NORTH DAKOTA
DEPARTMENT *of* HEALTH

2009

Emergency Medical Services Data Report

North Dakota Department of Health
Division of Emergency Medical Services and Trauma

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North Dakota State Online Ambulance Reporting

History of Data Collection

Every licensed ambulance is required to submit data. N.D.A.C § 33-11-01.2-10.5 requires that all ambulance runs must be reported to the North Dakota Department of Health, Division of Emergency Medical Services and Trauma (DEMST), in the manner and form determined by DEMST.

The North Dakota Department of Health has collected ambulance information since the 1970s. Early in the program, paper copies of trip tickets were received from the various agencies, and a full-time employee at the Department of Health compiled the information. In the early 1990s, the Division of Emergency Health Services started scanning the trip tickets using a software package called EMScan. In July 2004, the DEMST entered into a partnership with Med-Media to have online data submission. Ambulances were given one year to transition from submitting paper trip tickets to online data submission.

North Dakota has been part of the national movement for pre-hospital data since the 1970s. The DEMST continues to stay closely aligned with the national dataset set forth by the National Highway Traffic Safety Administration in the National Emergency Medical Services Information System data standard. In 2007, the DEMST worked with Med-Media to transition the Statewide Online Ambulance Reporting (SOAR) system data set to NEMSIS Silver + Compliance. North Dakota was one of the first 10 states in the nation to submit data to NEMSIS.

Data Quality Issues

In North Dakota, it is estimated that volunteers compose around 90 percent of ambulance staffing. A problem with volunteer-based emergency medical services (EMS) is a heavy turnover rate, especially in ambulance managers. Also, ambulance volunteers have dedicated a large amount of time to serve their communities. Data input is perceived as another task that will require more volunteer time, taking volunteers out of the field and putting them into an administrative role.

With overtaxed volunteers, a number of ambulance services use billing companies for reimbursement. Approximately 44 percent of North Dakota ambulance services use their respective billing company for data entry to the state system, as well. Outsourcing of data entry can cause a number of concerns with accuracy and validity of data.

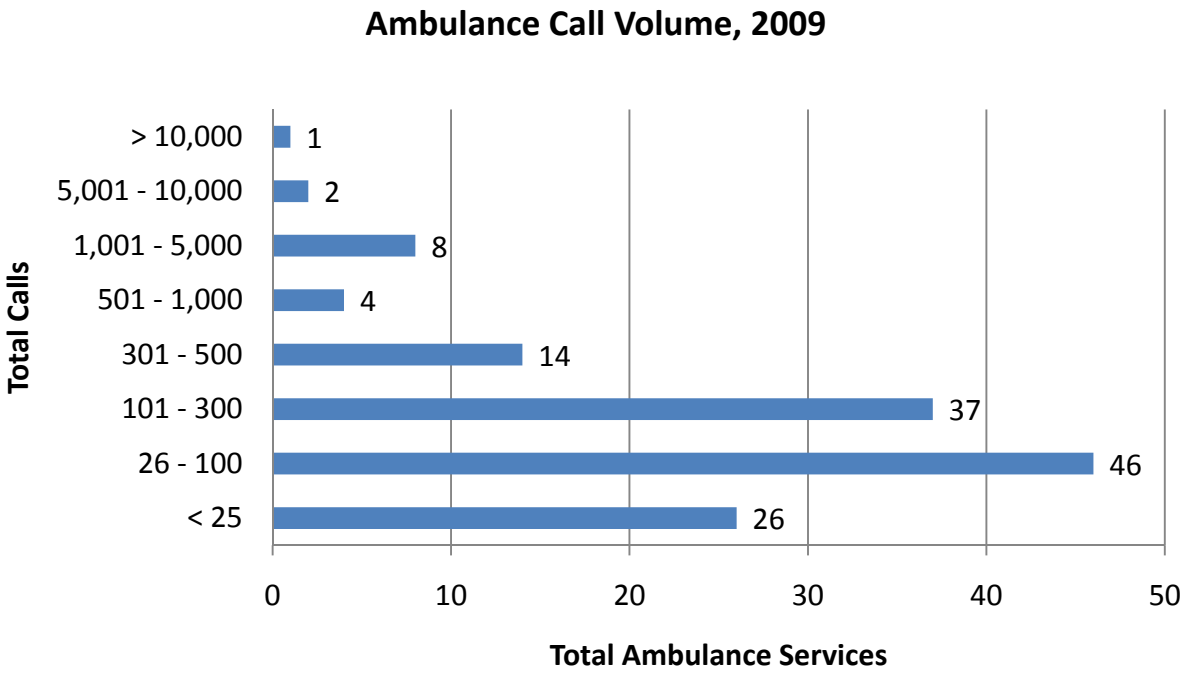
Another data concern is a lack of training. Providers who enter data may not have received any training in the software or proper coding. With the DEMST hiring a research analyst, regional data reports and training were given at regional EMS conferences.

The largest data threat currently is that two of the busiest ambulances have not transitioned to a NEMSIS export; therefore, a number of elements come across as not reporting.

SOAR data would benefit greatly from medical director quality improvement and quality assurance (QI/QA). Like many resources in rural states, doctors are in high demand and overtaxed. QI/QA would benefit not only data, but the entire state EMS system.

State Ambulance Data

In 2009, North Dakota EMS providers responded to 61,258 calls. Of those, 90 percent completed all the elements necessary to the state in their patient care reports. The completion average fell 7 percent from the previous year. The decrease in completion rates could be due to the changes in the system in order to be fully NEMSIS Silver compliant. The reports include cancelled and refused transport. Goodrich was the only North Dakota-based ambulance not to report any calls for the year 2009.

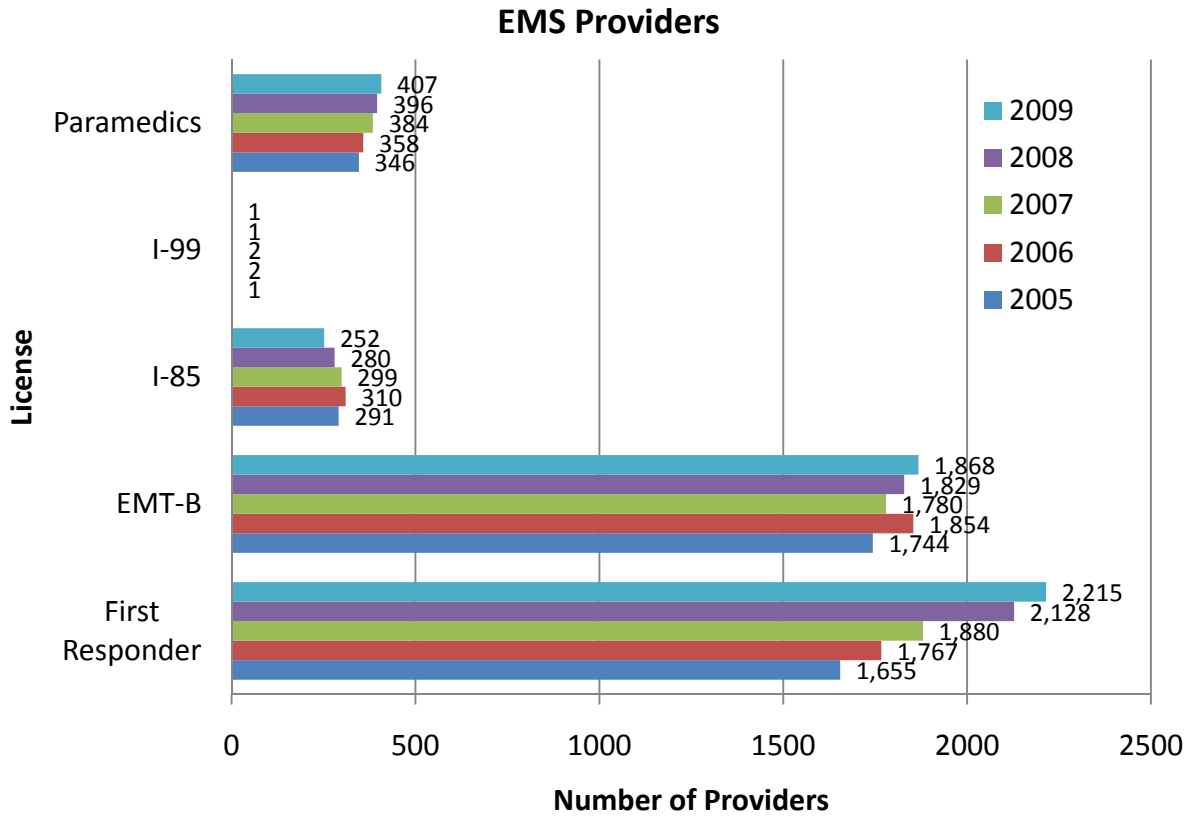


Currently, North Dakota has 147 licensed ambulances. The DEMST collects data from the lead ambulance (not substations) and advanced life support (ALS) first responders. Seventy-two ambulance services reported 100 or fewer ambulance calls per year. DEMST estimates that an ambulance service must do at least 400 ambulance calls per year to be financially self-sustaining through the billing process. Four hundred ambulance calls per year would allow the ambulance to generate enough revenue to have a combination of volunteers and minimally paid staff. Twenty of North Dakota's ambulances reported 400 or more calls.

The 10 busiest ambulance services in North Dakota provided service for more than 70 percent of all ambulance calls for the last year. F-M Ambulance responded to more than 11,500 calls. These numbers have remained fairly static between last year and this year.

Above – F-M Ambulance, Fargo, N.D.

Right – Altru Ambulance, Grand Forks, N.D.



Over the past three years, the numbers of EMS providers has shown modest growth. An increase in first responders by 34 percent is very likely due to a training grant opportunity that began in 2005. The number of paramedics has increased by 18 percent in the last four years, most likely due to more employment opportunities and a workforce shortage. However, these numbers may not correlate to people actually working for an EMS agency. In North Dakota, an EMS provider may be certified or licensed and may never actually work in the field for an ambulance service.

The initial course requirements are as follows: first responder – 40 hours; EMT-basic – 120 hours; intermediate – more than 120 hours; and paramedic – 1,200 hours. To recertify, the following refresher hours are needed: first responders – 16 hours; EMT-B – 24 hours; intermediate – 36 hours; and paramedic – 48 hours. First responders do not need continuing education to recertify. Continuing education is required as follows: EMT-B – 48 hours; intermediate – 36 hours; and paramedic – 24 hours. With the new education standards, the initial courses will be changing to competency-based rather than time-based.

In January 2008, DEMST started to collect information about each responder's employment classification. According to state law, a volunteer is someone who earns less than $10,000 per year. On the application for state licensure, the individuals are asked whether they earn more or less than $10,000 per year as an EMT, intermediate or paramedic. In the future, the DEMST will be better able to determine what percentage of ambulance staff volunteers. Currently, 34 percent

have a paid status of unknown. Fifty-five percent are volunteers and 11 percent are paid. Individuals also were asked if they receive compensation for being an EMS provider. Currently, 20 percent have a status of unknown, 29 percent receive some form of compensation, and 51 percent receive no compensation for being an EMS provider.

The table to the right depicts the average response time for 911 calls only using the following time parameters: 911 dispatch times to scene arrival times.

	Average in Minutes	Input Error (> 60 minutes)	Input Error (= 0 minutes)	Input Error (Missing)
Frontier	11.57	365	215	647
Rural	10.91	63	1	20
Urban	7.32	437	205	2072

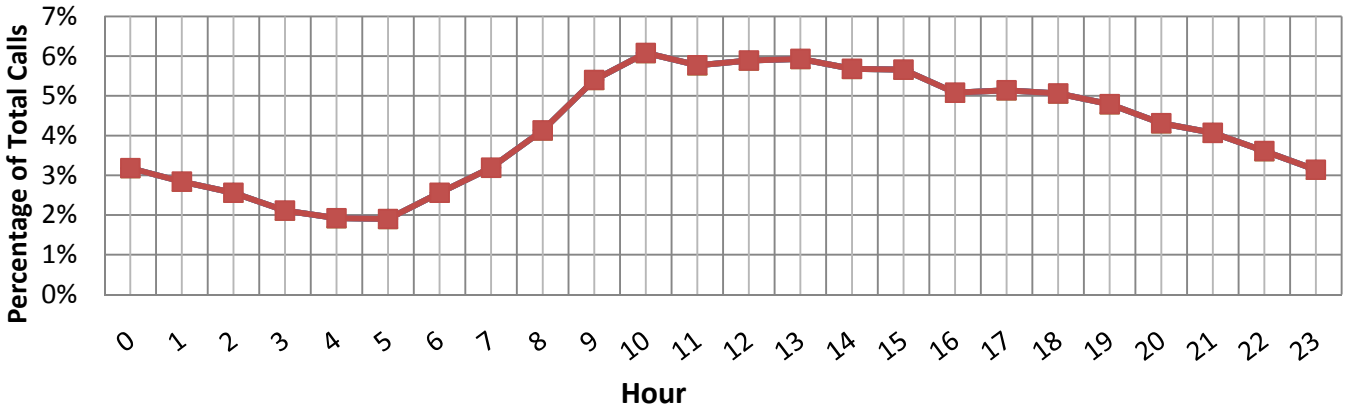
Urban services were taken from Fargo, Grand Forks, Bismarck/Mandan and Minot. Rural counties include Ward, Burleigh, Grand Forks, Cass, Williams, Stark, Mercer, Morton, Rolette, Ramsey, Walsh, Pembina, Traill, Stutsman, Barnes, Ransom and Richland. All other counties were classified as frontier. Counties were classified as frontier if the population is fewer than six people per square mile. Calls recorded with a greater than 60-minute or a zero-minute response time were assumed to be erroneous and excluded from the average.

Percentage of Calls by Day of the Week, 2009

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
12.94%	14.11%	14.13%	14.43%	14.80%	15.51%	14.08%

The call volume varies slightly throughout the week. Friday has the highest percentage of calls with 15.51 percent. This remained constant with last year's data report that stated 15.4 percent of calls were on Friday. Sunday has the lowest percentage of calls with 12.94 percent. Ambulance calls are slightly more frequent during midday and taper off throughout the afternoon and evening. Ambulance calls are least frequent during the early morning hours.

Percentage of Total Calls by Hour, (Graph) 2009

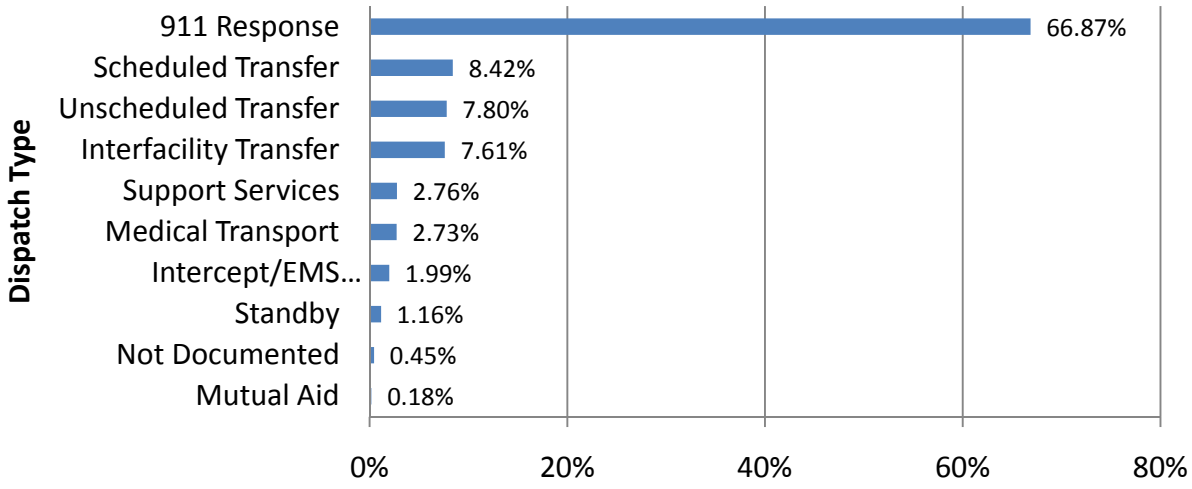


Percentage of Total Calls by Hour (Table), 2009

Hour	0	1	2	3	4	5	6	7	8	9	10	11
%	3.18%	2.84%	2.56%	2.11%	1.92%	1.90%	2.56%	3.19%	4.13%	5.40%	6.08%	5.77%
Hour	12	13	14	15	16	17	18	19	20	21	22	23
%	5.89%	5.93%	5.68%	5.66%	5.08%	5.14%	5.06%	4.79%	4.31%	4.07%	3.61%	3.14%

The data from 2009 is a combination of both NEMSIS compliant and noncompliant data as the transition was made statewide. One element where the options and context have changed is the nature of the incident. Before the NEMSIS conversion, services could choose from medical, trauma, inter-facility, patient transfer, emergency inter-facility, standby, fire, public service or hazmat. Now, type of service requested includes 911 response, intercept, inter-facility transfer, medical transport, mutual aid or standby.

Percentage of Total Calls, 2009



The largest percentage of dispatch complaints for the last year is coded as not provided. Two of the busiest ambulances do not have an export that works with the new NEMSIS complaint database. Therefore, the largest percentage of not provided is from those agencies, not because the information is missing, but because it is not translating over to the state database. Of the 61,258 calls in 2009, 38,644 or 64 percent were not provided. The next highest complaints are as follows: transfer, sick person, fall victim, traffic accident, breathing problem, chest pain and traumatic injury.

The table to the right shows a correlation of higher age with more frequent EMS use. Nearly 40 percent of ambulance calls are for patients older than 65.

Ambulance Calls by Age Range, 2009

Age Range	Ambulance Calls	Census Data for ND
Under 5 years	2.42%	6.10%
5 to 9 years	0.79%	6.70%
10 to 14 years	1.38%	7.40%
15 to 19 years	4.38%	8.30%
20 to 24 years	5.21%	7.90%
25 to 34 years	8.68%	12.00%
35 to 44 years	8.67%	15.30%
45 to 54 years	11.20%	13.30%
55 to 59 years	5.74%	4.50%
60 to 64 years	5.41%	3.80%
65 to 74 years	10.79%	7.10%
75 to 84 years	14.47%	5.30%
85 years and over	12.18%	2.30%
Missing	8.68%	

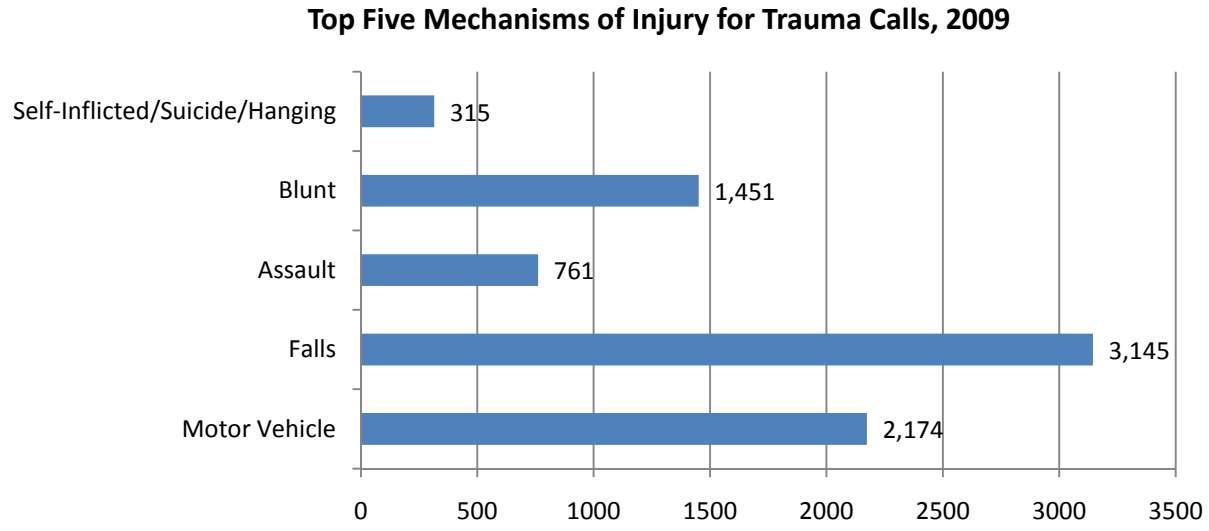
Residences are the most common place to which ambulances respond. Residence at 38 percent is followed by health care facility at 35 percent. The percentage of the top two location types has remained static between last year and this year. Together, residences and acute care facilities make up for nearly 73 percent of all incident location types.

Top 10 Call Percentages by Location Type, 2009

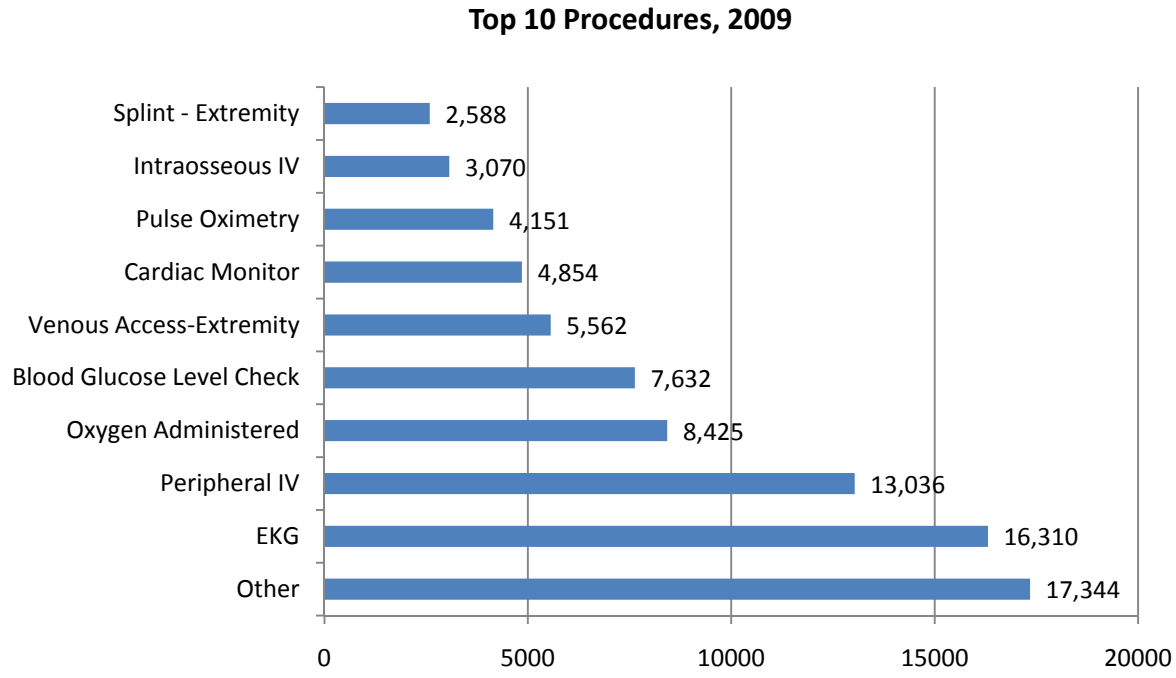
Location Type	Incident Location Type Count in %
Residence	37.60%
Health-Care Facility	34.50%
Street Highway or Traffic Way	9.50%
Public Place	4.72%

Trauma Incidents

The information about mechanism of injury was also affected by our transition to NEMSIS. This element only pops up if injury present is selected, so there maybe mechanisms that are missing.



Procedures remain under-reported. Last year 145,000 procedures were listed. This year, only 127,651 procedures or treatments were listed. Oxygen administration is one treatment that is underreported in this area.



This is a brief look into the EMS data collected by the state of North Dakota. The year of 2010 data improvement processes will include NEMSIS exports, further education about documentation processes using the state resources and the importance of the data as reimbursement standards change.

For questions or comments, please contact Tom Nehring or Lindsey B. Narloch at:
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