



Nebraska  
Center  
For  
Rural  
Health  
Research

## Emergency Medical Services of Nebraska Ambulance Services Needs Assessment

April 2010

Author:

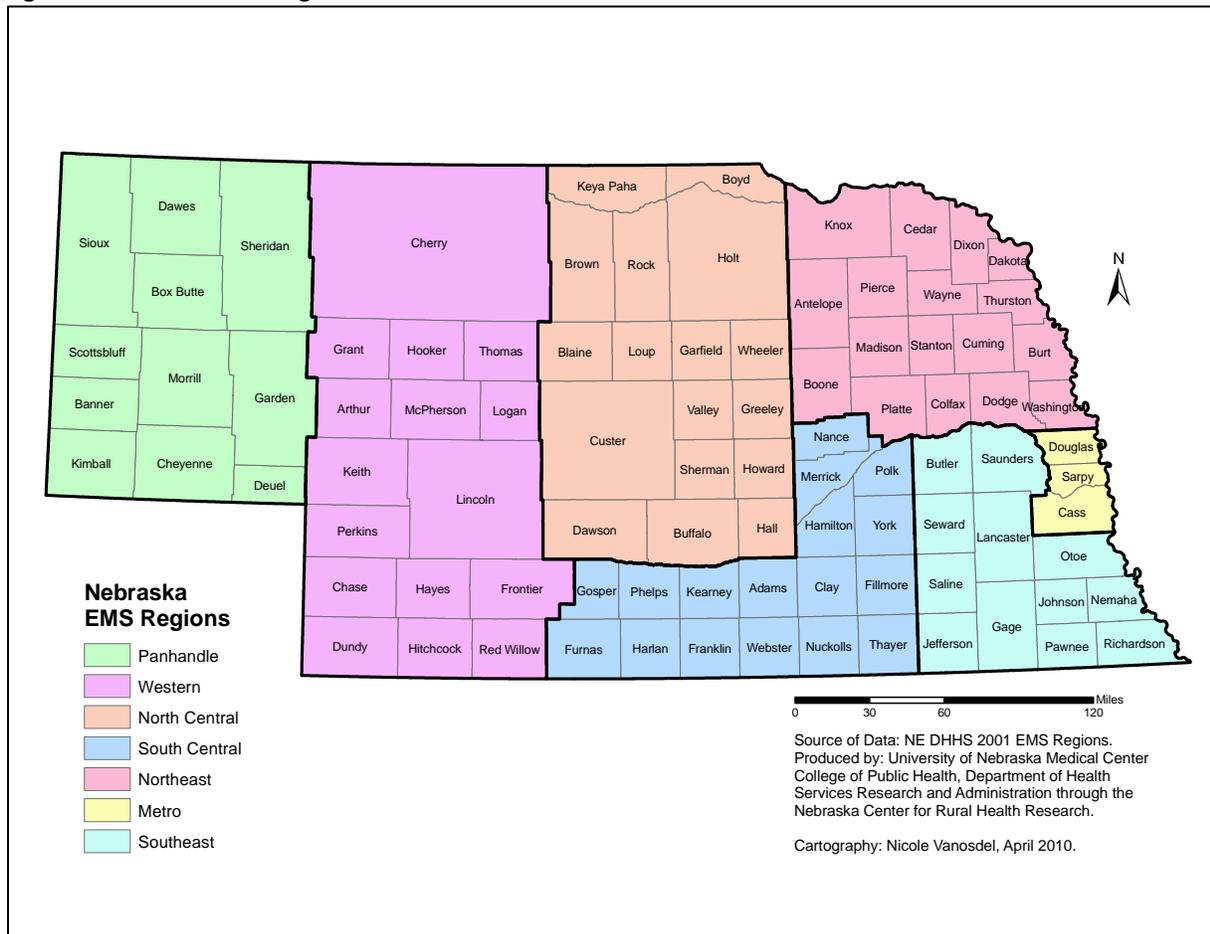
Michelle Mason, M.A.

Prepared for the Emergency Medical Services (EMS)/Trauma Program at the  
Nebraska Department of Health and Human Services.

## STUDY BACKGROUND:

These findings represent data collected via an on-line survey conducted by the Nebraska Emergency Medical Services (EMS)/Trauma Program between 2005 and 2006 of 421 EMS services in Nebraska. A total of 410 EMS services completed the on-line survey resulting in a 97% response rate. The Nebraska Center for Rural Health Research was contracted by the Nebraska Department of Health and Human Services to analyze these data and develop a comprehensive report accessible to the public. This report will be used by the Nebraska EMS/Trauma program and its stakeholders to identify areas of need/concern and to assist with future planning regarding EMS in Nebraska.

**Figure 1: Nebraska EMS Regions**



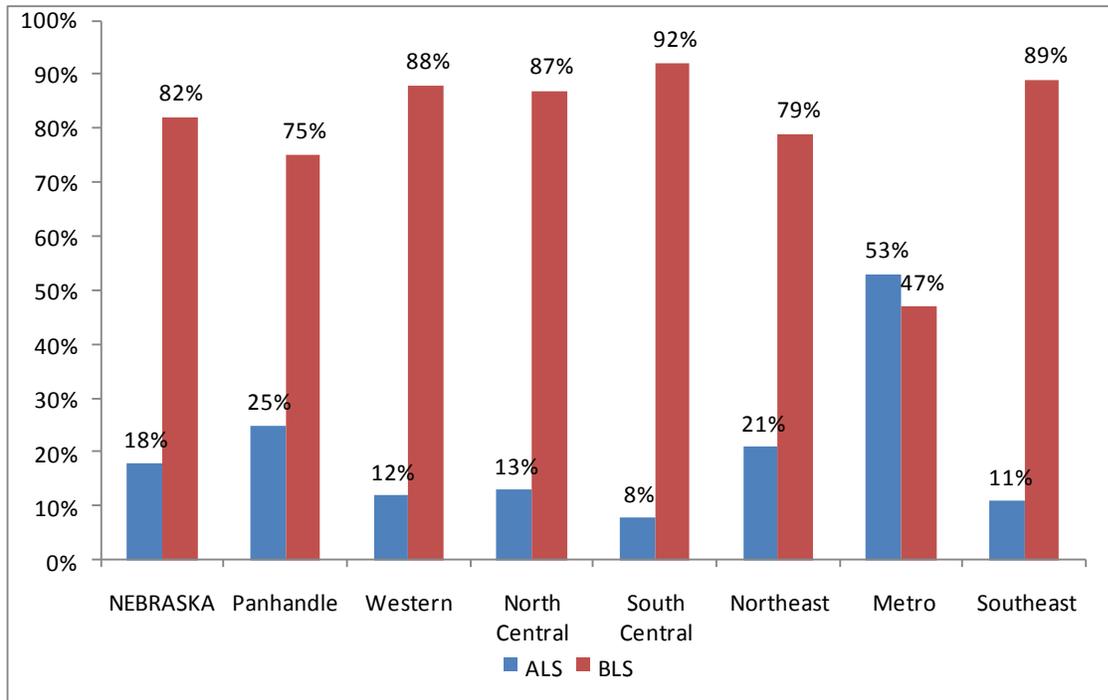
## STUDY FINDINGS:

### Service Background

Data obtained from 410 EMS services were analyzed by considering the entire state, and by considering each of the seven EMS regions of the state. Of the 410 services that responded to the survey, 73 (18%) were advanced life support (ALS) services while 337 (82%) were basic life support (BLS) services (as shown in Figure 2). The Metro region was the only EMS Region with more ALS services (53%) than BLS

services (47%). For all other regions (and for the state overall) ALS services made up a quarter or less of the EMS services.

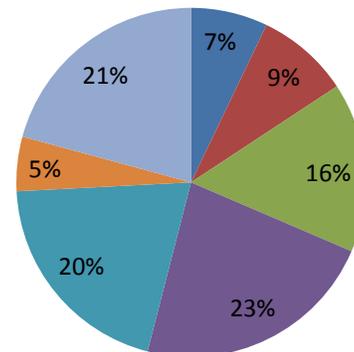
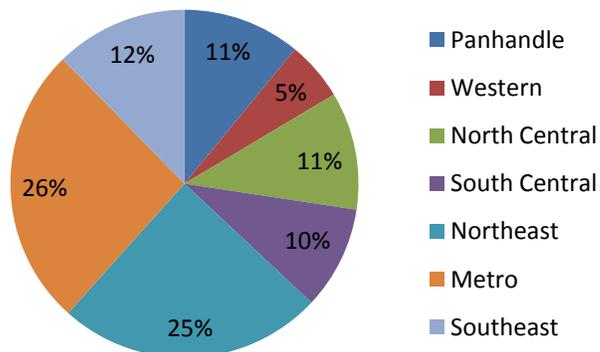
**Figure 2: EMS Services by Type – State and EMS Region Level (n=410)**



Of the responding ALS services, 51% were located within either the Northeast or Metro regions. The Western region had the fewest number of ALS services (5%) compared with the other six EMS regions in Nebraska (shown in Figure 3).

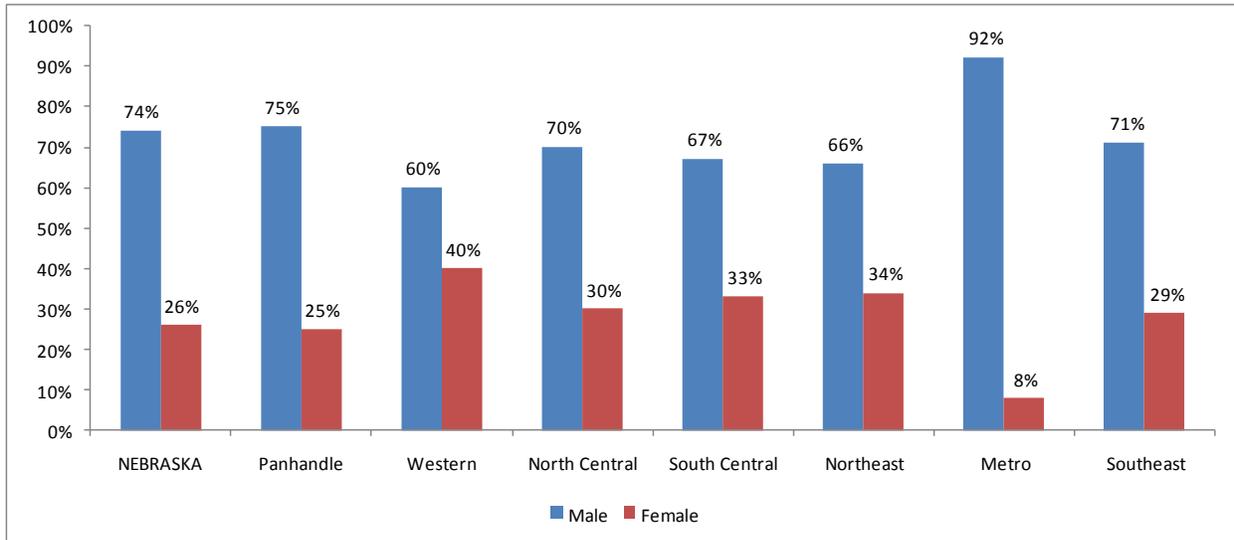
**Figure 3: ALS services by EMS Region (n = 73)**

**Figure 4: BLS services by EMS Region (n = 337)**



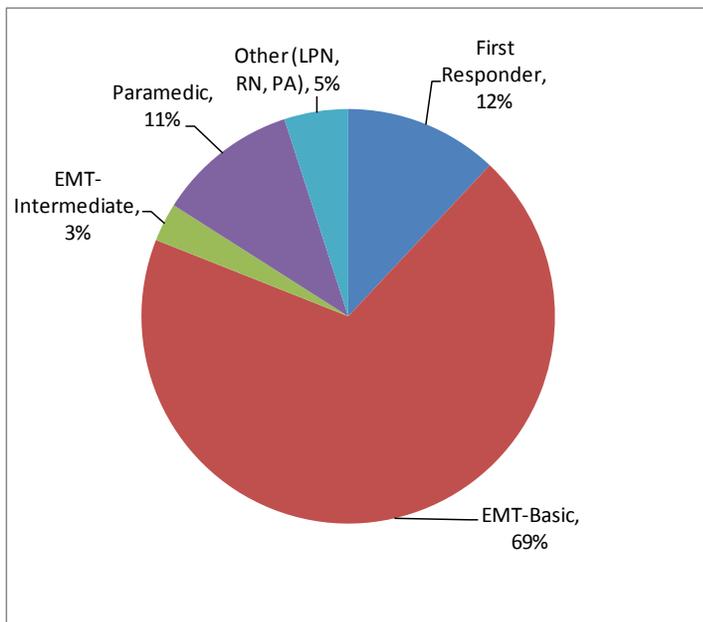
A total of 8,590 EMS professionals were reported by the responding EMS services. The majority of reported EMS professionals in Nebraska were men, who made up approximately 74% of the EMS workforce. This disproportionate representation between genders was most prominent within the Metro region where men accounted for 92% of the EMS workforce (shown in Figure 5).

**Figure 5: EMS Professional's Gender by EMS Region (n = 410)**



As shown in Figure 6, the majority of reported EMS professionals were Emergency Medical Technicians (EMT)-Basic, who made up 69% of the total EMS professionals reported. First Responders accounted for 12% of the professionals, while 11% were EMT-Paramedics, 3% were EMT-Intermediates, and 5% were other employees (i.e. Licensed Practical Nurse, Registered Nurse, Physician Assistant, etc.).

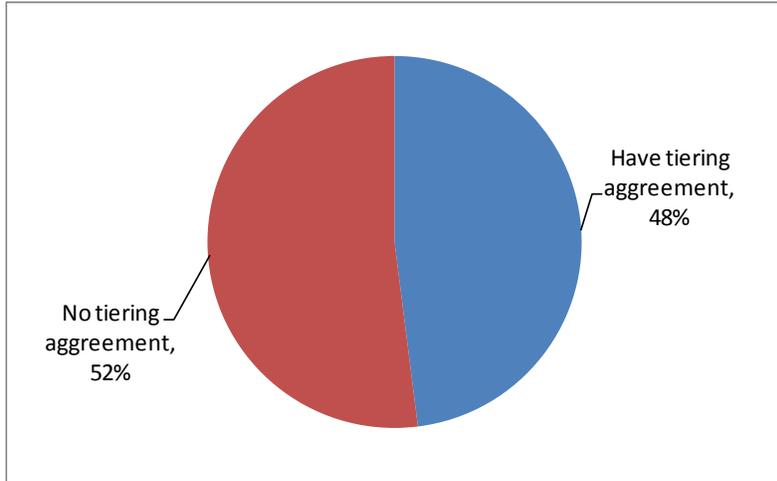
**Figure 6: Percentage of EMS Professionals by Type (n = 410)**



## EMS Transport

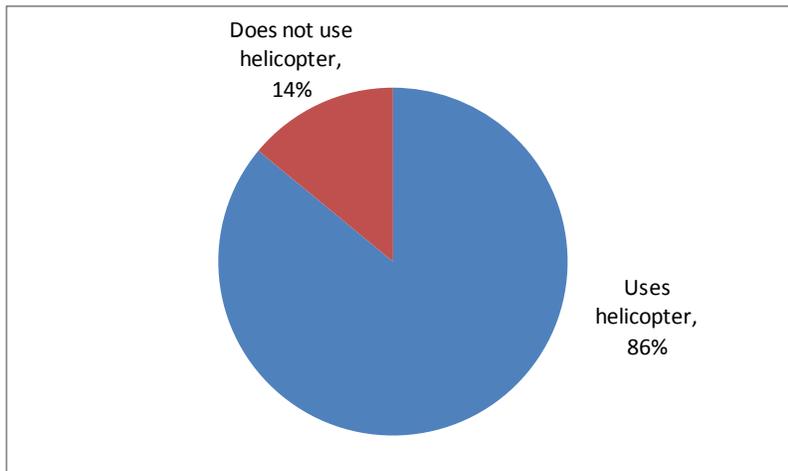
Slightly less than half (48%) of the responding BLS services reported having a tiering agreement with an ALS service (shown in Figure 7).

**Figure 7: Percentage of BLS services with ALS tiering agreement (n = 337)**



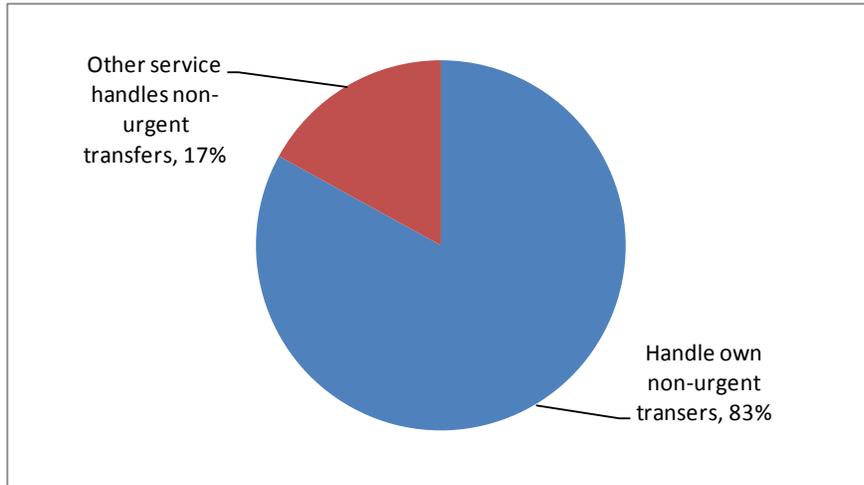
The majority of respondents (86%) reported that their EMS service utilized helicopter services for emergency transport (shown in Figure 8).

**Figure 8: Percentage of EMS services that utilize helicopter services for emergency transport (n = 410)**



Eighty-three percent of the 410 responding services reported that they handled their own non-urgent/inter-facility transfers (shown in Figure 9). Of the 70 EMS services that did not handle their own non-urgent/inter-facility transfers, 77% were BLS services.

**Figure 9: Percentage of EMS services that handle own non-urgent transfers (n = 410)**



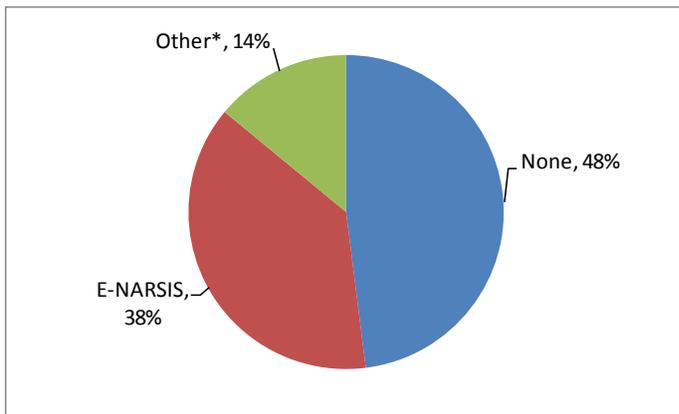
### Data Archiving and Communications

The majority of responding EMS services in Nebraska had a computer (71%). Of the services with a computer:

- 96% used some version of Microsoft Windows as their operating system,
- 51% used broadband to connect to the internet.

When asked which pre-hospital patient data collection software the service used, nearly half (47%) of respondents reported using no data collection software; 38% of the respondents reported that their service used e-NARSIS (which is the on-line form used to record run data) as their pre-hospital patient data collection software (shown in Figure 10).

**Figure 10: Pre-hospital Patient Data Collection Software Utilization (n = 291)**

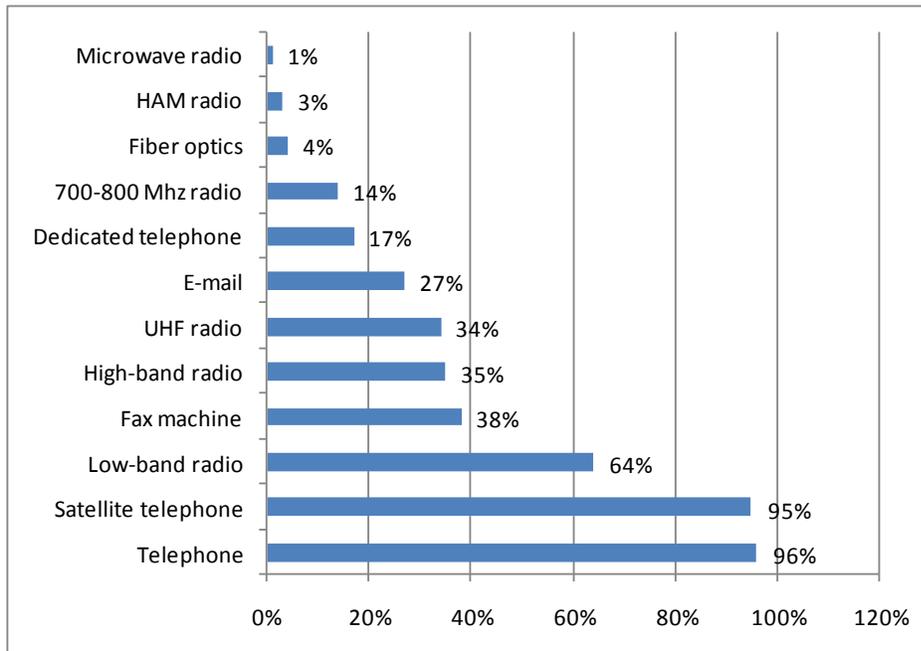


\*Other includes: Fire programs, Firehouse, PinPoint, Sun Pro, SweetSoft, and others (unspecified).

The majority of respondents (81%) reported that their ambulance service members used cellular telephones for communication. Slightly less than half of respondents (44%) reported that their ambulance service had a global positioning device (GPS) unit.

The responding EMS services most frequently identified telephones as an available means to communicate with the local hospitals. Over half of the services could also communicate with the hospitals by means of low-band radio (64%). Other methods of communication were less likely to be identified as an option (shown in Figure 11).

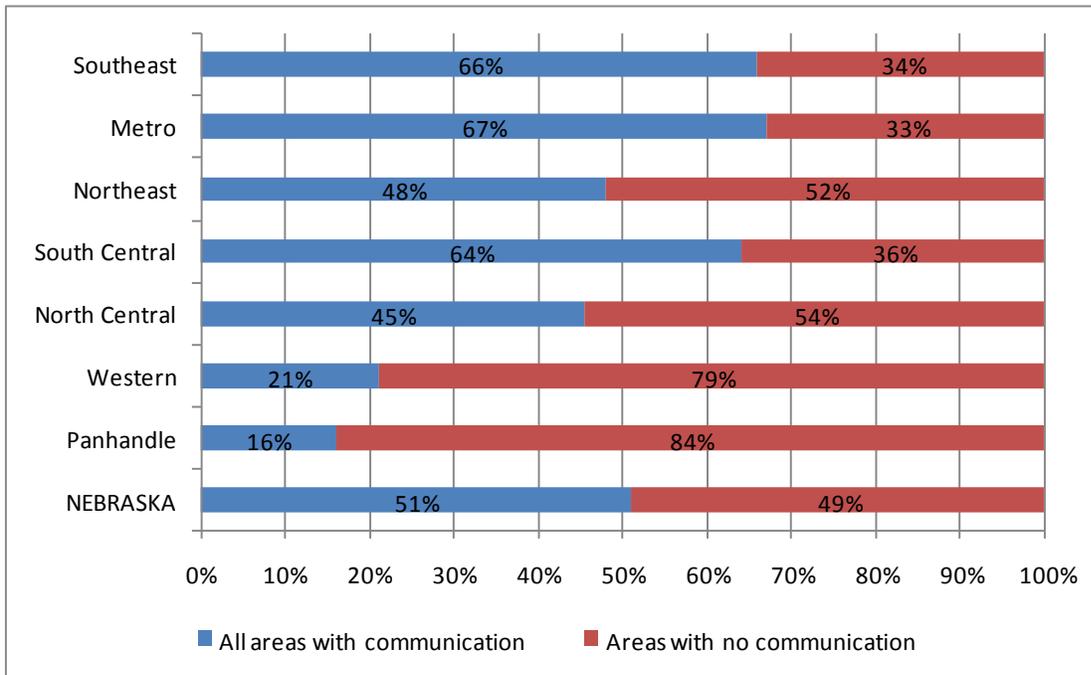
**Figure 11: Communication Methods Used to Communicate with Local Hospital/s (n = 410)**



Note: Respondents were able to select more than one item therefore percentages will total more than 100%

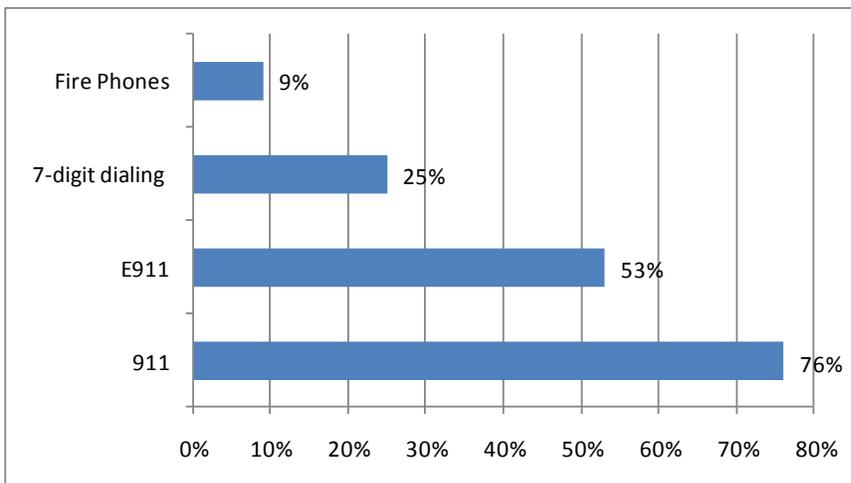
Nearly half of the respondents (49%) reported that there were geographic areas within their service's response area where no form of communication could be established. Respondents within the Panhandle and Western regions were most likely to report having areas with no communication capabilities (shown in Figure 12).

**Figure 12: Communication Difficulties by State and EMS Region (n = 410)**



When asked how people living in the service area request services for emergency care, 911 was indicated by 76% of responding services followed by E911 (53%), 7 digit dialing (25%), and fire phones (9%) (shown in Figure 13).

**Figure 13: Communication Method for Requesting EMS Services**



Note: Respondents were able to select more than one item therefore percentages will total more than 100%

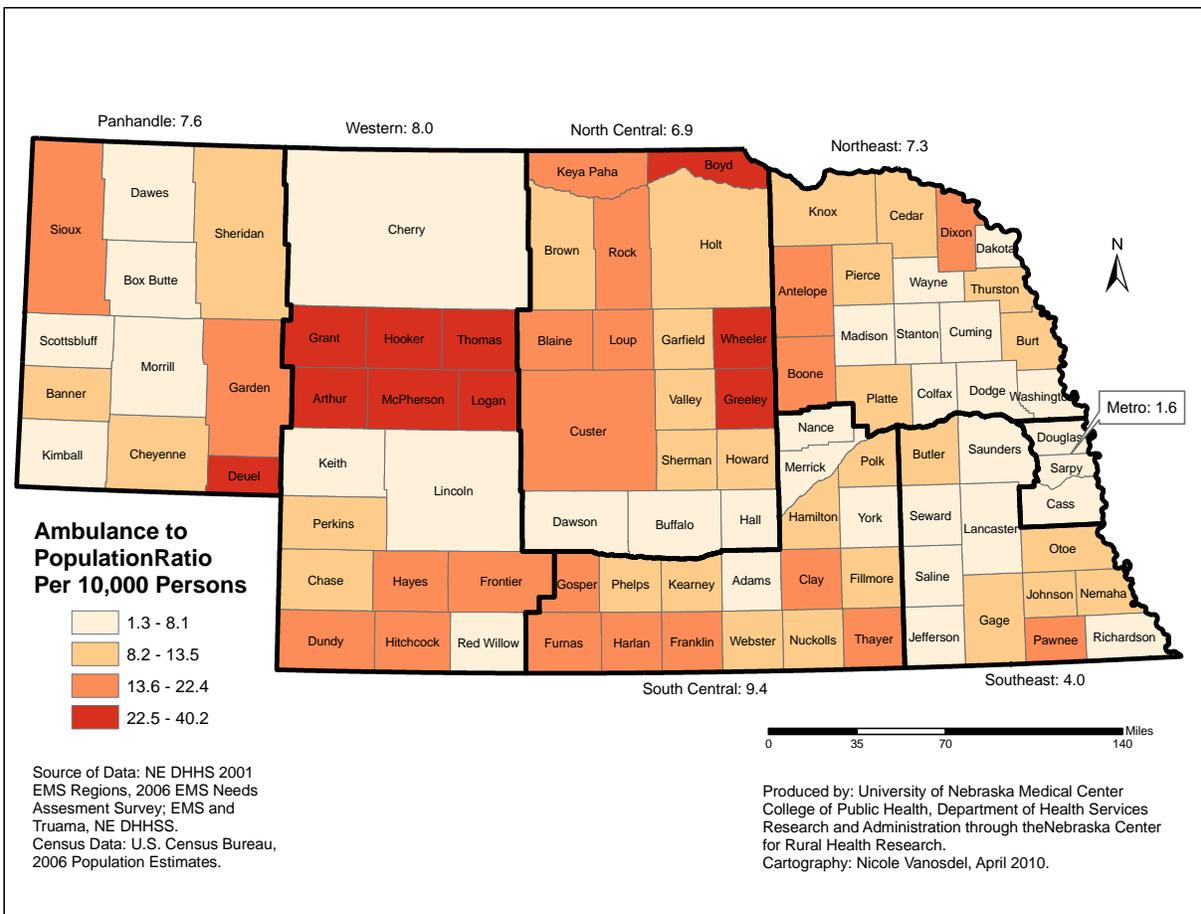
## Equipment

Of the 410 responding services, 97% (n=396) reported that their service had at least one response vehicle/ambulance while only 3% (n=14) reported having none.

There were approximately 815 response vehicles/ambulances reported by the 396 services with at least one response vehicle/ambulance; two-thirds of which belonged to BLS services. However, responding ALS services had an average of 4 response vehicles/ambulances per service whereas responding BLS services had an average of 2 response vehicles/ambulances per service.

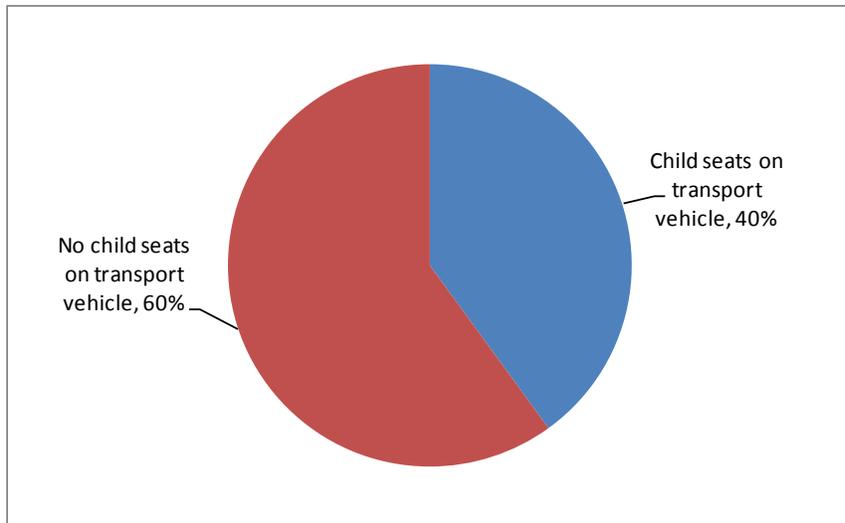
The South Central region had the highest ambulance-to-population ratio with approximately 9 response vehicles/ambulances per 10,000 population. The lowest ratio was found to be within the Metro region with 2 response vehicles/ambulance per 10,000 population. (shown in Figure 14)

**Figure 14: Ambulance-to-Population ratio per 10,000 Persons, by County and EMS Region**



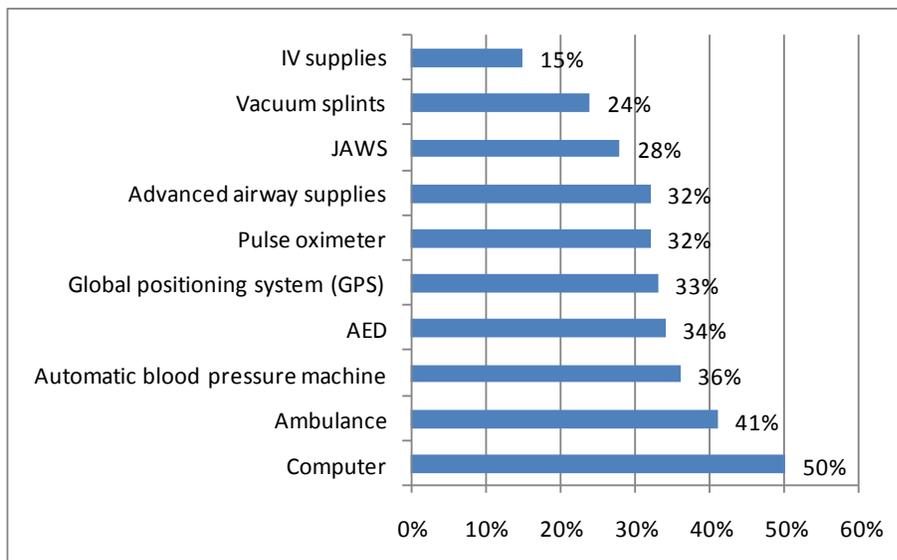
Of the 396 services with at least one response vehicle/ambulance, less than half (40%) reported having child seats available in the vehicle to transport children (shown in Figure 15).

**Figure 15: Percentage of EMS Services with Child Seats on Response Vehicle/Ambulance (n = 396)**



When asked for the level of need for particular pieces of equipment, 50% of responding services indicated a “very high” or “high” need for a computer. The item with lowest reported need was IV supplies (15%). A “very high” or “high” need for a response vehicle/ambulance was indicated by 41% of responding services (shown in Figure 16). Furthermore, among those indicating a “very high” or “high” need for an ambulance (n=170) 99% were reported to already have at least one response vehicle/ambulance, thus possibly indicating that their current ambulance is outdated.

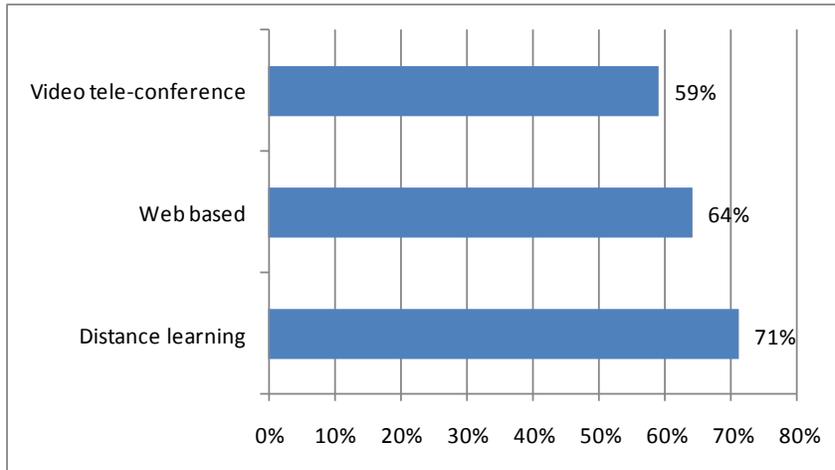
**Figure 16: Proportion of EMS Services indicating a “Very High” or “High” need for Equipment (n = 410)**



## Training

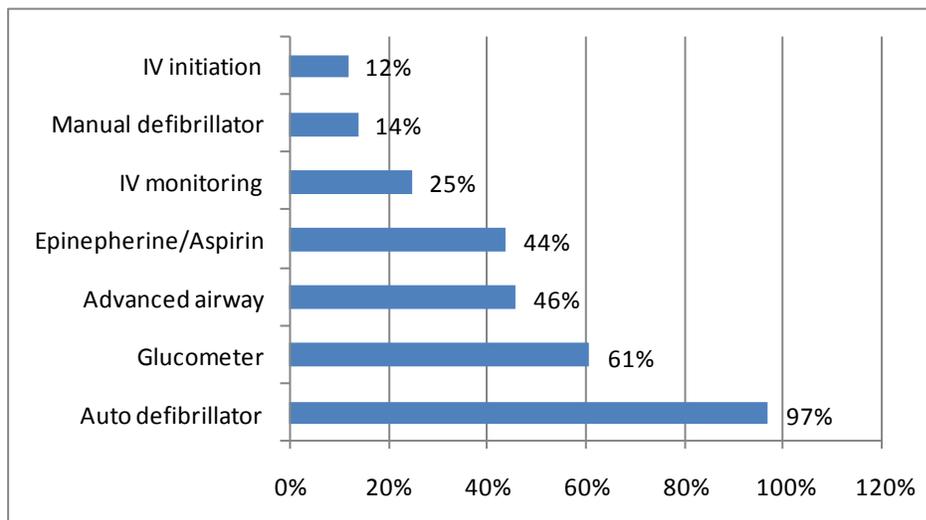
When asked which alternate methods of training respondents would suggest, the most supported alternate training method was distance learning which includes approved audio/visual materials such as videotapes and CD-RAMs (71%), followed by interactive web-based training (64%), and live video tele-conferencing (59%). Respondents were asked to offer suggestions for training methods other than the three listed above, the majority of these suggested methods involved training at a more local level (e.g. on-site, in-home, video) and did not require travel (shown in Figure 17).

**Figure 17: Percentage of EMS Services that Support Alternative Training Method (n = 410)**



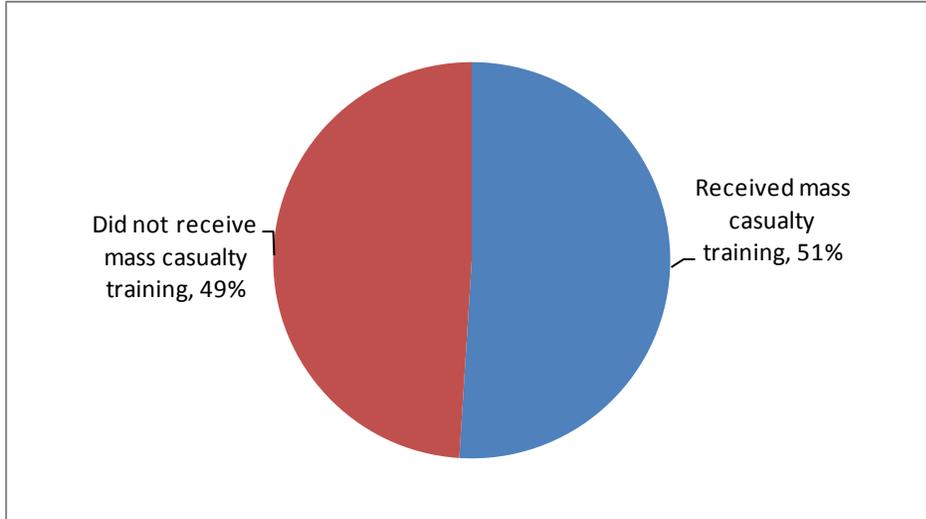
According to the responding EMS services, the majority of BLS members (i.e., First Responders and EMT-Basics) were reported to have been trained to operate an auto defibrillator (97%), followed by operation of a glucometer (61%). IV initiation/start was the skill for which the lowest percentage of BLS members were trained to perform (12%) (shown in Figure 18).

**Figure 18: Percentage of BLS Members Trained to Perform (n = 410)**



Half of the respondents (51%) reported that members of their service had received training in triage for mass casualty incidents [ex. Simple Triage and Rapid Treatment (START)] (shown in Figure 19).

**Figure 19: Percentage of EMS Services with Mass Casualty Training (n = 410)**

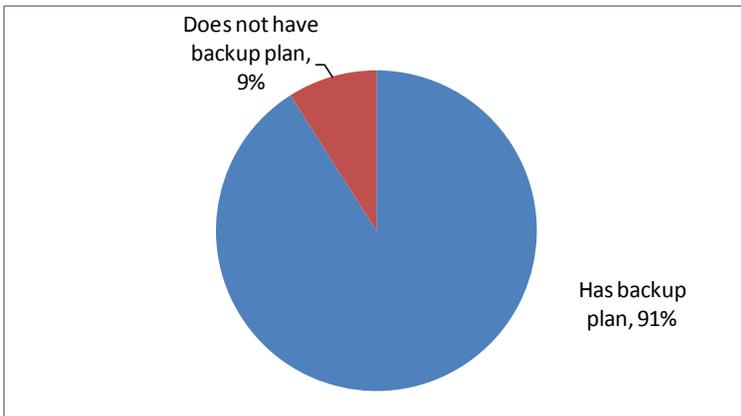


### Disaster Preparedness / Mass Casualty

Two-thirds of the responding services (66%) reported having been involved in the **planning** of a mass casualty incident exercise, while nearly three-fourths (73%) of the EMS services reported having had **participated** in a mass casualty incident exercise.

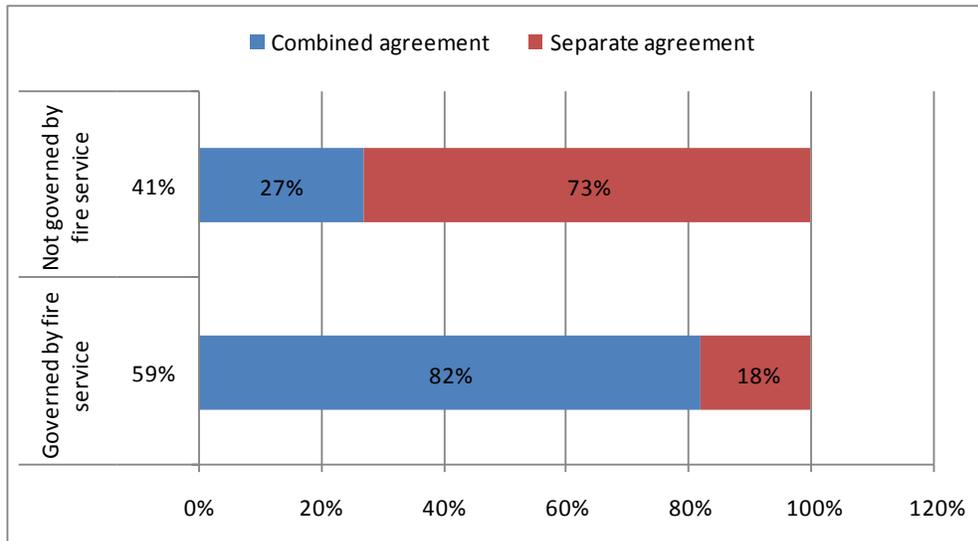
The majority of respondents (91%) reported that their service had an established back-up plan for times when the ambulance is out-of-service or there are no personnel available to respond (shown in Figure 20).

**Figure 20: Percentage of EMS Services with an EMS Backup Plan (n = 410)**



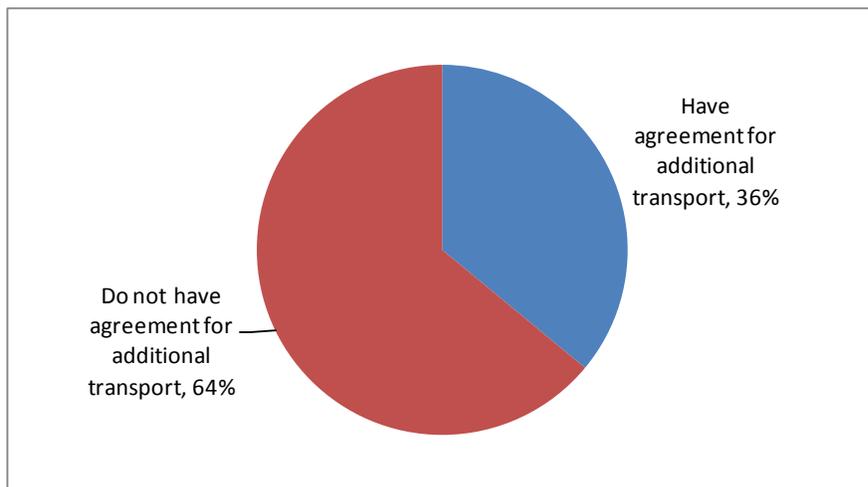
Approximately 59% of respondents reported that their ambulance service was under the governance of a fire service. Of the ambulance services governed by a fire service, approximately 82% reported the mutual aid agreement was written as one to include both fire and EMS (shown in Figure 21).

**Figure 21: Mutual Aid Agreement Status by EMS Governance (n = 410)**



Only 36% of respondents reported that their service had an agreement to use additional transport units in the event of a mass casualty (shown in Figure 22). Most often, these agreements were reported to be with the local school systems.

**Figure 22: Percentage of EMS Services with Agreement for Additional Transport (n = 410)**

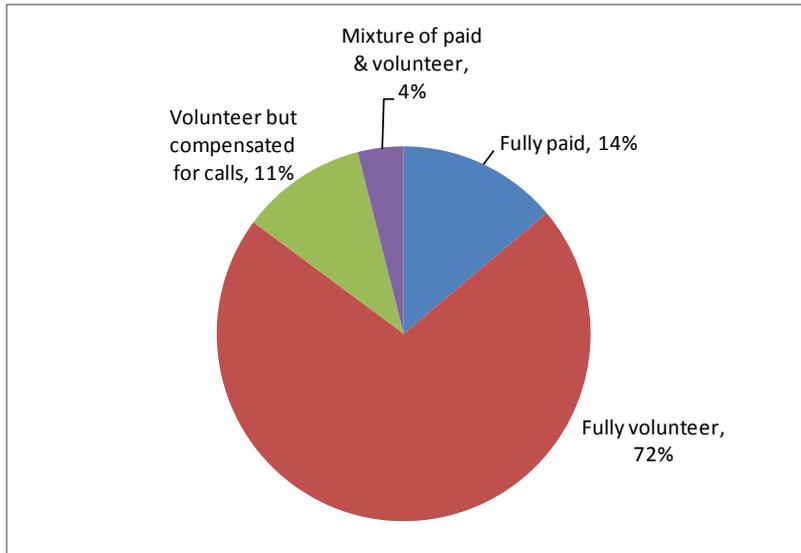


Respondents were asked to report the maximum number of seated patients and stretcher-borne patients their service could care for given their existing staff, supplies, and equipment. On average, the responding EMS services could care for 8.8 seated patients and 4.02 stretcher-borne patients

## Finance

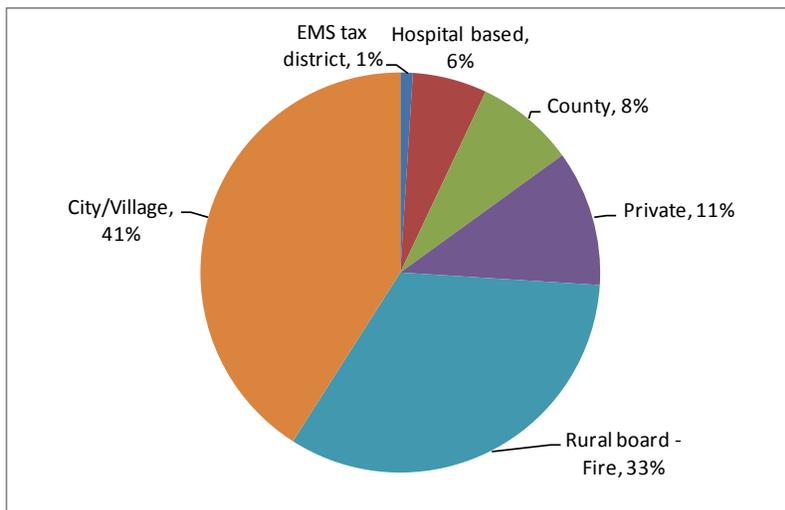
The majority of responding EMS services were fully volunteer services (72%), 11% were staffed by volunteers but received some compensation for emergency and/or inter-facility calls, 4% had a combination of paid and volunteer staff, and 14% had a fully paid staff in which all members were paid hourly or on salary (shown in Figure 23). In addition, 61% of the *fully paid* services were ALS services while 92% of the *fully volunteer* services were BLS services.

**Figure 23: Distribution of EMS Services by Staff Type (n = 410)**



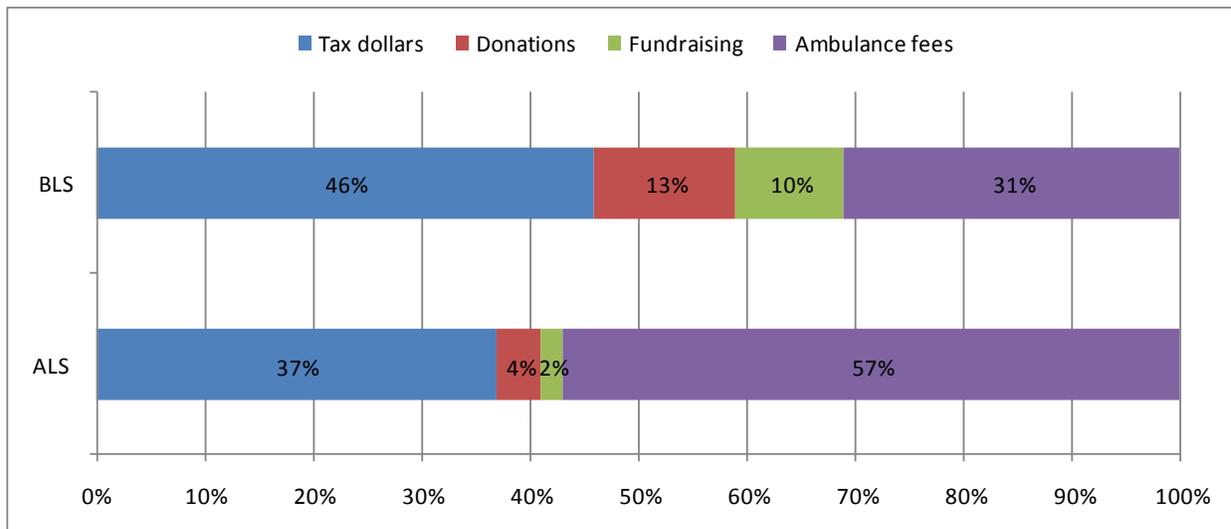
Forty-one percent of the responding EMS services were governed by the city/village in which they are located; one-third were governed by the rural fire board; 11% were privately owned, 8% were governed by the county in which they are located, 6% were hospital based, and 1% were governed by their EMS tax district (shown in Figure 24).

**Figure 24: Distribution of EMS Services by Governing Body (n = 410)**



When asked what percentage of the service’s budget was received from tax dollars, donations, fundraising, and ambulance fees, BLS services most commonly reported that the greatest percentage of their service’s budget was received from tax dollars (46%); while ALS services most commonly reported that the greatest percent of their service’s budget was received from ambulance fees (57%). ALS services received very little of their budget from donations and fundraising (averaging 4% and 2%, respectively), while BLS services received an average of 23% of their budget from these sources combined (shown in Figure 25).

**Figure 25: EMS Service Funding by EMS Service Level (n = 410)**



Over two-thirds of respondents (68%) reported that their service billed for the services it provides. Of the EMS services that did not bill for their services, 98% were BLS services (shown in Figure 26).

**Figure 26: Percentage of EMS Services by Billing Status (n = 410)**

