Forty-one percent reported their shifts are 100 percent covered at least 24 hours in advance and 43 percent reported their shifts were over 75 percent covered 24 hours in advance (Table 9).

Table 9: Percent of shifts covered at least 24 hours in advance

Percent of Shifts	Number of Agencies	Percent of Agencies
0 - 24%	4	2.2%
25 - 49%	6	3.3%
50 - 74%	20	10.9%
75 - 99%	79	42.9%
100%	75	40.8%
Missing	2	1.1%

Almost half of the EMS agencies reported that weekday daytime hours are the most difficult shifts to cove. About 40 percent reported that weekend shifts are difficult to cover and 35 percent reported holidays are difficult to cover. Overnight hours on weekdays were the least difficult to staff, with only about 10 percent reporting difficulty (Figure 9).

Figure 9. Percent of agencies that report scheduling difficulties by time of day and day of week



	Mid-2am	2am - 4am	4am - 6am	6am - 8am	8am - 10am	10am - noon	noon - 2pm	2pm - 4pm	4pm - 6pm	6pm - 8pm	8pm - 10pm	10pm - Mid
Weekdays	10.8%	10.8%	22.0%	44.6%	48.9%	48.4%	49.7%	49.5%	40.3%	11.8%	8.1%	8.1%
Weekends	38.2%	38.2%	38.7%	40.9%	44.6%	45.7%	46.0%	45.7%	44.1%	45.7%	45.2%	42.5%
Holidays	32.3%	32.3%	33.3%	35.0%	36.0%	37.4%	37.6%	37.6%	36.0%	33.9%	34.4%	31.7%

Continuing Education

Most EMS agencies (84.4 percent or 157) cover the full cost of the continuing education courses for their staff (Table 7). A smaller group (67.2 percent) pays their staff – or provides incentives – when they attend continuing education courses (Appendix C, Question 28).

Table 7: Does the agency cover the costs of continuing education for EMS staff?

Type of Payment	Number of Agencies	Percentage
Agency covers all costs	157	84.4%
Combination of agency and staff cover costs	28	15.1%
Staff covers all costs	1	0.5%

In-house training is the most common type of continuing education. Almost 88 percent of the EMS agencies provide in-house training to their staff. Technical and community colleges, online education and training provided by regional consortiums were also common forms of continuing education (Table 8). Among EMS agencies that qualify for training reimbursement from the EMSRB, 71 percent utilized the reimbursement (Appendix C, Question 30).

Table 8: Types of continuing education used by agencies

Type of Continuing Education	Number of Agencies	Percentage
In-house training	163	87.6%
Technical or community college	102	54.8%
On-line education	98	52.7%
Regional consortium	85	45.7%
Staff is responsible	17	9.1%

Discussion

"A Quiet Crisis," documented that staff shortages were common for many rural ambulance services.[15] In 2002, 70 percent of rural ambulance services added staff the previous year in an effort to make sure that all of their shifts were covered. Most rural services (67 percent) experienced difficulty covering their daytime shifts, and 59 percent of the statewide EMS workforce and 75 percent of the state's rural ambulance services relied on volunteers.[16]

The 2015 EMS Sustainability Summit documented that a significant number of ambulance services continue to be volunteer-based. Participants at the summit expressed that volunteerism is not a sustainable model for rural EMS in Minnesota. This 2016 survey documented an 80 percent volunteer ambulance staff in rural Minnesota, an increase from the 2002 report.

Results from the current survey indicate that workforce continues to be a major challenge for rural EMS sustainability as well as recruitment and retention of personnel. Currently, EMRs are a large and integral part of the ambulance staffing in rural Minnesota. Roster sizes are decreasing, staff are trained for multiple public functions and many call schedules not covered 24 hours prior to a shift are all evidence that staffing shortages exist. Similar to 2002, it remains challenging and difficult for rural ambulance services to cover their weekday, daytime hours.

[15] A Quiet Crisis: Minnesota's Rural Ambulance Services at Risk. Minnesota Department of Health. 2002
[16] A Quiet Crisis: Minnesota's Rural Ambulance Services at Risk. Minnesota Department of Health. 2002

Agency Leadership and Financial Management

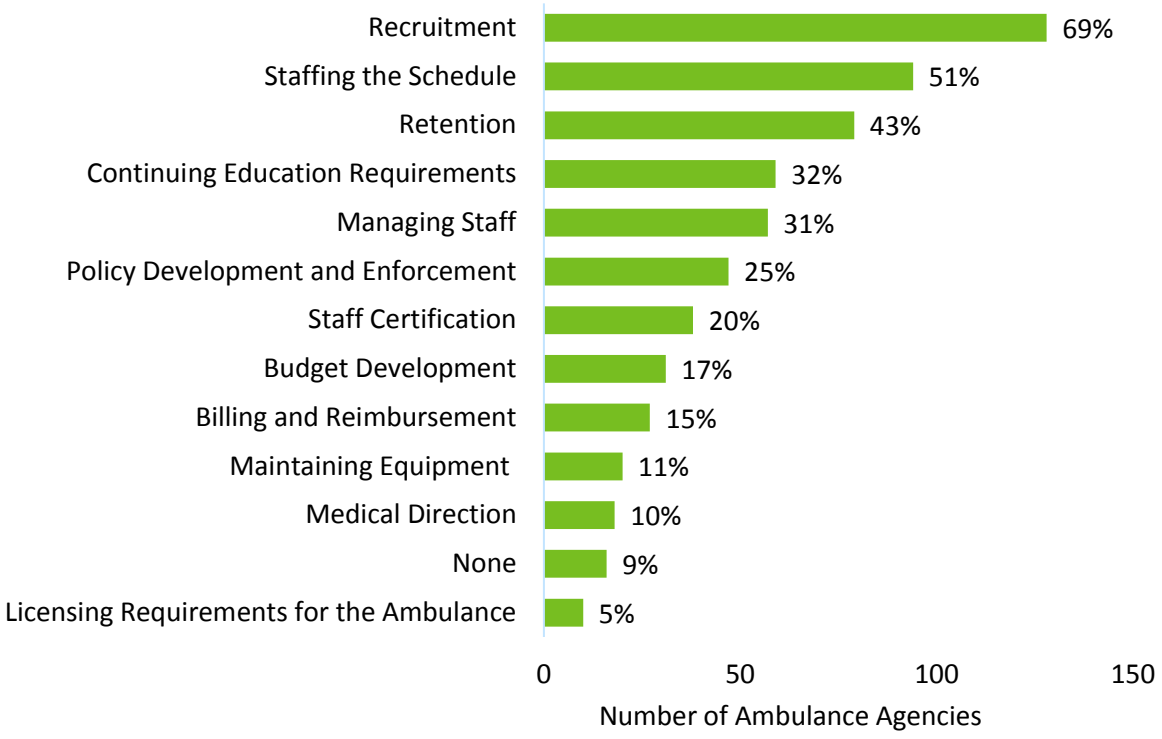
Leadership

About half of EMS agencies, 53.8 percent (100), report their service manager has received formal leadership or management training (Appendix C, Question 22).

High leadership turnover was defined in this survey as an EMS agency having had three or more managers in the past five years. Most agencies (86.0 percent or 160) did not have high turnover of their management staff. A small group of 25 respondents, 13.4 percent, reported high turnover of management (Appendix C, Question 23). Most of those (92 percent) have a BLS license and utilize some type of volunteer staff (84 percent).[17]

The two most difficult tasks for EMS managers are recruitment of ambulance staff (68.8 percent or 128 agencies) and staffing the schedule (50.5 percent or 94 agencies). Less common management challenges include licensing requirements, medical direction, maintaining equipment, billing or reimbursement and maintaining updated technology for the office. Sixteen agencies did not have difficulty managing any options provided in the survey (Figure 10- multiple options could be selected).

Figure 10. Areas that are difficult to manage for ambulance service leadership[18]



[17] No common factors indicated when stratified across region, call volume, square miles covered or agency ownership.
[18] Multiple options could be selected.

Financial Management

Eighty-one percent or 151 EMS agency managers have a role in developing their annual budget (Appendix C, Question 41). Seventy-three percent or 136 reported that the budget was adequate to cover the operational needs of the agency, but almost a quarter responded that their budget is inadequate (Table 9).

Table 9. Is the budget adequate to meet the operation needs of the agency?

Budget is adequate for operations	Number of Agencies	Percentage
Yes	136	73.1%
No	**42**	**22.6%**
Unknown	7	3.8%
Missing	1	0.5%

For the 42 respondents stating that their budgets are inadequate (Table 9), the greatest financial difficulty is covering capital expenses[19] followed by staff compensation (Table 10).

Table 10. Most difficult areas for budget to cover for those stating that their budget is inadequate (42 agencies)

Most difficult areas for budget to cover	Number of Agencies	Percentage
Capital Expenses	**37**	**88.1%**
Staff Compensation	28	66.7%
Daily Expenses	13	31.0%

All respondents bill for their services (Table 11). An outside billing service is used by 51.6 percent or 96 of EMS agencies. Hospital or agency staff are the next most common parties responsible for preparing bills, followed by a city or county.

Table 11. Who prepares bills for the EMS agency?

Who Prepares Bills	Number of Agencies	Percentage
Billing Service	96	51.6%
Hospital	37	19.9%
EMS Manager of Staff	36	19.4%
City or County	13	7.0%
Other	4	2.0%

[19] Capital expenses are equipment costing $5,000 or more.

Although most respondents do not have difficulty obtaining donations from their communities or do not seek donations, 30.1 percent (56 agencies) do report difficulty obtaining donations for large capital purchases (Appendix C, Question 45).

Discussion

Staff recruitment, leadership, finance and operations remain as key concerns for EMS managers. In 2002, "*A Quiet Crisis"* found that EMS agencies had difficulty recruiting staff and filling their call schedules. The 2015, the EMS Summit findings state that long-term rural EMS sustainability requires human capacity as well as adequate funding. A key message from that Summit was the importance of developing leadership within local EMS agencies. The summit also identified the importance of assisting local agencies in understanding the cost of operating their services as well as communicating the true cost of rural EMS systems to government officials as a way to move toward a more sustainable model.

The 2016 survey results did not find an excessive level of leadership turnover at EMS agencies, yet only half of current leadership has participated in any formalized leadership training. The largest problem that EMS agency leaders face today is recruitment of new staff and filling their call schedules. These are the same problems found in 2002.

Most EMS agency leaders participate in developing their agency's budget and most report that capital expenses are the most difficult budget category to fund. The second biggest financial concern is staff compensation. Again, these are not new concerns. Staff recruitment, scheduling and operations are the same issues faced by EMS agencies in 2002 as well the same issues discussed in 2015.

Medical Direction

Medical Oversight

All EMS agency respondents reported having a medical director. The reported specialty of the director was approximately equal between emergency physicians and family practice physicians (Table 12). The survey did not differentiate between emergency physicians who are board-certified in emergency medicine and those board-certified in family medicine. The majority of respondents did not know if their medical director had taken an EMS medical directors training course and 36 percent responded that their medical director had taken an EMS course (Appendix C, Question 34).

Table 12. Medical Director Specialty

Medical Director Specialty	Number of Agencies	Percentage
Family Practice or similar	87	46.8%
Emergency Medicine	86	46.2%
Surgery	3	1.6%
Internal Medicine	1	0.5%
Unknown	9	4.8%

Most EMS agencies (87.6 percent) reported they do not have difficulty recruiting or retaining a medical director (Appendix C, Question 35). For the twenty-three agencies that reported difficulty, the primary barriers to recruiting and retaining a medical director include the physician was too busy with their primary practice (87.0 percent), local physicians were not interested (65.2 percent), the EMS agency is unable to pay for services (30.4 percent), or there is a lack of physicians in the area (26.1 percent) (Appendix C, Question 36).

Consortium Models

To understand the difficulty in obtaining and recruiting a medical director, EMS agencies were divided into two groups: those that participate in a consortium model for medical direction and those that do not. The consortium language used in this survey did not distinguish between a physician that provides medical direction for several ambulance services and a broad consortium model that provides medical direction, ambulance staff training and additional services. EMS agencies using a consortium reported less difficulty in recruiting and retaining a medical director (4.2 percent) than for those not participating (14.7 percent).

In this survey, 25.8 percent of rural EMS agencies in Minnesota reported participating in a consortium model. There were three types of consortium models documented:

- Regional model based on EMS regions
- EMS agency model of affiliated bases that use centralized medical direction
- Hospital model that provides centralized medical direction for agencies that transport patients to their facility

Overall, EMS agencies felt the consortium was looking out for the best interests of the individual EMS agencies. Several agencies reported that their participation in a consortium resulted in better patient care.

EMS agencies that participate in a consortium listed the benefits to participating as:

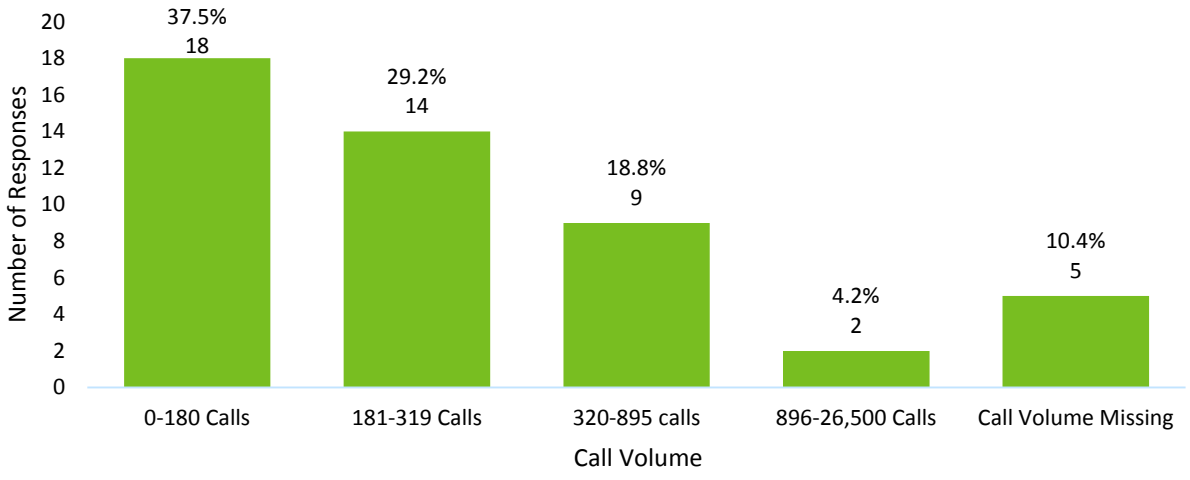
- Consistent medical direction
- No burden to recruit a medical director
- Consistent protocols and standing orders throughout the region
- Consistent training
- Flexible training offered at multiple locations and dates, staff could make-up training sessions easily at another location
- Affordable and higher quality training than the individual agency could provide
- Experienced trainers
- Completion of mandatory training in a timely manner
- Assistance with licensing paperwork

Agencies also reported disadvantages to participating in a consortium as:

- Reduced communication with the medical director
- Local physicians did not like the regional protocols
- Protocols required the use of new equipment that the EMS agency didn't have or couldn't afford to purchase
- Feeling that the consortium focused on the needs of the larger, city-based EMS services in their region and didn't provide the same level of support and awareness for the small agencies that were on the outer border of the region and not affiliated with the main hospital

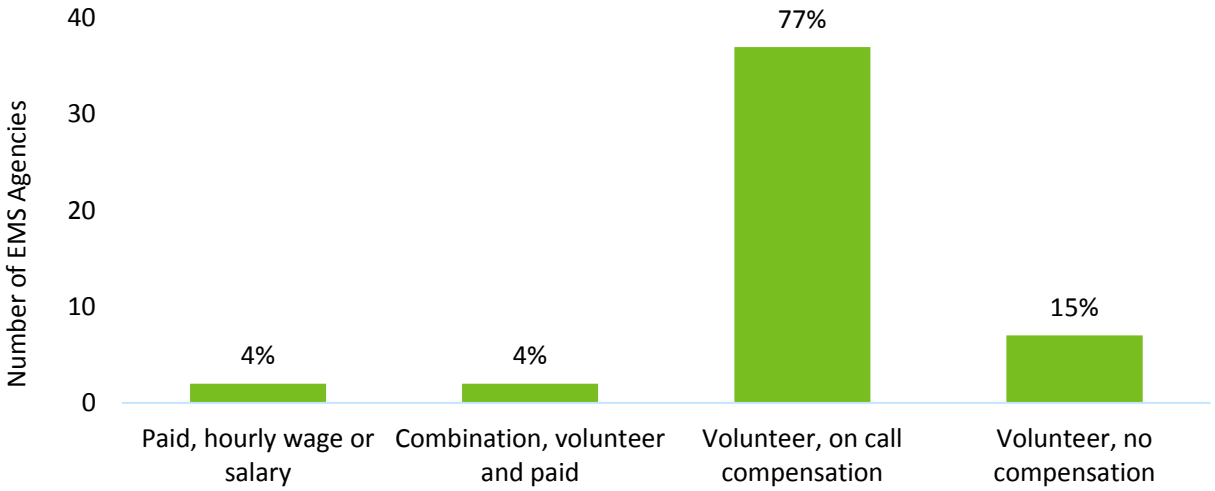
EMS agencies reporting between 0 and 180 calls per year (the lowest quartile for total responses) were most likely to participate (37.5 percent) in a consortium (Figure 11). This represents agencies with 0 to 1 call every other day over the course of one year. More than half (66.7 percent) of rural agencies in Minnesota participating in a consortium model for medical direction report fewer than 320 calls per year or less than one call per day. Five agencies that reported using a consortium model for medical direction did not report their annual call volume for total responses in 2014.

Figure 11. Participation in a consortium model for medical direction by agency call volume



EMS agencies that relied on volunteer staff that receive a stipend for responding to calls used a consortium more frequently (77.1 percent) for medical direction than agencies that have fully paid staff (4.2 percent), a combination of paid and volunteer staff (4.2 percent) or fully volunteer staff (14.6 percent) (Figure 12).).

Figure 12. Participation in a consortium model for medical direction and type of compensation for ambulance staff



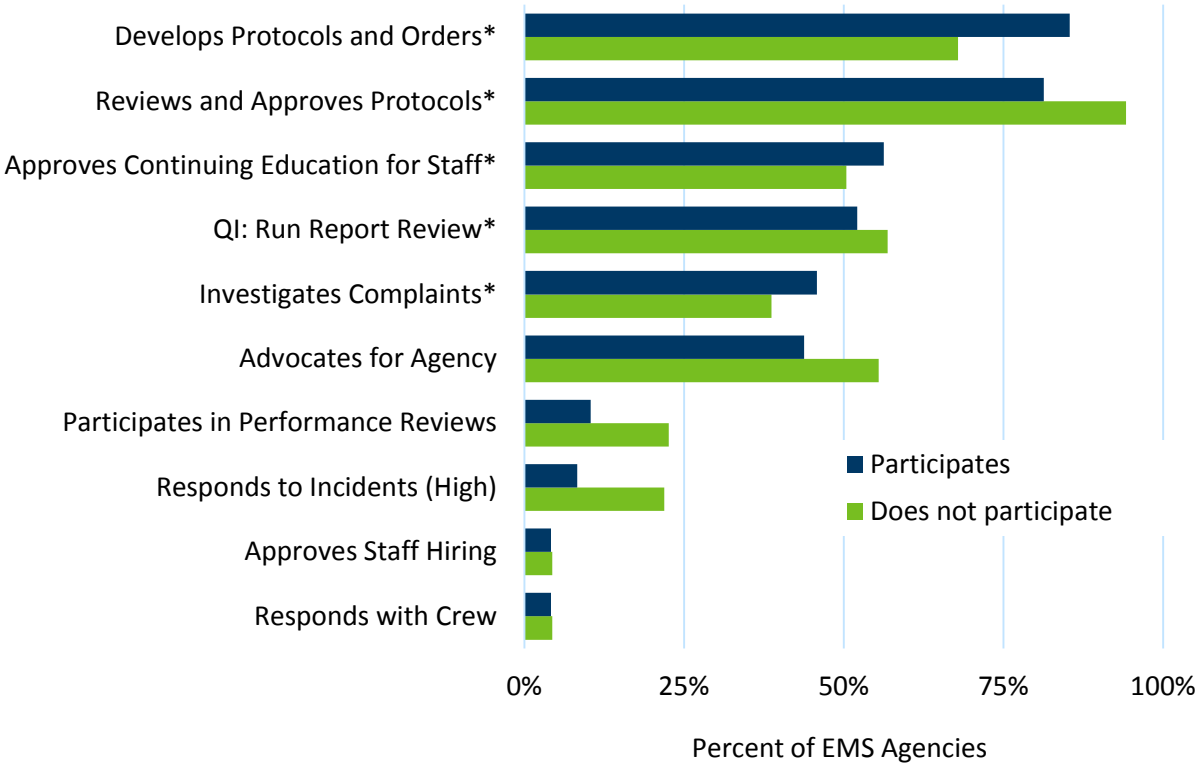
Of the many services provided by medical directors, they most commonly approve protocols (90.9 percent) or develop protocols and standing orders (72.6 percent) (Figure 13). Duties of the medical director were similar regardless of whether the agency participated in a consortium. More agencies that participate in a consortium reported that their medical director develops protocols and standing orders, investigates complaints and approves continuing education than agencies that do not participate in a consortium.

EMS agencies not participating in a consortium more frequently report that their medical director responds to high profile incidents, reviews and approves protocols, advocates for the agency, participates in performance reviews and reviews run reports for quality improvement more than agencies that participate in a consortium. Regardless of participation in a consortium, rural medical directors do not frequently respond to calls with the EMS crew or approve staff hiring.

Interestingly, according to survey respondents some responsibilities of the medical director required by statute, such as approving medical protocols and continuing education for staff, are not universally provided to rural EMS agencies regardless of the medical direction model (note asterisks in Figure 13).

Figure 13. Duties performed by the medical director based on consortium participation

"Participates" is defined as percent of agencies that participate in a consortium whose medical director performs that duty. "Does not participate" is the percent of agencies that do not participate in a consortium whose medical director performs that duty.



**Indicates duties that are required by a medical director per Minnesota statute 114E.265.*

Discussion

The 2002 study, *"A Quiet Crisis,"* listed two recommendations to strengthen involvement of medical directors in ambulance service operations:

1. The EMSRB is encouraged to work with regional EMS programs, the Minnesota Academy of Family Physicians, the Minnesota Medical Association and others as appropriate to develop incentives for medical directors to participate in available national and state training opportunities that better meet the needs of rural medical directors.

2. Public recognition of the contributions medical directors make to the operation of the local ambulance service should be encouraged by the EMSRB.

At the 2015 Rural EMS Sustainability Summit, medical direction was a specific area of concern in Minnesota. The goal was to create a collaborative, regional approach to better support local medical directors in their role. Within the past year, the EMSRB has developed a medical-director training program offered annually and in-person at the Minnesota EMS Medical Directors Retreat. This course is also available on-line through the EMSRB website.

Minnesota EMS medical directors also have the Minnesota EMS Medical Directors Association, which offers networking and technical assistance for rural medical directors. The Association hosts the two-day EMS Medical Directors Retreat, which provides cost-effective EMS-specific continuing medical education as well as networking with rural EMS physicians, managers and vendors.

The results from this survey do not support previously documented problems in hiring and retaining medical direction for rural Minnesota EMS agencies. This may be due to an increase in participation in a medical direction consortium. More than 25% of rural ambulance services now participate in a consortium. There are costs for an agency to participate in some consortiums, and this additional financial requirement may make the large regional-based consortium model unattainable for those EMS agencies whose budgets are already insufficient.

Based on the survey responses, some of the responsibilities of the medical director required by statute, such as approving medical protocols and continuing education for staff, are not universally provided to ambulance services. This survey also did not evaluate whether the existing qualifications and responsibilities of the medical director based on current Minnesota Statutes are difficult to attain in rural Minnesota.

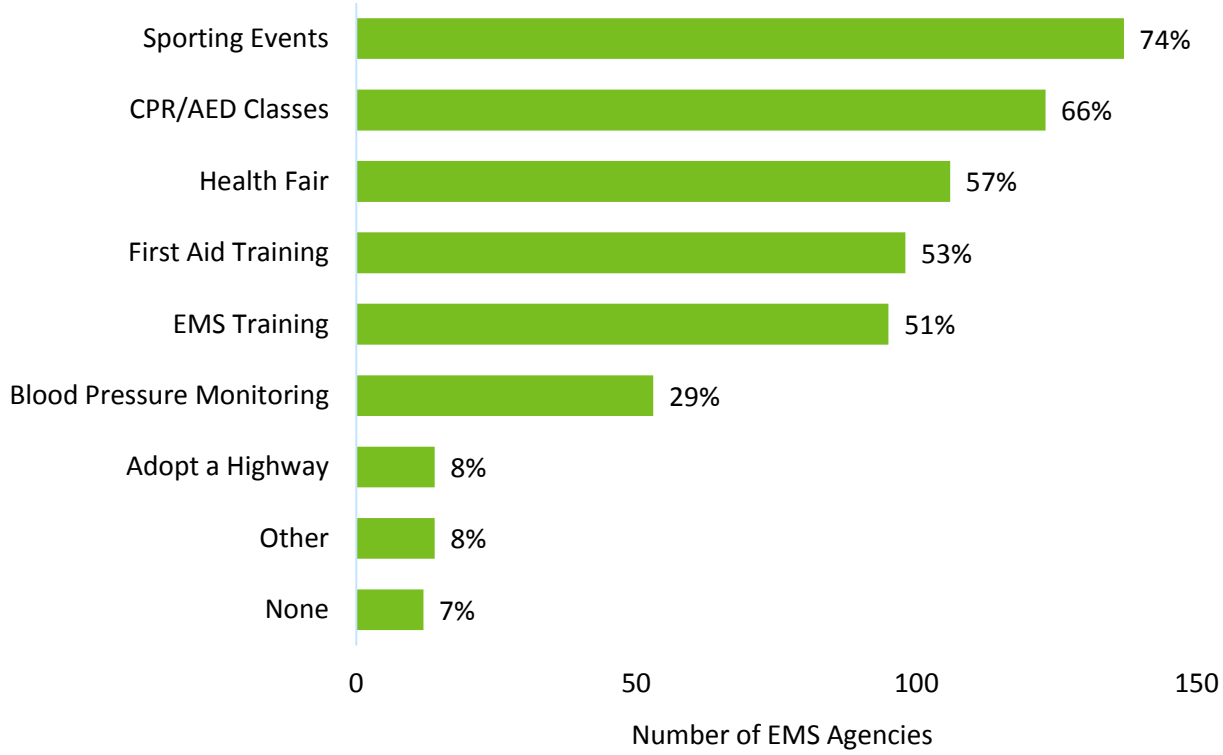
Community Relations

More than 62 percent of agencies believe that community support for EMS is similar to other public services (Appendix C, Question 39), however, the majority of EMS agencies (91.7 percent) reported that they do not have a community advisory board (Appendix C, Question 38).

Most EMS agencies reported that they provide additional services to their communities beyond responding to calls for service (Figure 14, multiple activities could be selected).[20] The majority provide medical coverage at local sporting events and provide CPR/AED classes for their community. Agencies that provide "other" services for their community state these services include:

- AED placement and management
- Open house
- School career day and student visits
- Community safety program 'Kids on WHEELS'
- Elderly visits
- Mock crashes (e.g. Operation Prom)
- Toy drive
- Bike helmet sales
- Fund raisers
- Demonstrations and training for scout programs

Figure 14. Non-response activities provided for the community by the EMS agencies



[20] Multiple activities could be selected.

Discussion

The 2015 Rural EMS Sustainability Summit documented community awareness as a key area for long-term sustainability. Summit attendees believed that the public does not understand rural EMS, and takes for granted the services they provide. This survey results show that 93.5 percent of rural EMS agencies provide additional services for their communities, which likely fosters a sense of collaboration between EMS and the community.

However, most EMS services do not have a community advisory board, which ideally can bridge discussions between EMS and the community about short and long-term strategies for sustainability and build a supportive constituency base for the services. Community Advisory Boards can also help build awareness about the necessity of EMS services and the role of EMS as a member of the greater community health care system.

The majority of respondents believe that community support for their EMS agency was similar to that of other community services. This survey did not evaluate whether the community believed EMS was an essential service, nor did it attempt to define how accurately the community understands EMS.

Appendix A – Survey Design and Administration

The following publications informed the development and content of the survey:

- 2002 "A Quiet Crisis: Minnesota's Rural Ambulance Services at Risk"[21]
- 2015 "Rural EMS Sustainability Summit Report"[22]
- 2015 "Rural Ambulance Service Attributes Survey Tool"[23]

The EMSRB and the REMSSC provided significant input regarding survey design and question content. The survey was pilot-tested with two ambulance services in the Southeast and Northwest EMS regions. The final survey incorporated feedback from the pilot sites.

A communication strategy was deployed in advance of releasing the survey to increase participation and accuracy of responses. A letter signed by MAA, EMSRB and MDH was sent to licensed EMS agency managers announcing the survey and encouraging participation. In addition, information about the upcoming survey was announced at various EMS meetings around the state.

In May 2016, the survey was sent electronically to 230 rural ambulance service managers (including three Metro services that serve primarily rural populations) or individuals who have responsibility for their EMS agency. EMSRB staff and some rural EMS regional programs held regional EMS manager meetings to review the survey questions and ensure consistent interpretation. All survey responses were anonymous. Respondents could anonymously verify their survey completion. If an EMS agency did not verify they completed the survey, CEMS staff followed-up by email and/or telephone. On July 1, 2016, the on-line survey closed.

In some EMS regions, more surveys were returned than licensed agencies. When this occurred, duplicate surveys were identified based on demographic data. In most cases, one survey had been completed while the duplicate had not. In these cases, the incomplete survey was deleted. When multiple duplicate completions were identified, only the first survey was included in this analysis.

Data collected from the survey responses were analyzed using statistical analysis software, SAS version 9.4 (Cary, NC). Descriptive statistics were used to characterize rural ambulance services collectively. No tests for statistical significance were performed on the data.

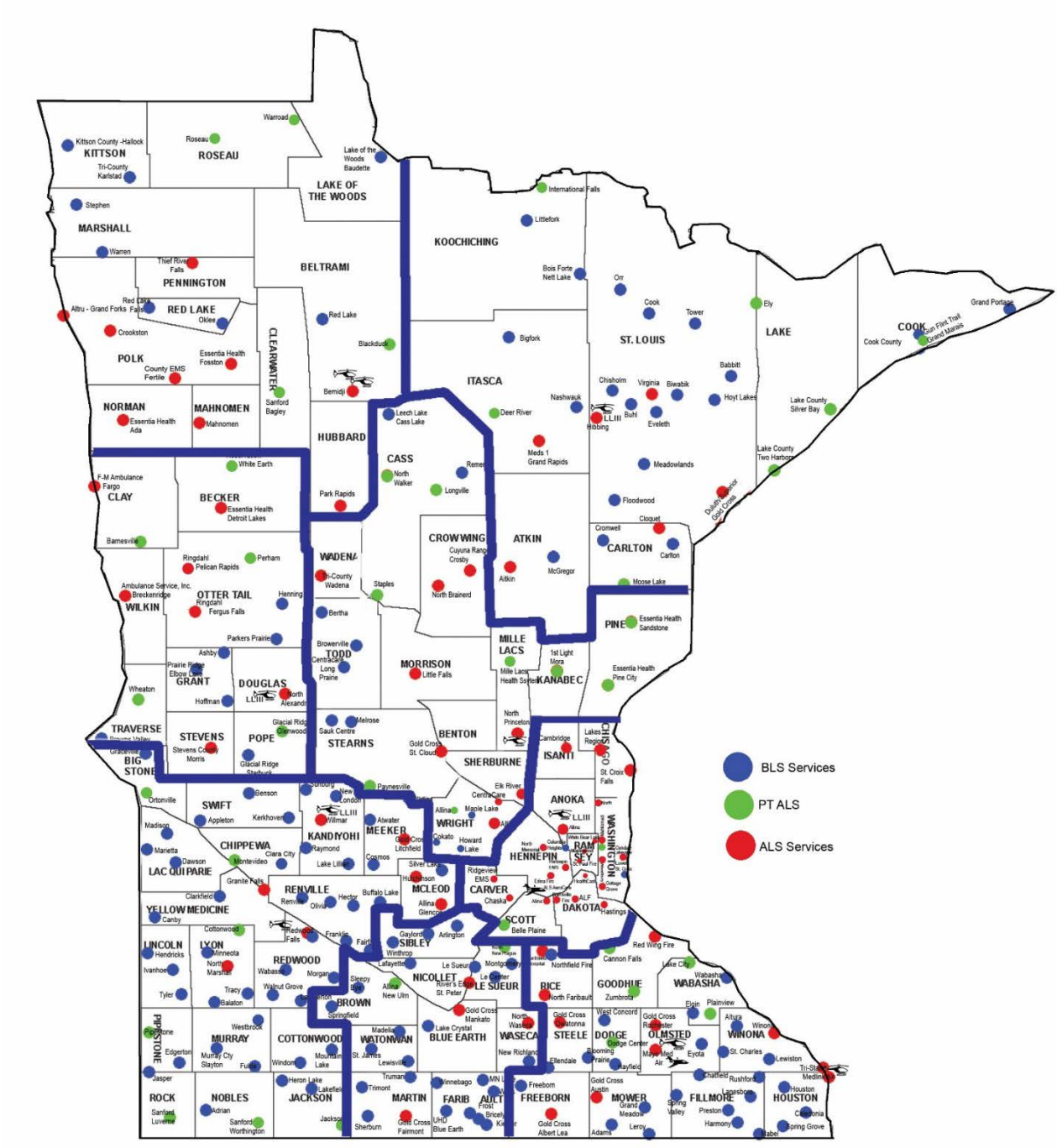
After MDH staff completed the initial analysis, CEMS, REMSSC and other subject matter experts reviewed each section for accuracy. The results presented here incorporate the feedback from these subject matter experts.

[21] A Quiet Crisis: Minnesota's Rural Ambulance Services at Risk. Minnesota Department of Health. 2002

[22] Report on the Rural Minnesota EMS Sustainability Summit Meeting. SafeTech Solutions, LLP. 2015. Available at https://mnems.org/rural-ems-resources/

[23] National Organization of State Offices of Rural Health. Rural EMS Survey Assessment Tool. Available at https://nosorh.org/rural-ems-survey-assessment-tool/

Appendix B - EMS Regions & Ambulance Coverage

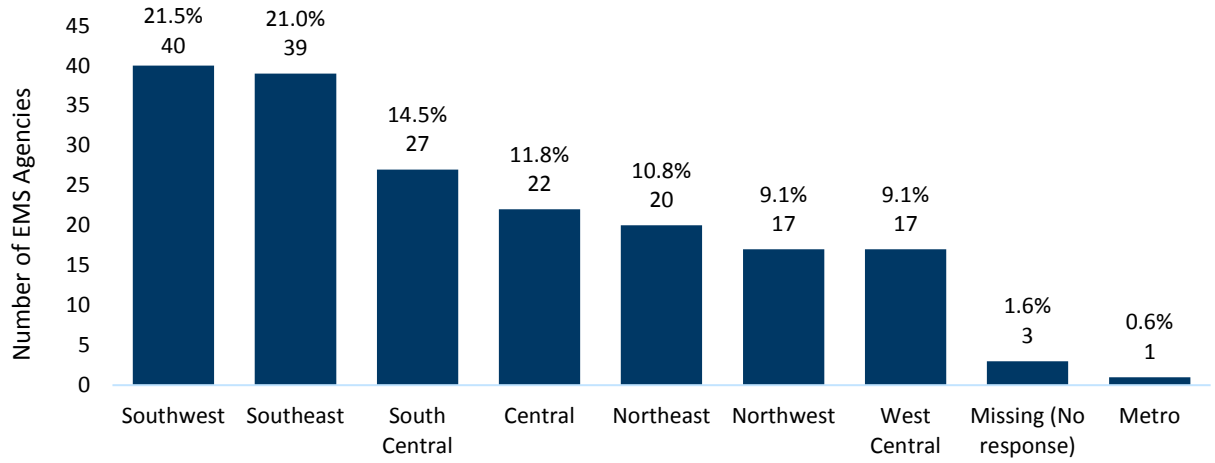


Rural EMS agencies include all services that do not serve the Metro EMS Region except for three metro services that serve primarily rural population.

Appendix C –EMS Sustainability Survey Questions and Responses

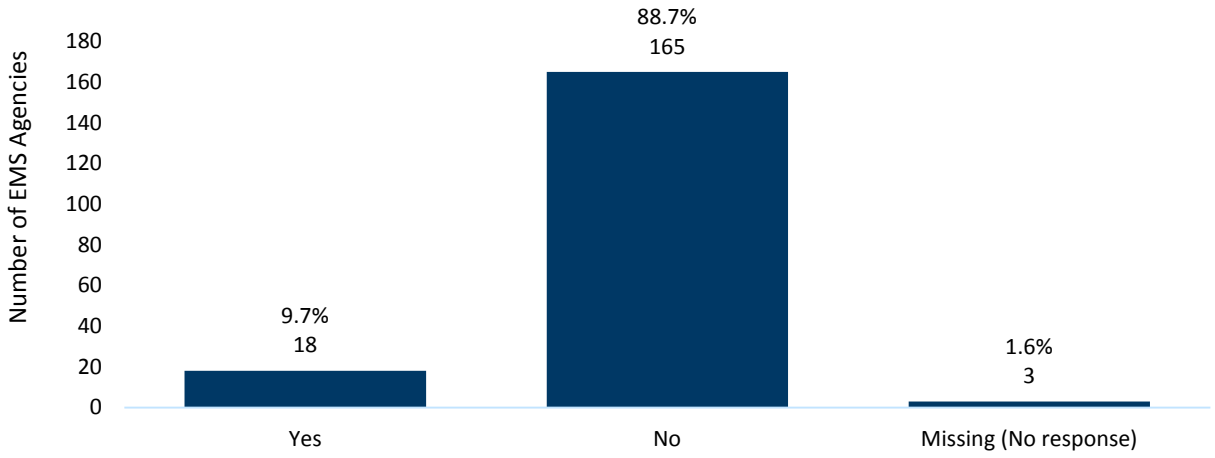
EMS Agency Demographics

Question 1. What is your local EMS service region according to the EMSRB?

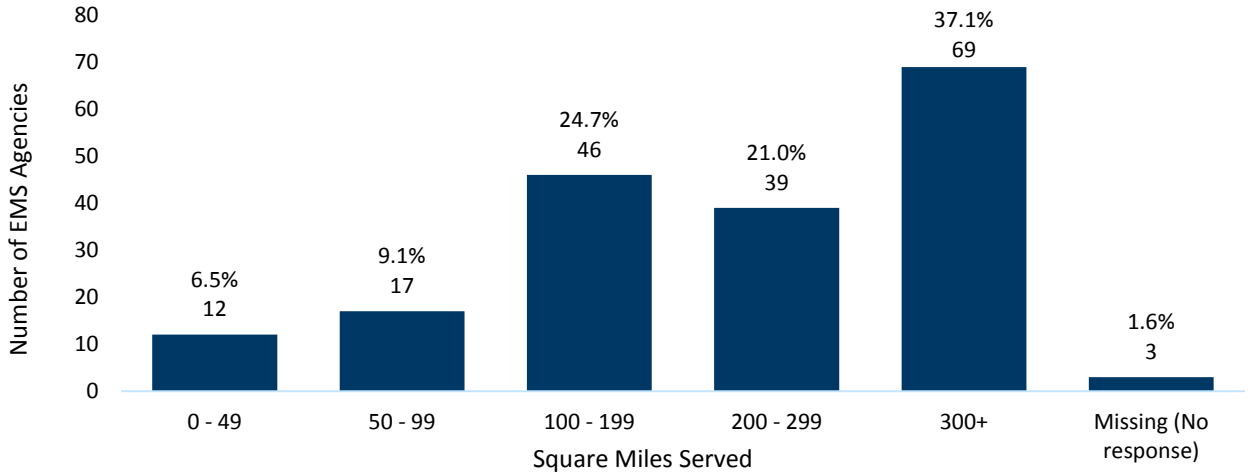


Respondents were asked to check all answers that applied. Because there were multiple answers per question, the percentages do not sum to 100%.

Question 2. Do you serve a tribal region?



Question 3. How many square miles does your agency cover?

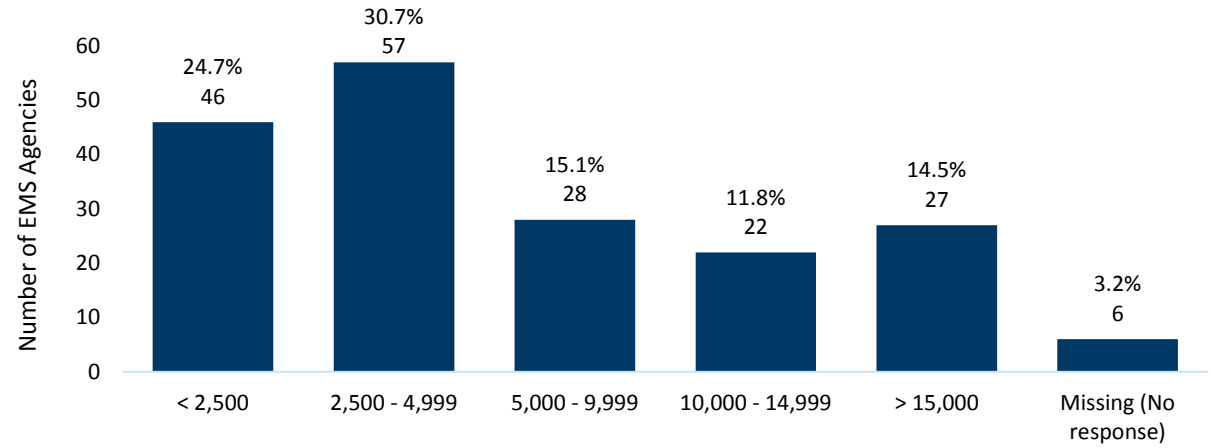


Question 4. According to MNSTAR, what was your call volume in 2015?

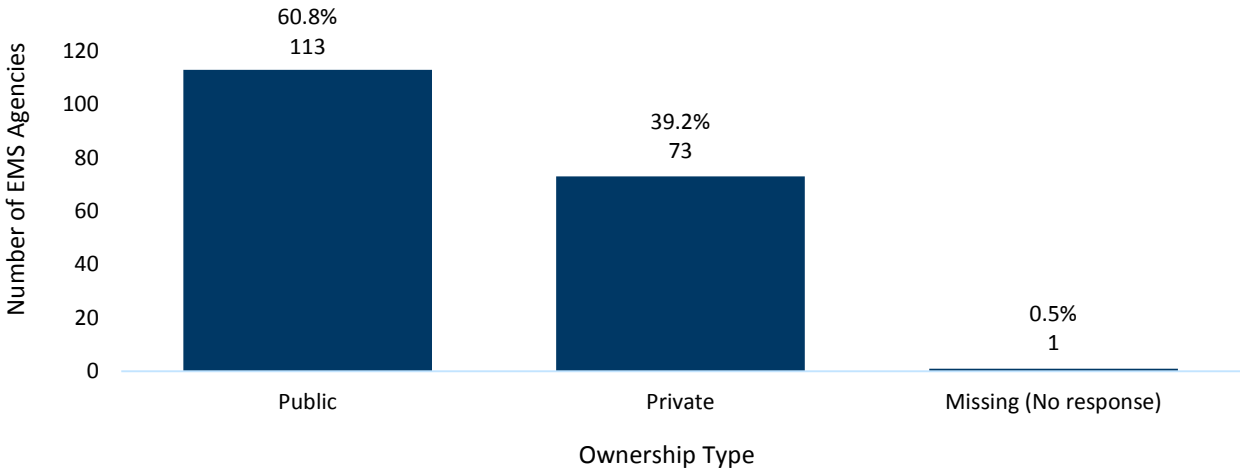
EMS Agency Response Volume from MNSTAR 2015			
Call Volume	Number	Median	Range
Total Responses	167	319	[1-26,500]
Total Transports	161	265	[0-19,300]
911 Call Volume	151	305	[16-11,000]
Inter-facility Transports	139	40	[0-8,000]

The median EMS agency call volume is equivalent to less than one response per day. Most agencies in Minnesota provide 911 emergency response and patient transport. Many also provide inter-facility patient transport (this survey did not differentiate between scheduled and non-scheduled transfers).

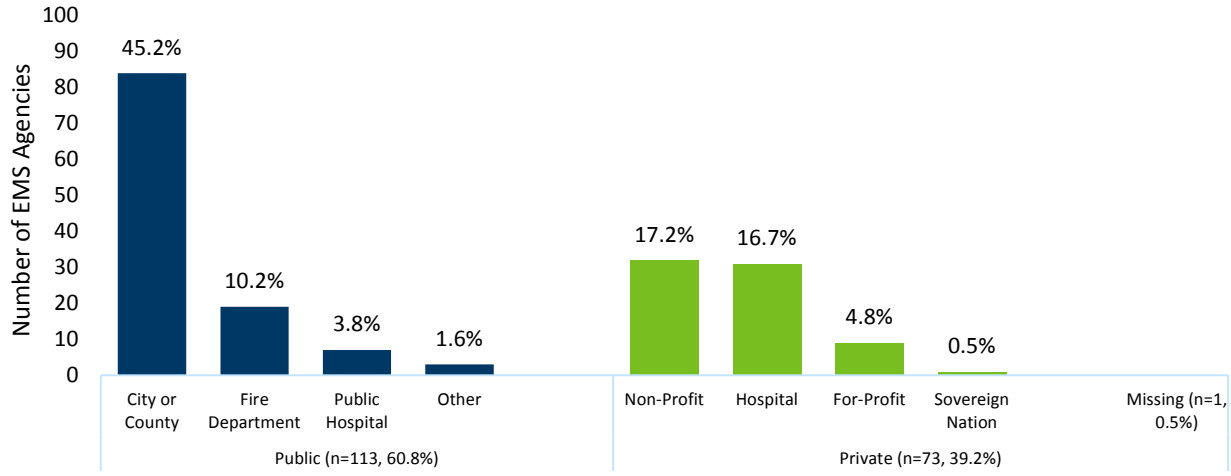
Question 5. What is the estimated total population that you serve?



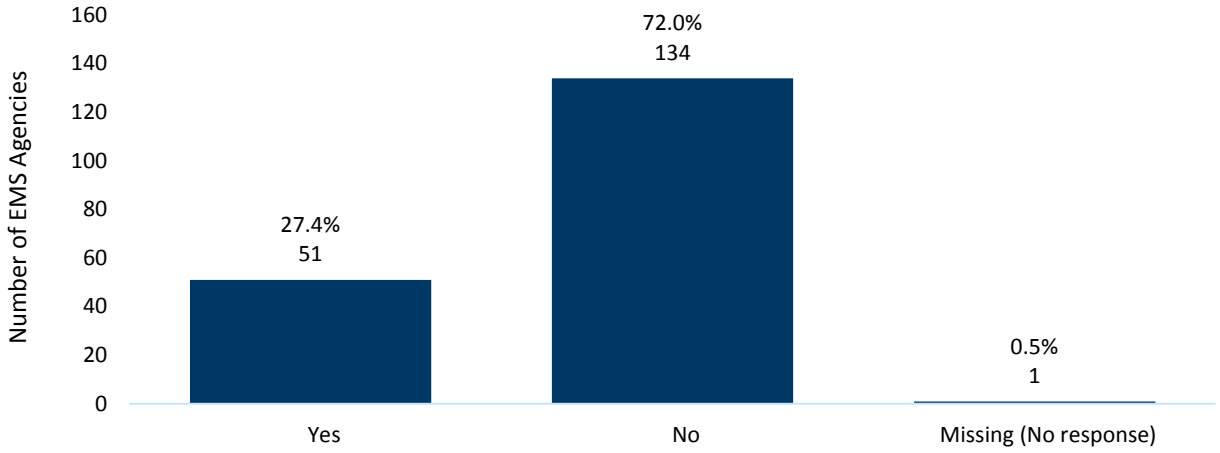
Question 6. Which type of ownership best describes your agency?



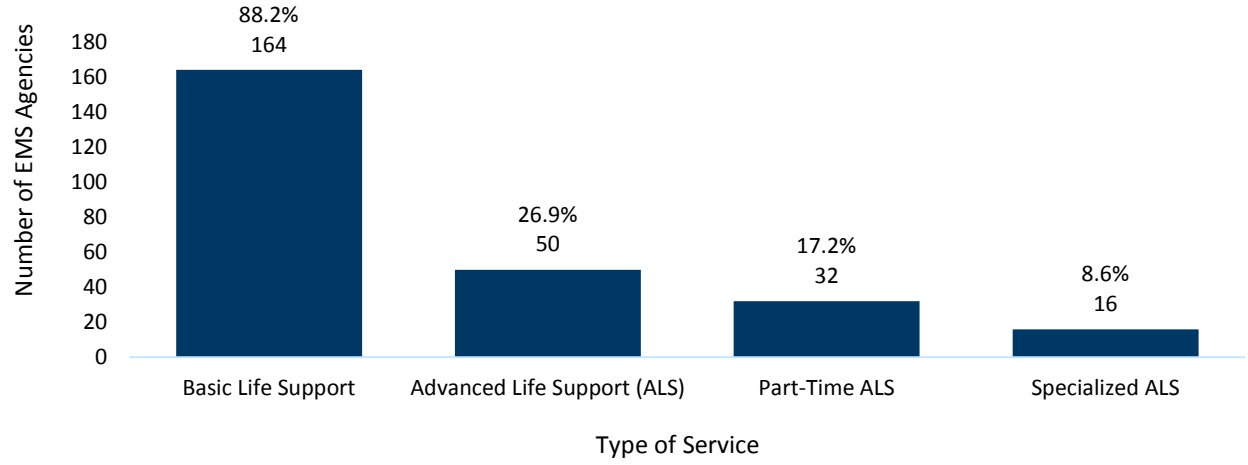
Breakdown of public and private ownership of EMS Agencies



Question 7. Is your agency owned, managed or does it receive support from a corporate health system?

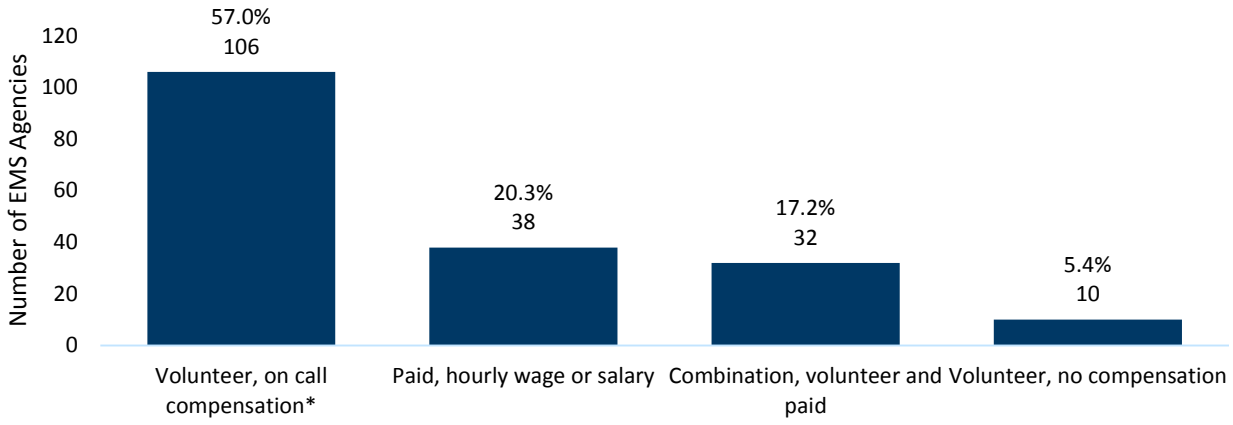


Question 8. What type of services do you provide?



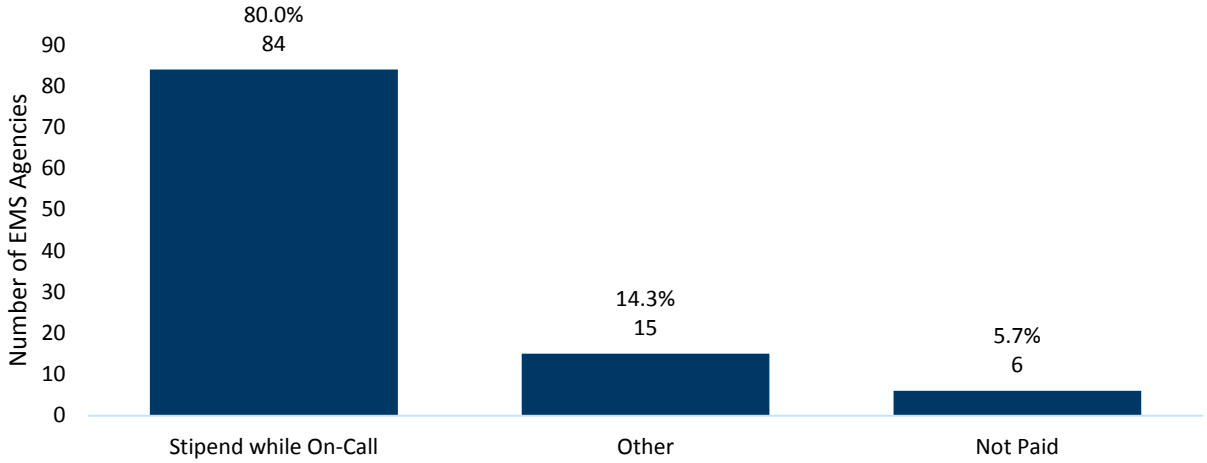
Respondents were asked to check all answers that applied. Because there were multiple answers per question, the percentages do not sum to 100%.

Question 9. How are staff compensated, not including the agency director?



**Minnesota Statute 144E.001, Subd. 15. https://revisor.mn.gov/statutes/?id=144E.001 defines "volunteer ambulance attendant". Respondents were asked to check all answers that applied. Because there were multiple answers per question, the percentages do not sum to 100%.*

Question 10. If you have volunteer or paid on-call staff, how are they compensated?

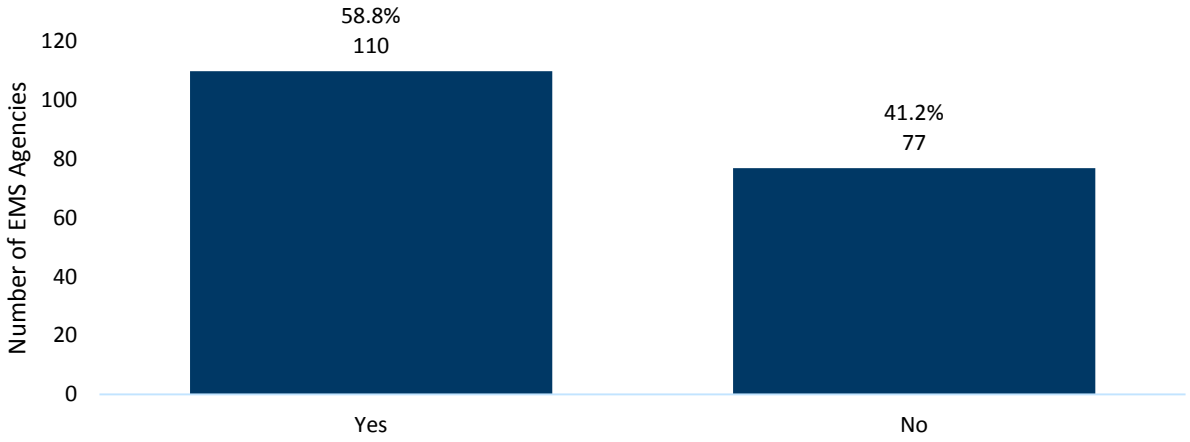


Respondents were asked to check all answers that applied. Because there were multiple answers per question, the percentages do not sum to 100%.

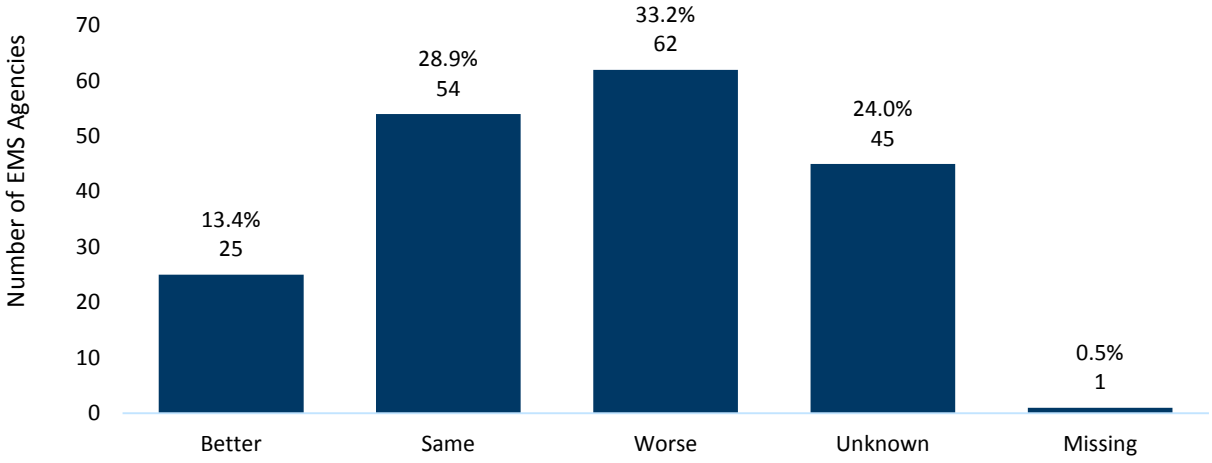
Compensation in this survey refers to EMS agency staff, excluding the staff director. Other compensation models included in the answer include:

- Nominal hourly pay while scheduled for on-call ambulance coverage
- Hourly pay while on a call
- Flat fee per call (which may vary with the distance transported)
- Special compensation for on-call weekend or holiday coverage
- A combination of the above models

Question 11. Are you using Emergency Medical Responders (EMRs) to routinely staff your ambulance(s)?

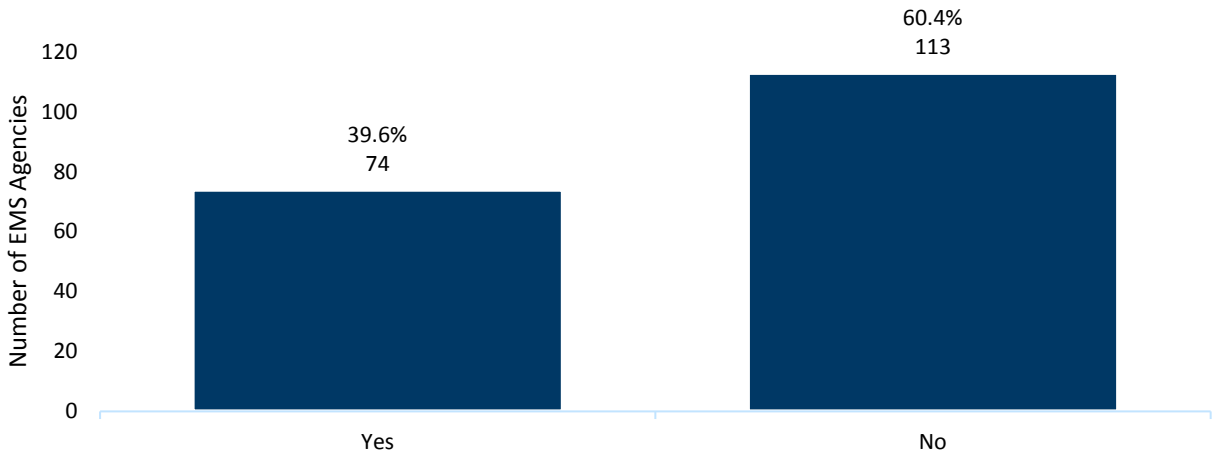


Question 12. How does your compensation for EMS staff compare with other public safety agencies in your community?

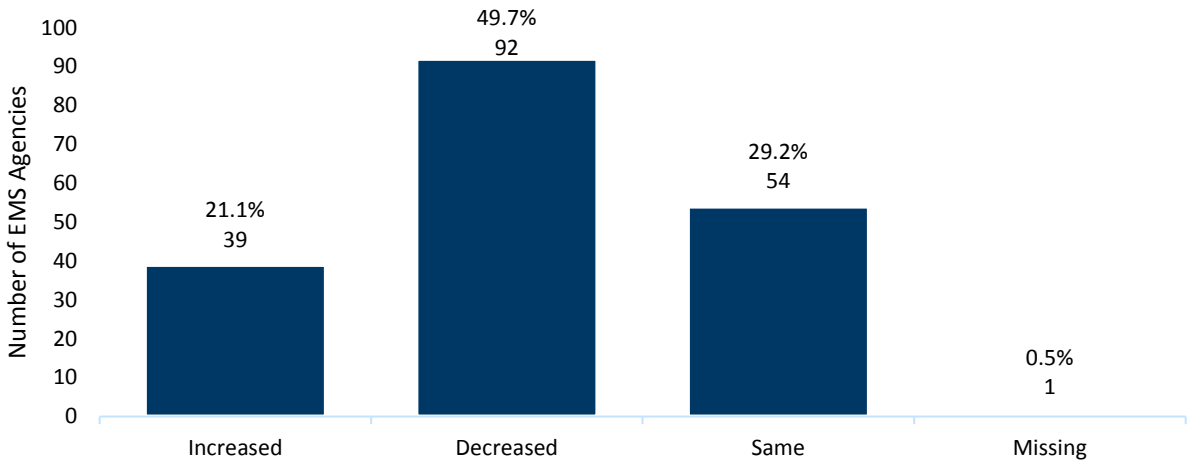


Workforce Sustainability

Question 13. Do you have enough people to cover your call schedule with undue burden or excessive time commitments?

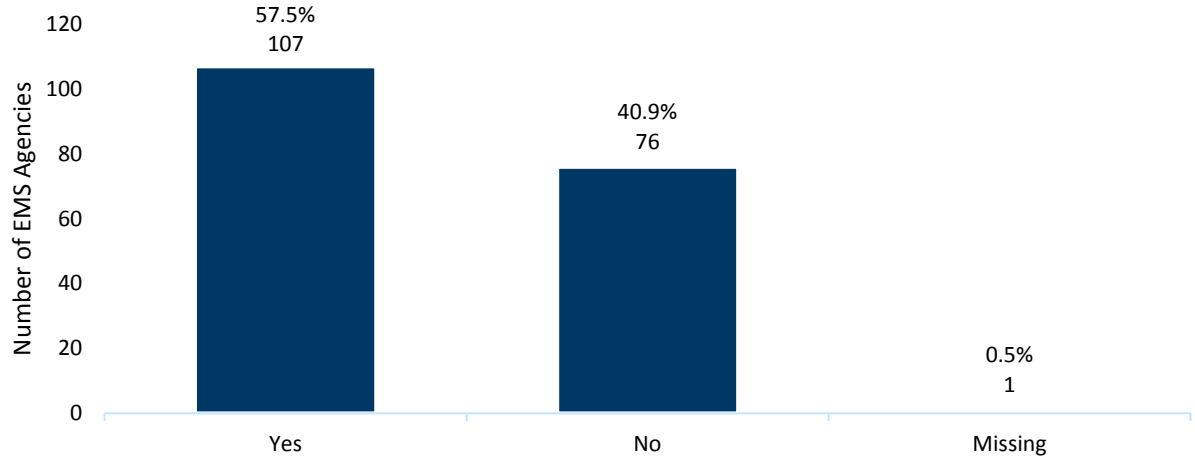


Question 14. Over the past year, has the number of active* staff on your roster changed?

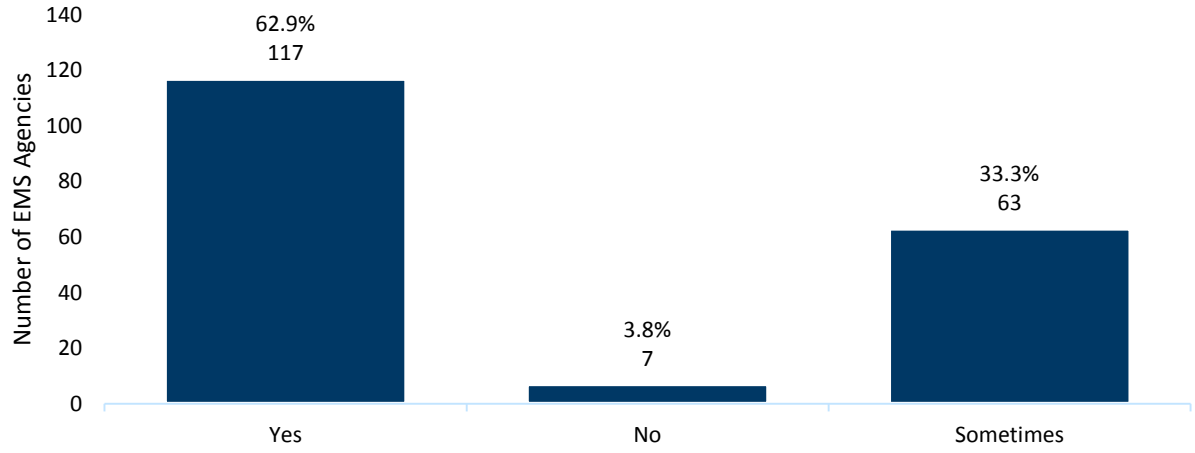


**Active EMS staff are someone who meets your service call hour policy minimums.*

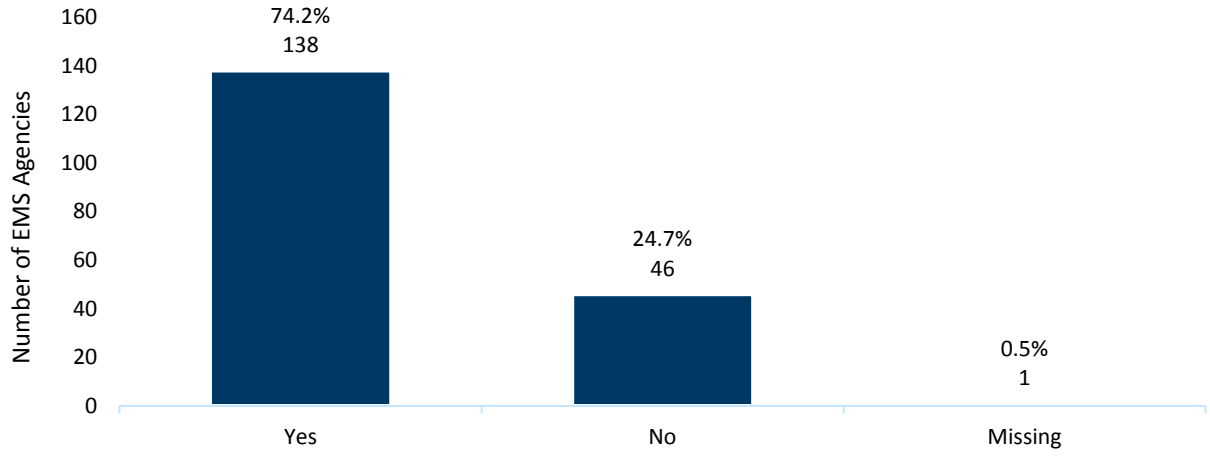
Question 15. Does your agency have a recruitment plan?



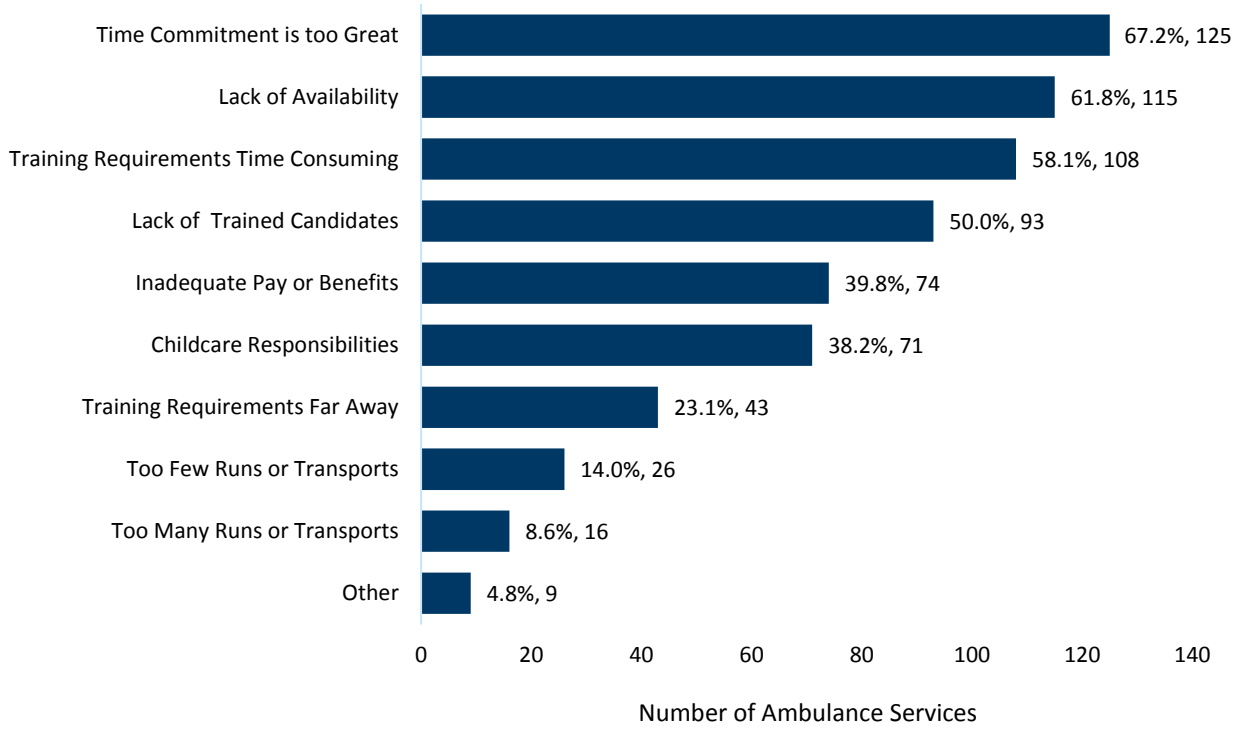
Question 16. Is it difficult to recruit new EMS staff?



Question 17. Are any EMS staff cross-trained to work in police, fire or other public service functions?



Question 18. Which of the following items are obstacles to recruiting EMS staff for your agency?

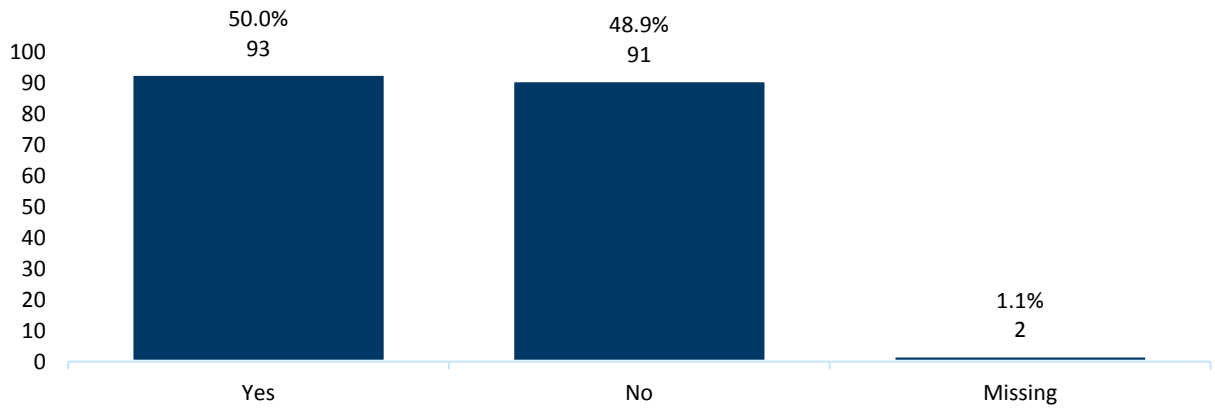


Respondents were asked to check all answers that applied. Because there were multiple answers per question, the percentages do not sum to 100%

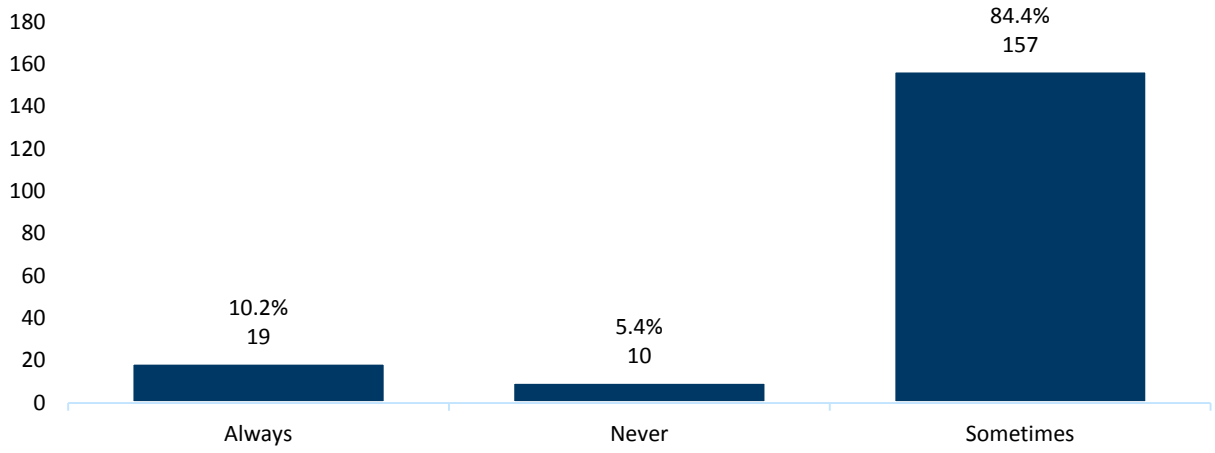
Additional responses given in the "other" category are:

- Difficulty finding local businesses that allow ambulance staff to leave work to respond to a call
- Many members work outside of the community and not available during weekday hours
- Lack of support and understanding from the city about the requirements of managing and maintaining an ambulance service

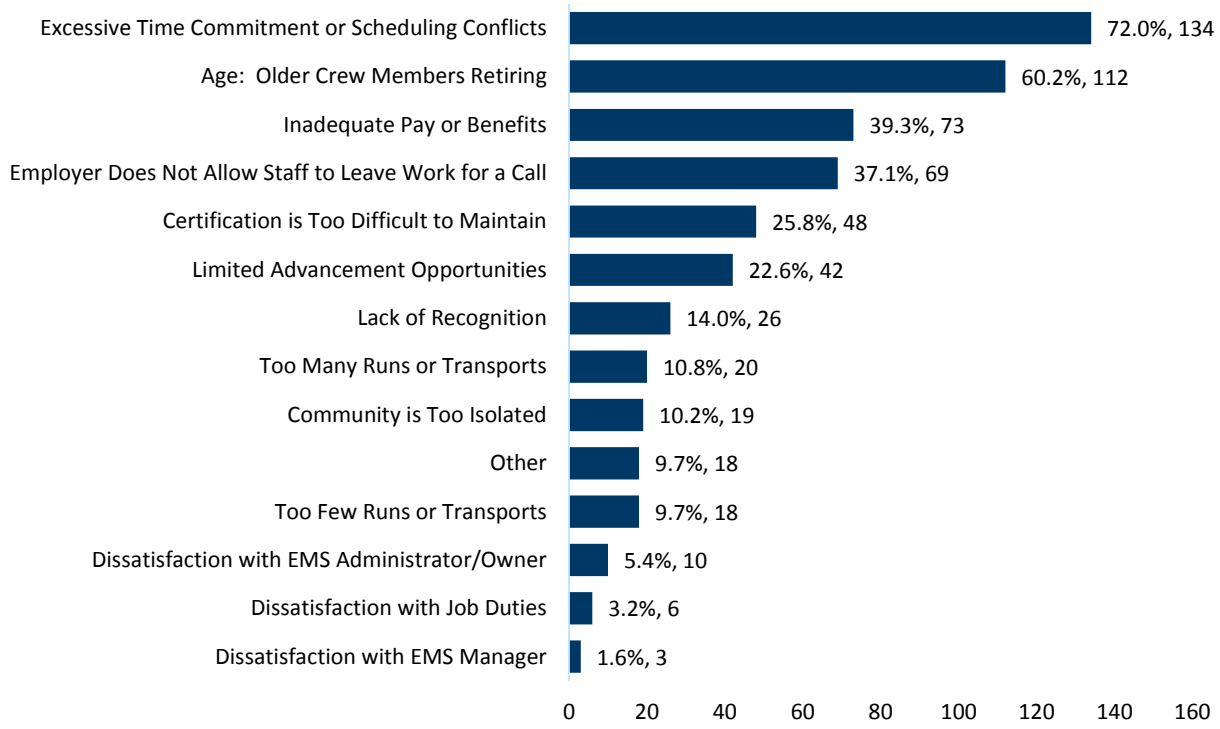
Question 19. Does your EMS agency have a retention strategy?



Question 20. Does your agency have difficulty retaining existing staff?



Question 21. Which of the following items are obstacles to retaining staff for your agency?



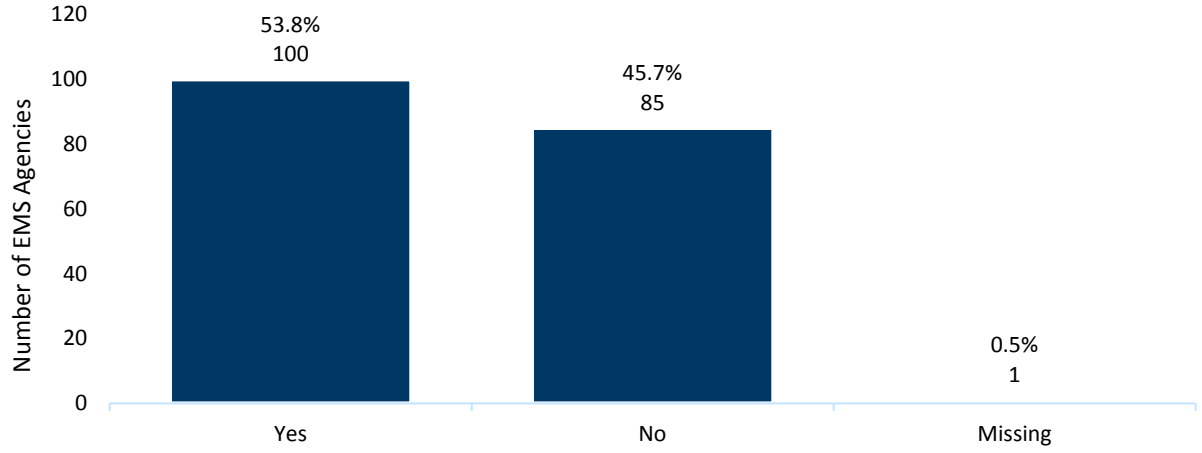
Respondents were asked to check all answers that applied. Because there were multiple answers per question, the percentages do not sum to 100%.

Additional responses given in the "other" category are:

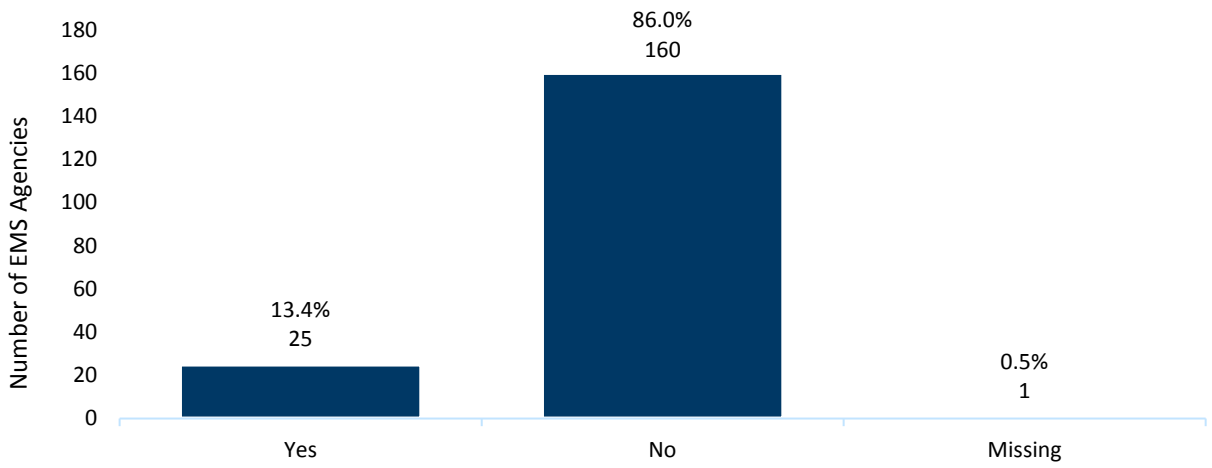
- On-call requirements
- College students who leave the community
- Staff moving out of the area
- Employment by multiple EMS agencies
- Staff uncomfortable working in the ambulance
- Family responsibilities
- Work conflicts with their primary job

Local EMS Leadership

Question 22. Has the EMS manager of your agency had formal leadership or management training?

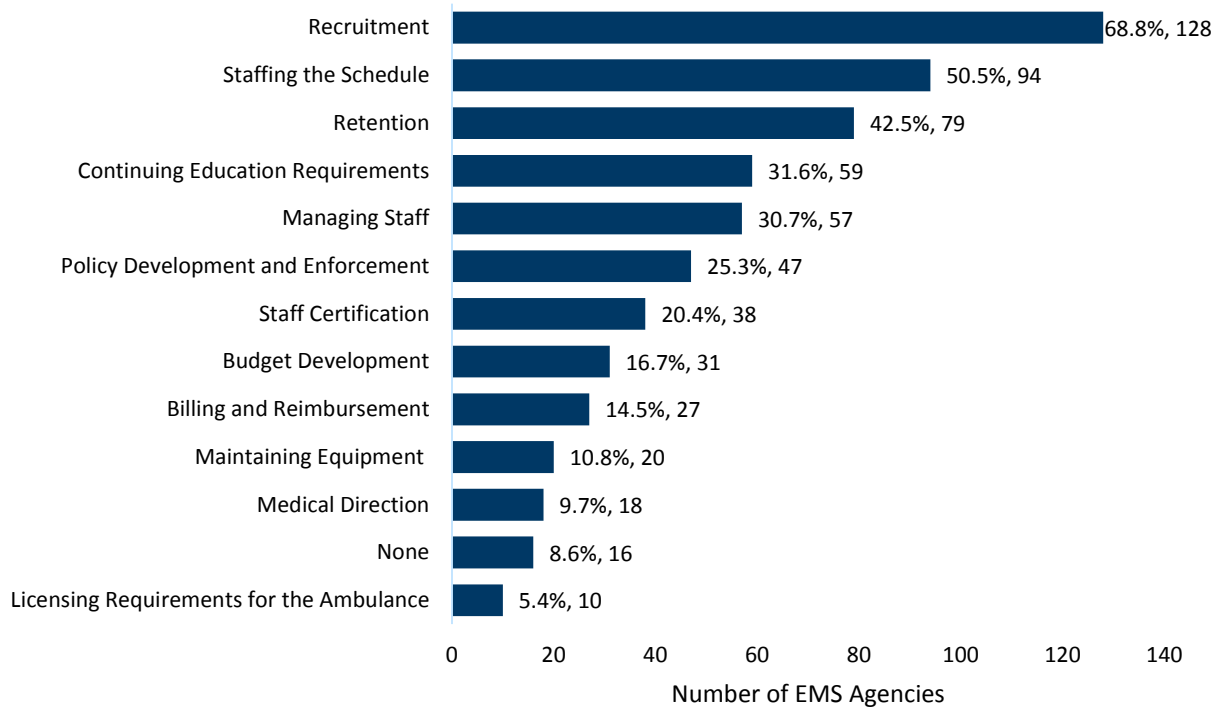


Question 23. Has your agency had three or more managers in the past five years?



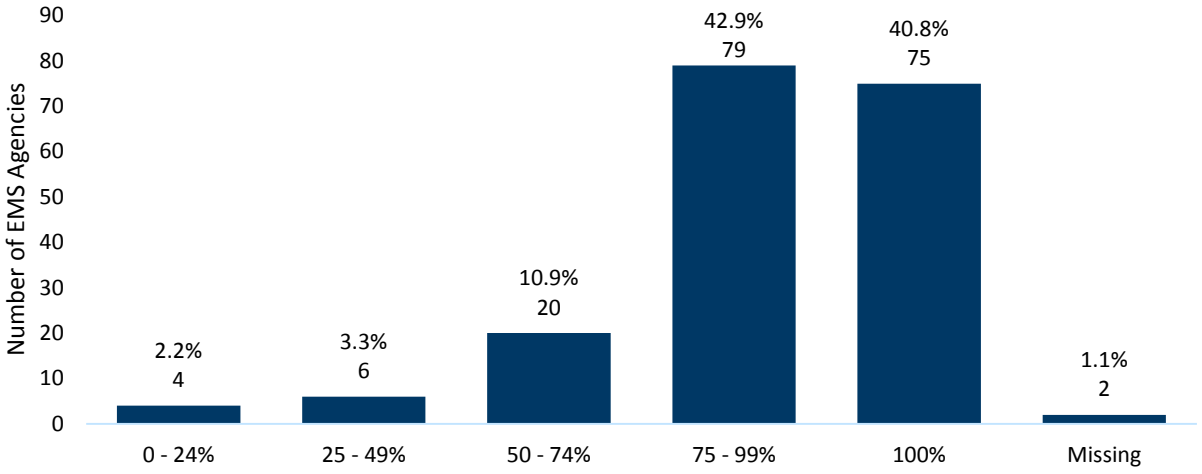
This survey created its own definition of high turnover within leadership positions as three or more managers within the past five years.

Question 24. Which areas are most difficult to manage? (check all that apply)

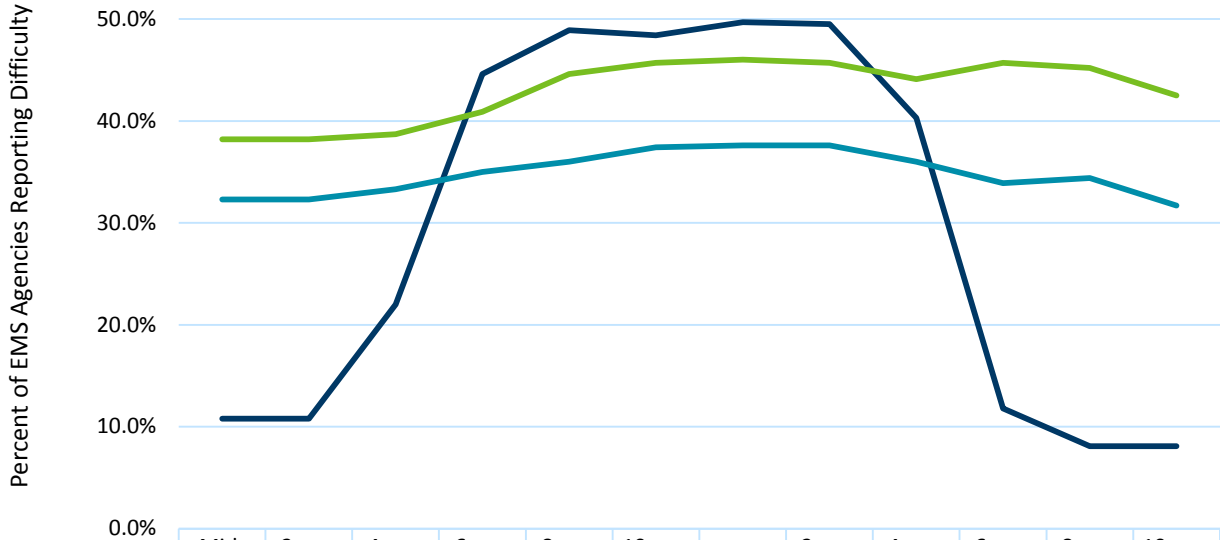


Respondents were asked to check all answers that applied. Because there were multiple answers per question, the percentages do not sum to 100%.

Question 25. What percent of your shifts are fully covered at least 24 hours in advance?



Question 26. What shifts are the most difficult to cover?

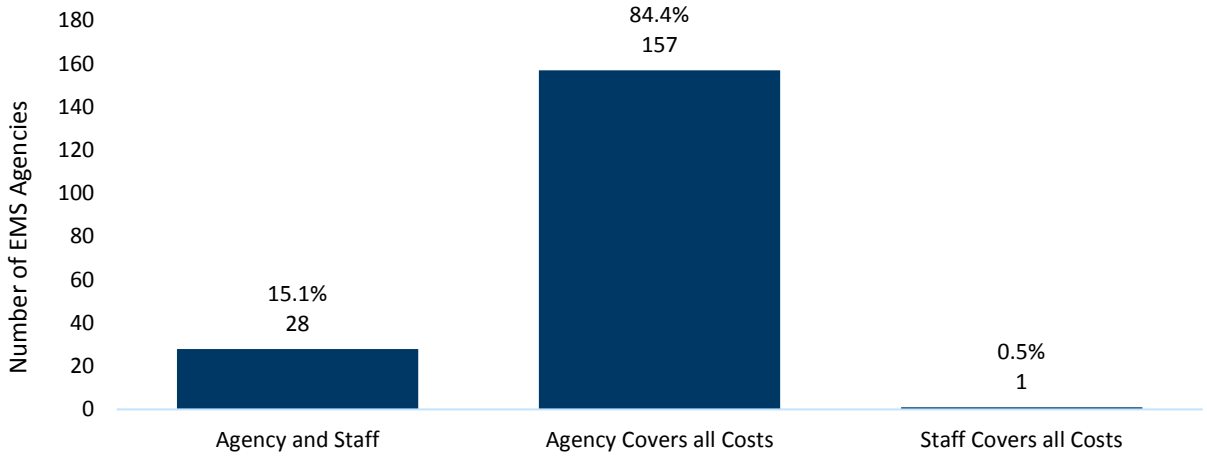


	Mid-2am	2am - 4am	4am - 6am	6am - 8am	8am - 10am	10am - noon	noon - 2pm	2pm - 4pm	4pm - 6pm	6pm - 8pm	8pm - 10pm	10pm - Mid
Weekdays	10.8%	10.8%	22.0%	44.6%	48.9%	48.4%	49.7%	49.5%	40.3%	11.8%	8.1%	8.1%
Weekends	38.2%	38.2%	38.7%	40.9%	44.6%	45.7%	46.0%	45.7%	44.1%	45.7%	45.2%	42.5%
Holidays	32.3%	32.3%	33.3%	35.0%	36.0%	37.4%	37.6%	37.6%	36.0%	33.9%	34.4%	31.7%

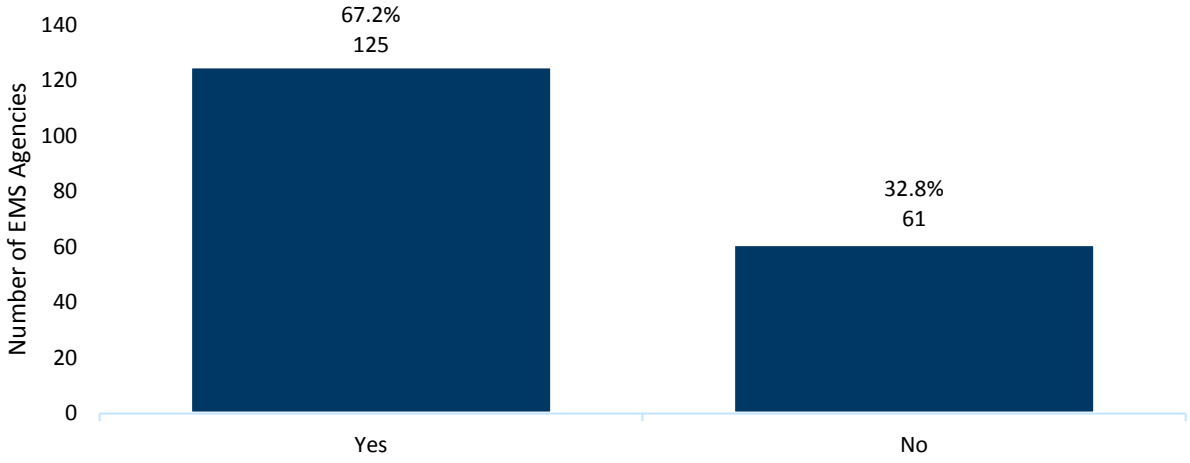
Respondents were asked to check all answers that applied. Because there were multiple answers per question, the percentages do not sum to 100%.

Education, Certification and Recertification

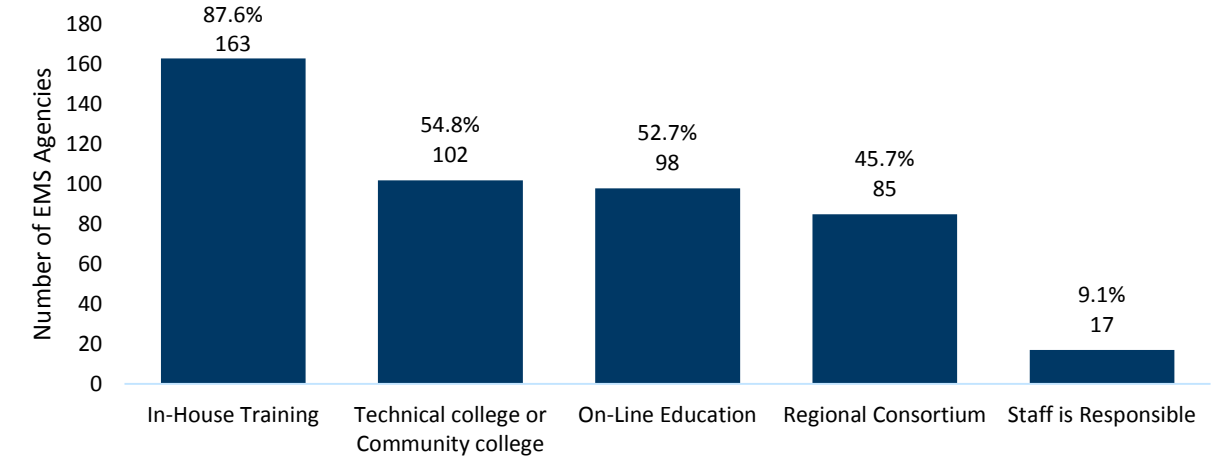
Question 27. Does your agency cover the costs of continuing education for EMS staff?



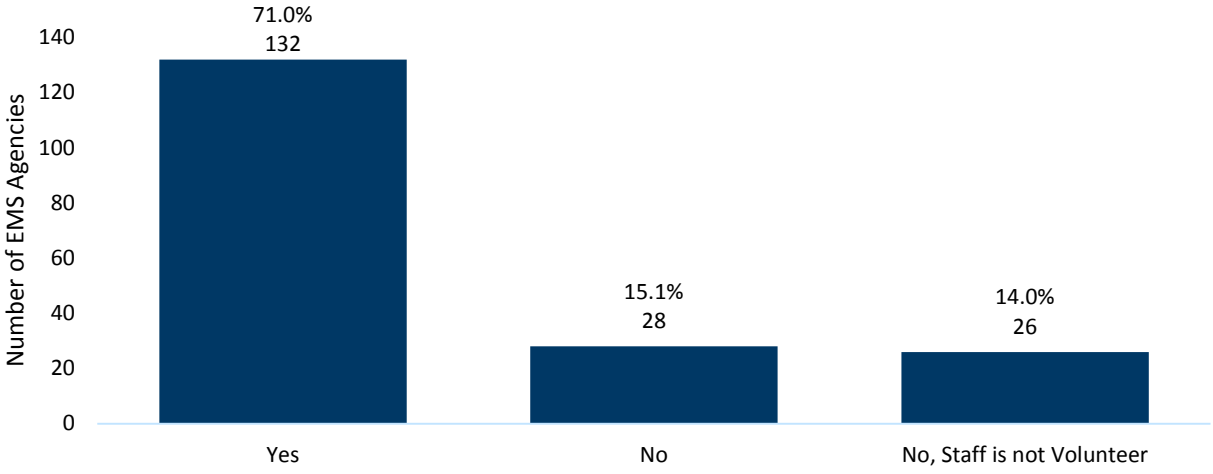
Question 28. Are staff members paid and/or receive incentives to attend training?



Question 29. What type of continuing education is used by your agency?

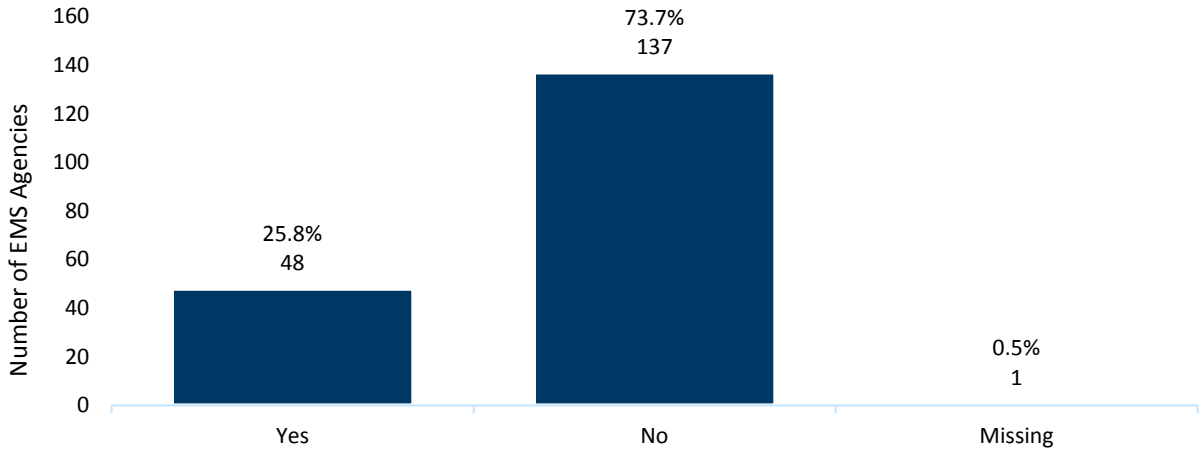


Question 30. Does your agency utilize the training reimbursement offered by the EMSRB?



Medical Direction

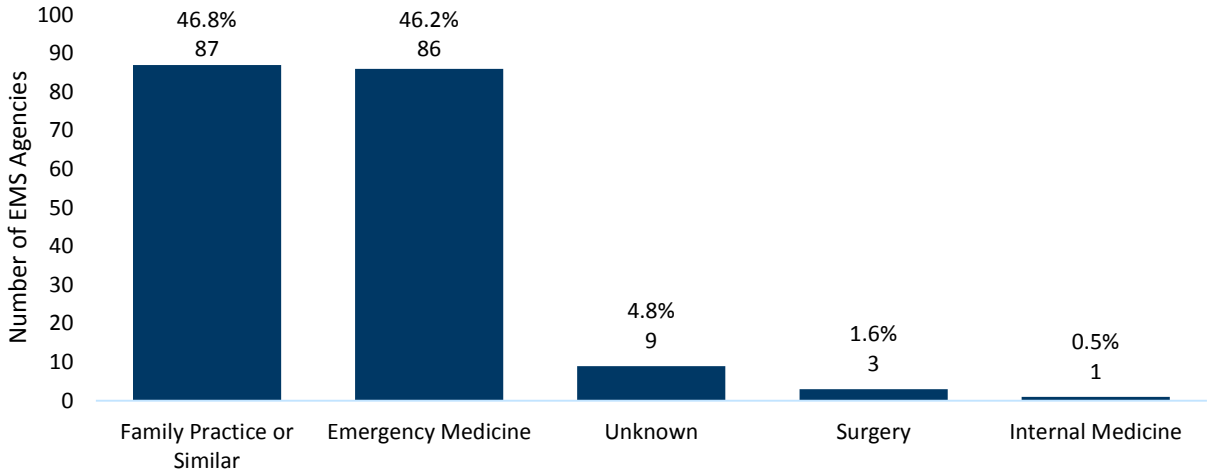
Question 31. Do you receive regional medical direction or participate in a consortium?



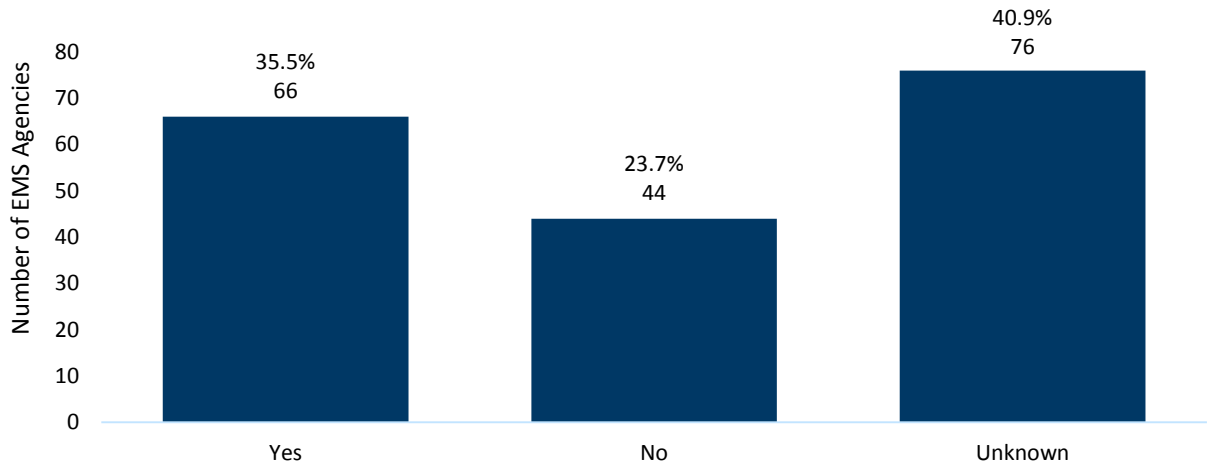
Question 32. Describe the benefits to your agency in participating in this model?

Benefits	Disadvantages
Consistent medical direction	Reduced communication with the medical director
No burden to recruit a medical director	Local physicians did not like the regional protocols
Consistent protocols and standing orders throughout the region	Protocols required the use of new equipment that the EMS agency didn't have or couldn't afford to purchase
Consistent training	Feeling that the consortium focused on the needs of the larger, city-based EMS services in their region and didn't provide the same level of support and awareness for the small agencies that were on the outer border of the region and not affiliated with the main hospital.
Flexible training offered at multiple locations and dates, staff could make-up training sessions easily at another location	Reduced communication with the medical director
Affordable and higher quality training than the individual agency could provide	Local physicians did not like the regional protocols
Completion of mandatory training in a timely manner	
Assistance with licensing paperwork	

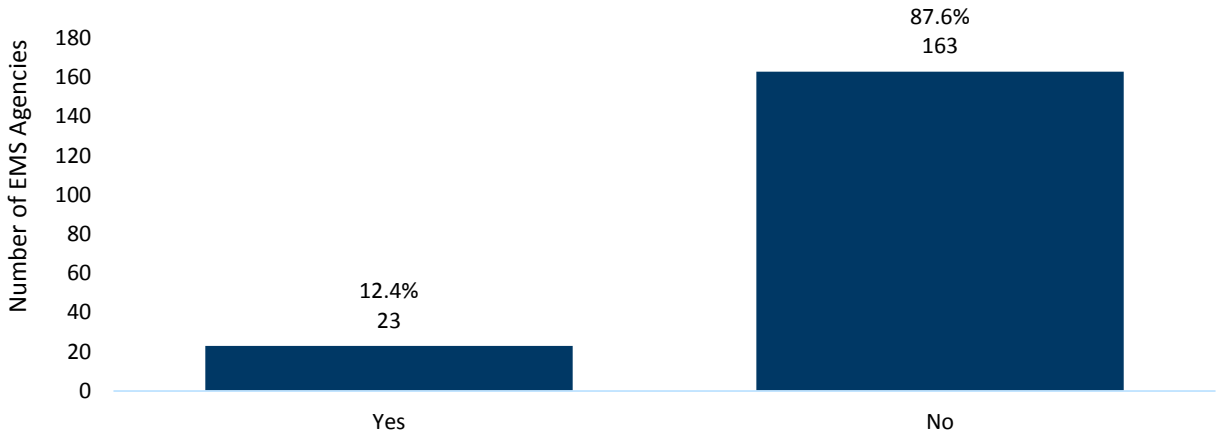
Question 33. What is the medical specialty of your medical director?



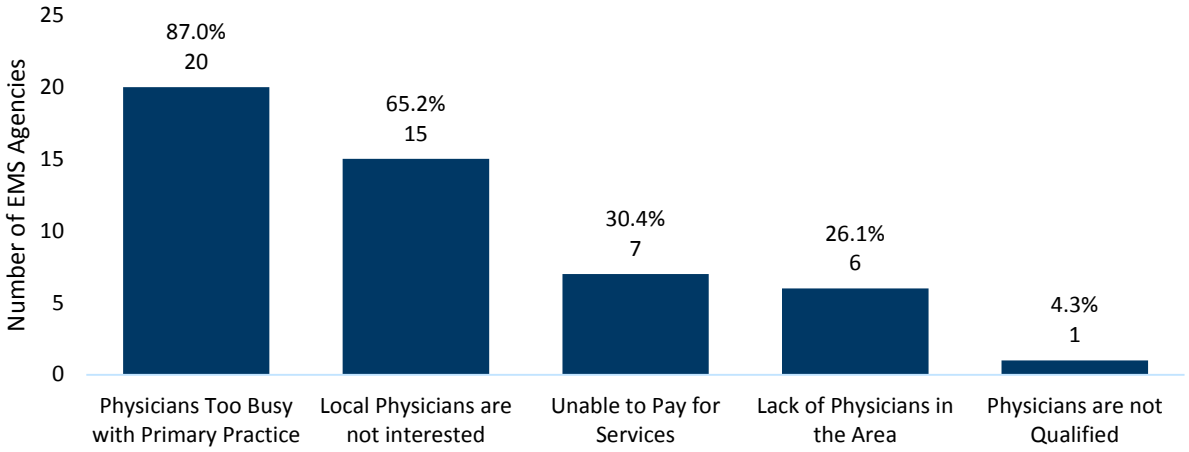
Question 34. Has your agency's medical director taken an EMS medical director training course?



Question 35. Does your agency have difficulty recruiting or retaining a medical director?

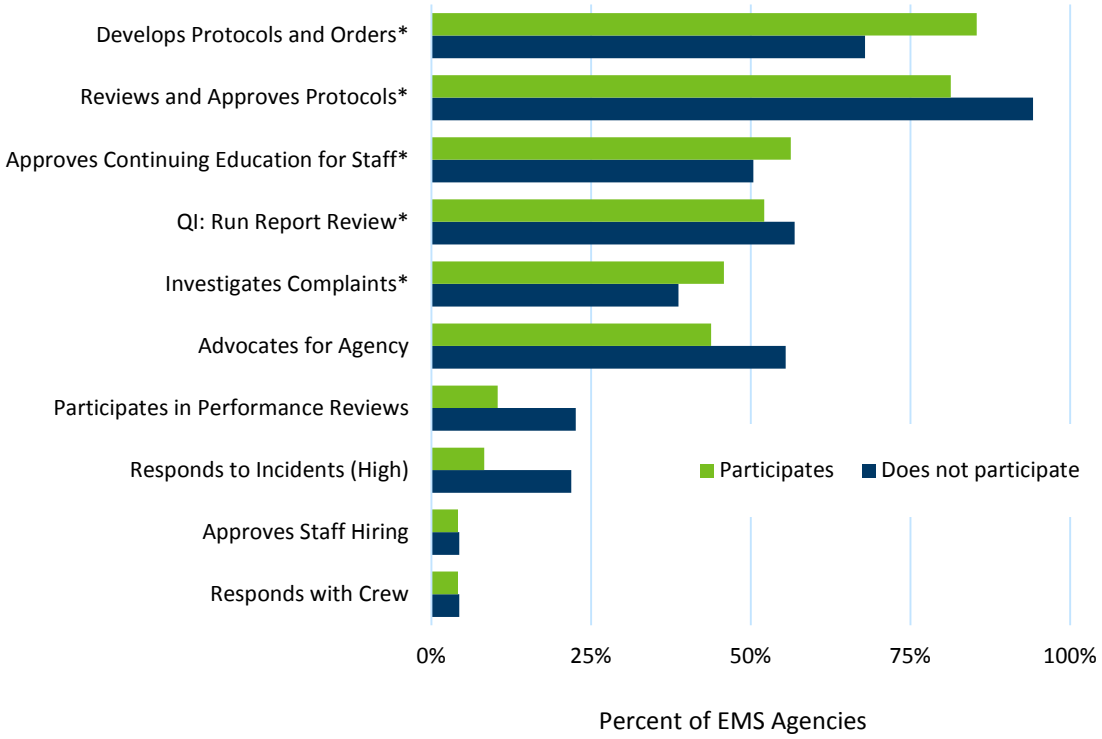


Question 36. What are the barriers to recruiting or retaining a medical director for your agency?*



**This question uses the 23 responses of 'yes' for Question 35 – Does your agency have difficulty recruiting or retaining a medical director – to calculate the percentages (denominator = 23). Respondents were asked to check all answers that applied. Because there were multiple answers per question, the percentages do not sum to 100%.*

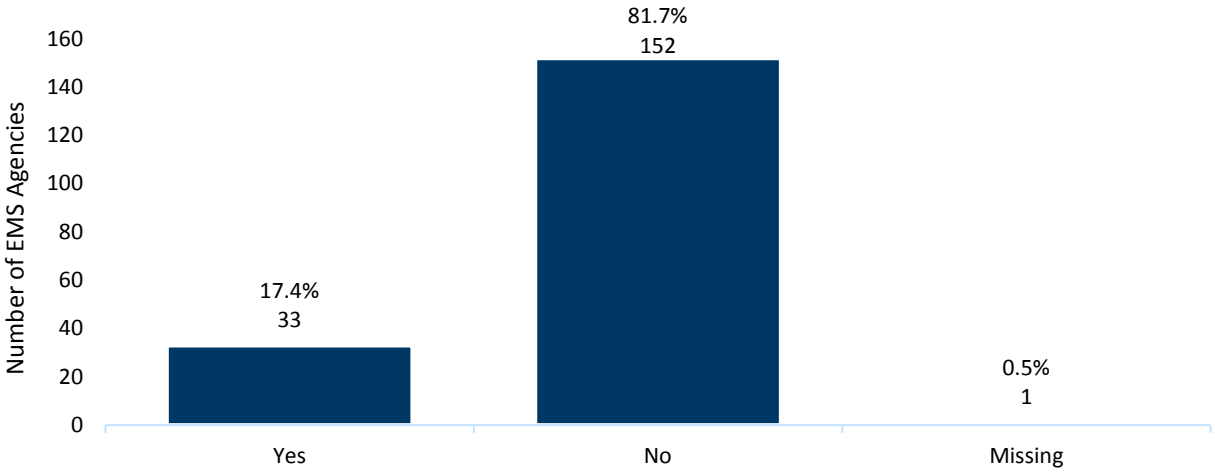
Question 37. Which services does your medical director provide for your agency?



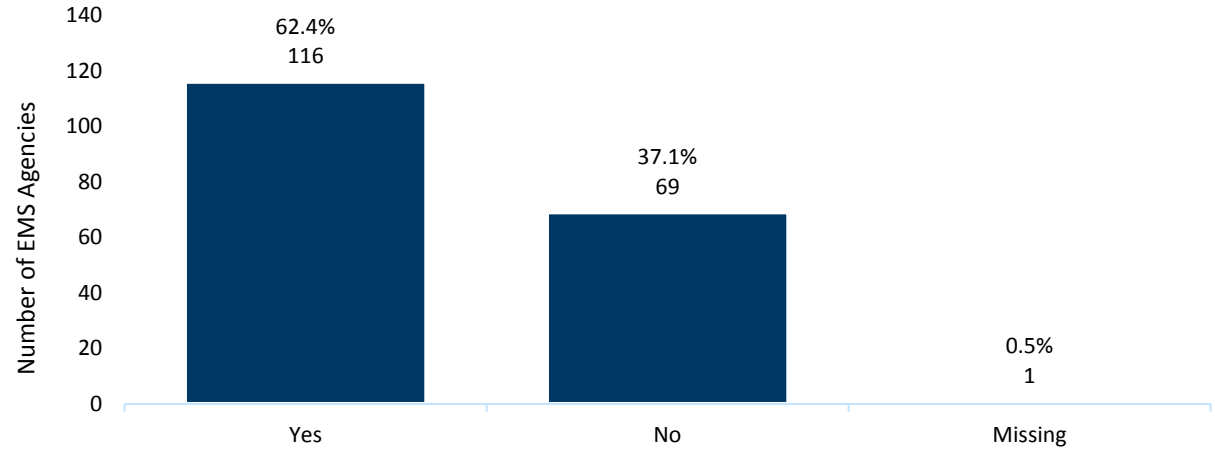
*Respondents were asked to check all answers that applied. Because there were multiple answers per question, the percentages do not sum to 100%. *Indicates duties that are required by a medical director per Minnesota statute 114E.265.*

Community Relations

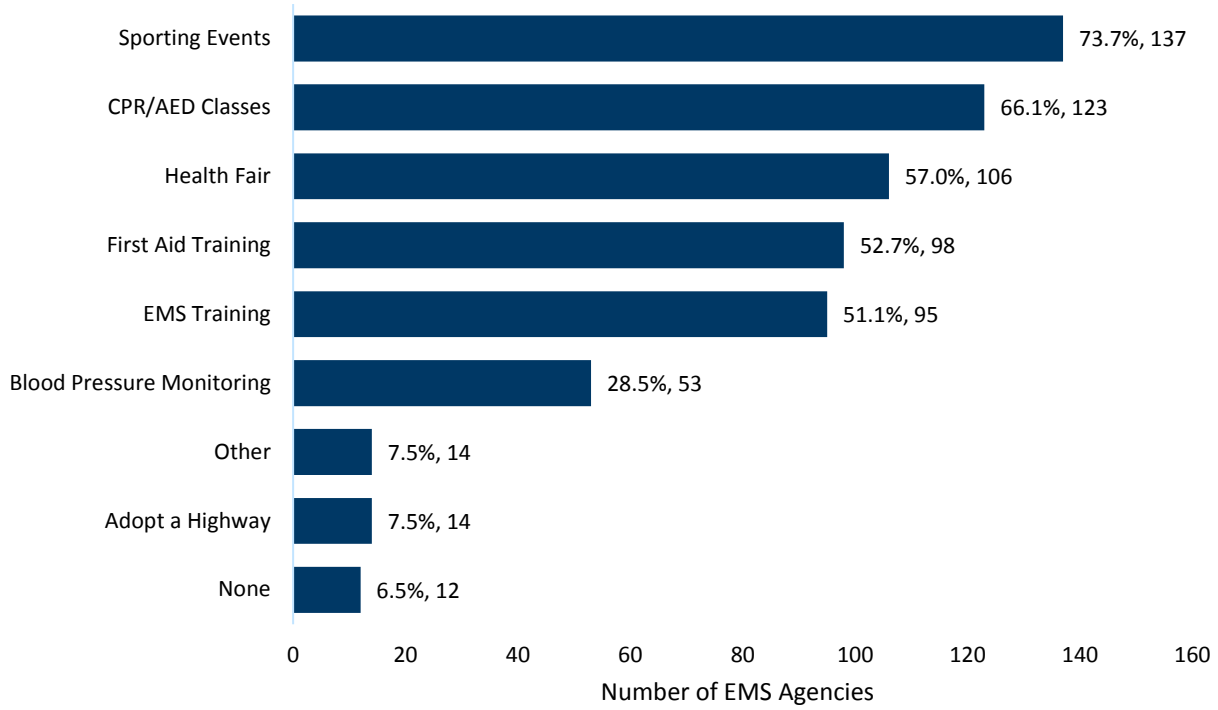
Question 38. Does your agency have a community advisory board?



Question 39. Is community support for your EMS agency the same as it is for other community public services? (police, fire or public utilities)



Question 40. Which of the following services does your EMS agency provide for your community?



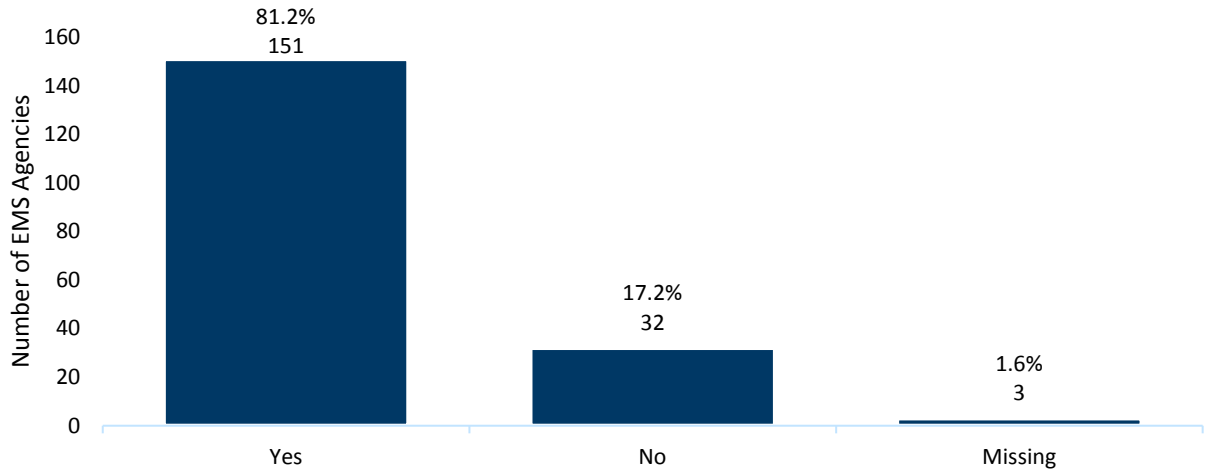
Respondents were asked to check all answers that applied. Because there were multiple answers per question, the percentages do not sum to 100%.

Additional responses given in the "other" category are:

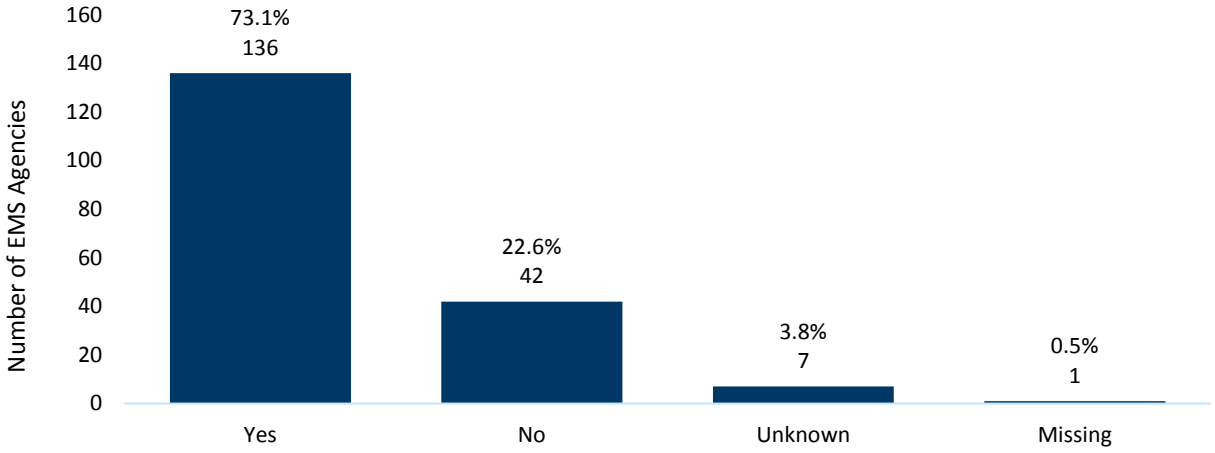
- AED placement and management
- Open house
- School career day and student visits
- Community safety program 'Kids on WHEELS'
- Elderly visits
- Mock crashes (e.g. Operation Prom)
- Toy drive
- Bike helmet sales
- Fund raisers
- Demonstrations and training for scout programs

Funding

Question 41. Does the EMS agency manager have a role in developing the budget?



Question 42. Is the budget adequate to meet the operational needs of the agency?

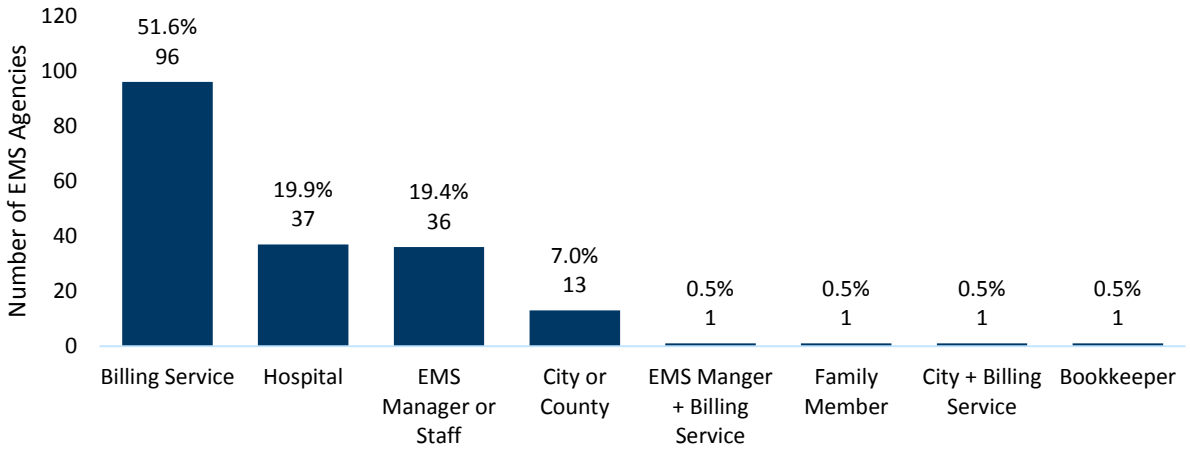


Question 43. If the budget is not adequate, which areas does the service struggle? (check all that apply)

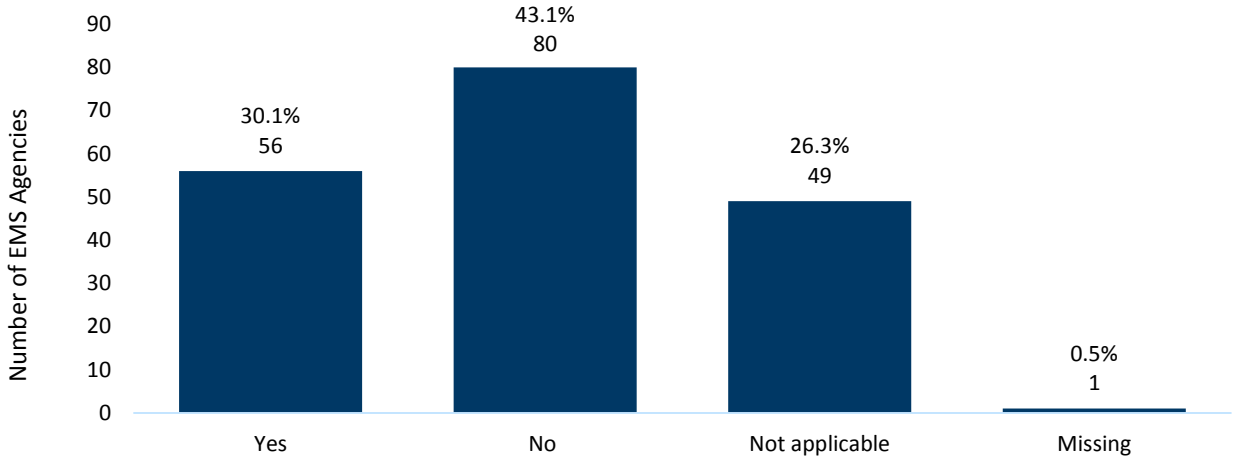
Most difficult areas for budget to cover	Number of Agencies	Percentage
Capital Expenses	37	88.1%
Staff Compensation	28	66.7%
Daily Expenses	13	31.0%

Respondents were asked to check all answers that applied. Because there were multiple answers per question, the percentages do not sum to 100%.

Question 44. Who prepares bills for service?



Question 45. Do your EMS agency have difficulty seeking donations from the community for large purchases?



Question 46. Does your EMS regional program assist with large purchases?