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Office of Emergency Medical Services
Data Report
2014

Emergency Medical Services Data Report

2014

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Introduction

The Office of Emergency Medical Services has statutory authority for data collection and reporting of statewide EMS information. In 2000, Public Act 00-151[1] required the development of a data collection system to document the pre-hospital experience of patients from their initial contact with emergency medical services to their arrival at the emergency room. An annual report to the Connecticut General Assembly was required, starting in 2002. Annual reports listing selected summary figures and estimates followed.

The 2014 Emergency Medical Services (EMS) Data Report is a first enhancement beyond previous reports. It is based on data extracted and analyzed apart from Connecticut's former reporting template.

OEMS Mission and Personnel

OEMS is part of the Healthcare Quality and Safety Branch. OEMS staff includes the Director, Medical Director, support staff, education coordinators, special investigators, EMS local program planners, regional EMS coordinators and an epidemiologist.

OEMS functions relate to strategic planning, education, licensing, regulatory and statutory oversight of EMS provider training, and identification and follow-up on medical issues that affect patient care. Investigation of complaints about EMS organizations, patient care concerns, provider activities and EMS agency site and vehicle inspections are also included. Responsibility for the information chain covers data collection oversight, quality assurance and reporting of EMS and Trauma data (pre-hospital and hospital). EMS staff members participate in numerous advisory, steering, legislative and other committees to optimize services for Connecticut's 169 towns and borders with New York, Massachusetts and Rhode Island.

This complex web of responsibilities is juxtaposed with a large network of stakeholders that includes people in the communities, municipal governments, EMS providers, software vendors, Connecticut hospitals and trauma centers, medical associations, clinicians, members of the state legislature, the Department of Emergency Services and Public Protection, Division of Emergency Management and Homeland Security, the Connecticut Department of Transportation, the National Highway Traffic Safety Administration (NHTSA) and other state and federal partners. Connecticut shares data with the National EMS information system (NEMSIS) and is among the states working with NEMSIS to standardize the submission of high quality data.

[1] Public Act 00-151 *AN ACT CONCERNING EMERGENCY MEDICAL SERVICES DATA COLLECTION AND EMERGENCY MEDICAL DISPATCH*, provided both statutory requirement, as codified in Connecticut General Statute §19a-177, and funding, as codified in Connecticut General Statute §28-24

Data challenges

Connecticut moved toward electronic collection of emergency medical services and trauma data in 2000 when statutory requirement and funding supported the creation and maintenance of two Oracle databases and data submission portals. More than six-hundred and fifty laptop computers were purchased for use by local EMS agencies. EMS agencies were allowed to choose software vendors if they were compliant with National EMS Information System (NEMSIS) requirements. Agreements with a vendor, Digital Innovation, Inc. were designed to establish a Trauma Registry to collect and report data from hospitals, as well as an EMS application for pre-hospital data aggregation.

Eleven software vendors currently provide the interface for data aggregation and submission for the EMS agencies which serve the 169 Connecticut towns. Although some of the original laptops have been replaced locally, lack of funding has left some agencies with old hardware. Software vendors are required to be compliant with the evolution of NEMSIS version 3 databases. The conversion from ICD-9 to ICD-10 this year will require additional changes in data collection for both EMS and Trauma.

The EMS database and the Trauma Registry are housed on State of Connecticut Bureau of Enterprise Systems and Technology (BEST) servers in Groton. The addition of a reporting tool for EMS data is needed. The current Trauma database is not currently functioning for hospitals or for OEMS, but an upgrade is in the planning stage.

The major challenges to data collection for EMS and for the Trauma Registry include information technology and security infrastructures at the state level, data aggregation interfaces, data transmission and processing points for applications designed to support analyses and reporting at the program and local user levels. Training and continued support of data entry in the field for EMS users and hospitals are also vital to linking pre-hospital information with hospital and other state and federal data sources in order to examine quality and cost measures. The transition of agencies from paper-based to electronic reporting continues to be a critical consideration. End-users need continuous education by vendors who provide the electronic Patient Care Record (ePCR) software which is used for data entry of EMS calls, as well as practical guidance from DPH OEMS regional coordinators.

Local providers of emergency medical services work with tremendous variation in the physical, economic and logistic milieu in which they act on behalf of the public. A call to “911” brings to mind a homogeneous network of communications and response capability equally available to all within our small state. In reality, some area responders are primarily volunteers who are not answering the calls from a strategically placed location or base. Barriers such as apartment buildings, reservoirs, highways, local construction projects, traffic patterns and living conditions affect response logistics. Local EMS plans that are coordinated with the CT DPH can recognize and take into account special challenges while at the same time striving for progress in clinical areas, performance measure development and EMS personnel educational needs.

EMS Data: Summary Figures for 2014

Summary figures for 2014 data used calculations similar to previous reports as a model. Neither previous DPH reports nor NEMSIS reports use a unique person ID, so counts are counts of records. Race and ethnicity information are not recorded for approximately forty-four percent of all calls.

Total records received (all types of calls):	652,351	
Cancelled calls:	68,674	10.5%
Total 911 records:	520,517	
911 calls for a medical problem	461,662	88.4%
911 calls for trauma	38,451	7.4%
911 calls for cardiac arrest	2,995	0.6%
Mutual aid calls:	2,482	0.5%
Paramedic on scene:	313,241	60.2%
# records with at least one defibrillation attempt	612	
# records with at least one defibrillation success	192	

911 calls by gender: (percent of records with data)

Females	53%
Males	47%

Gender not reported in 68,406 records

911 calls by age: (percent of records with data)

18 years or older	93%
younger than 18 years	7%

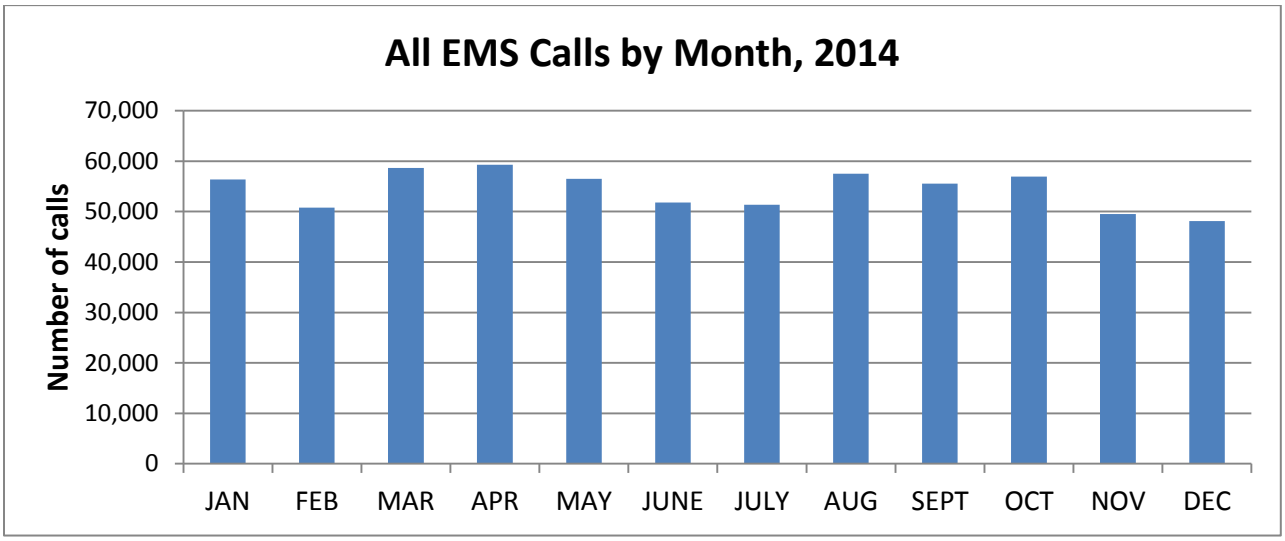
Age data were incomplete for 64,261 records

Response Mode : (based on 99% of records)

Lights and Sirens (LS)	64%
No Lights or Sirens	33%
Initial LS, downgraded	2%
Upgrade to LS	<1%

Response time estimates were done for records with date and time data, using the reported time an EMS unit was notified by dispatch and the reported time of arrival on the scene, as in previous years' reports. Additionally, records were removed from the calculation if either time point was missing (more than 25,000 records) or the calculated response interval was not 1 to 60 minutes. *Numerous other time points are valid fields but were not filled in for one quarter to one half of all records received. The response time points were calculated from the most logical and available data. Please refer to appendices A and B.*

Overall Call Volume



Incident Location Type

Calls for Emergency Medical assistance can occur in many different places including, but not limited to, places of residence, public buildings, highways, etc. and each can present unique factors to responding Emergency Medical Services providers. Residences are the most common place ambulances respond to (38.6%), followed by health care facilities (18.2%). Together, residences and health care facilities account for more than half (56.8%) of all incident location types. Emergency 911 calls show a somewhat different distribution of location, with street and highway leading the list.

Table 1: Location Type of All Calls

Incident Location Type	Frequency	Percent
Home/Residence	252,047	38.6
Health Care Facility	118,812	18.2
Residential Institution	62,047	9.5
Street or Highway	61,531	9.4
Public Building	31,597	4.8
Trade / service place	24,148	3.7
All Other	15,719	2.4
Missing location type	86,450	13.3
	652,351	

Patient Disposition

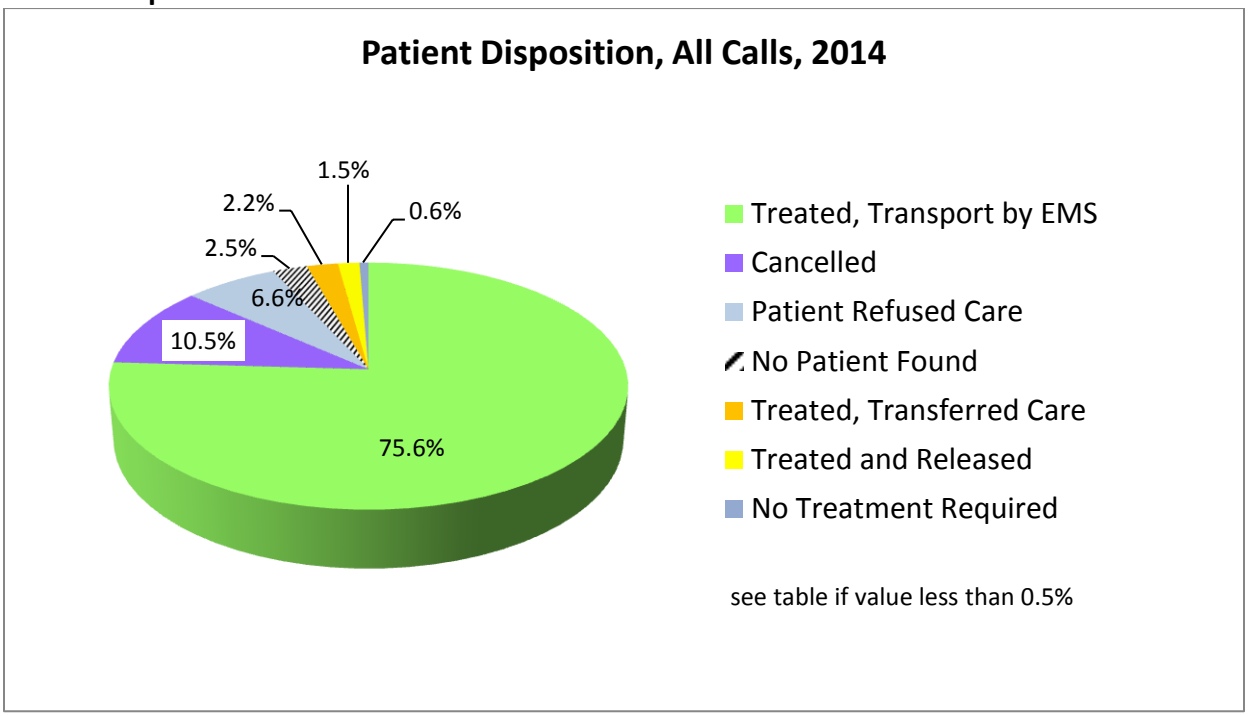
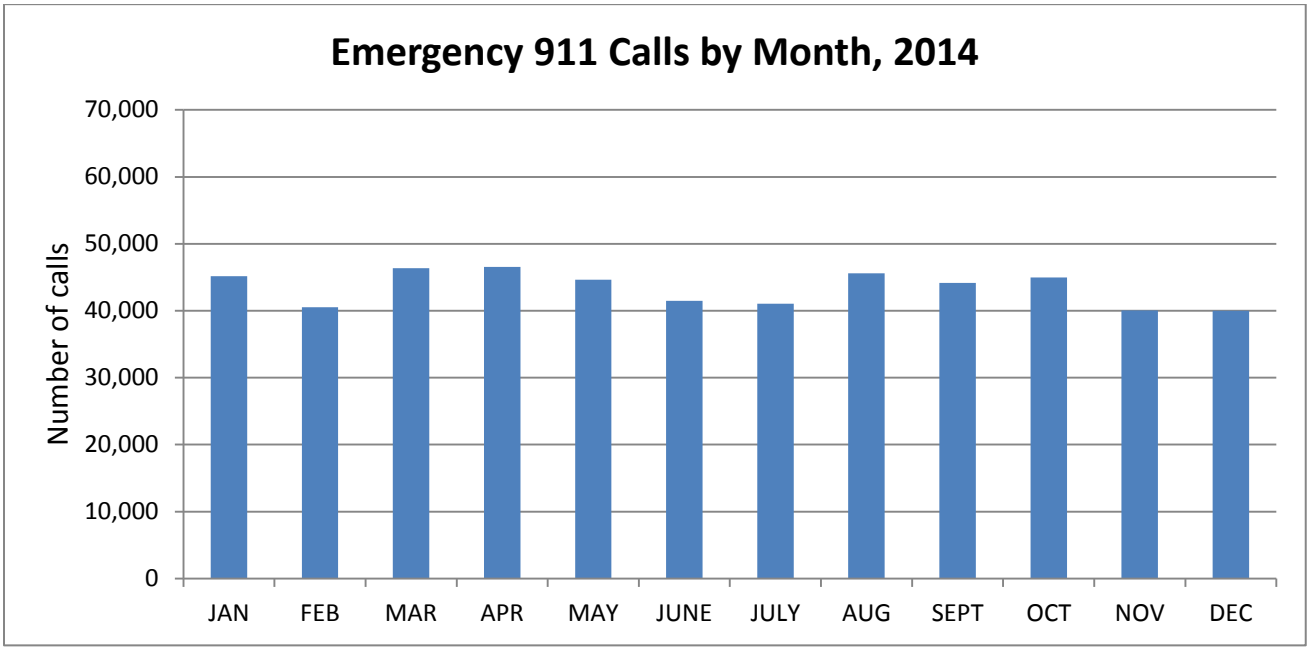


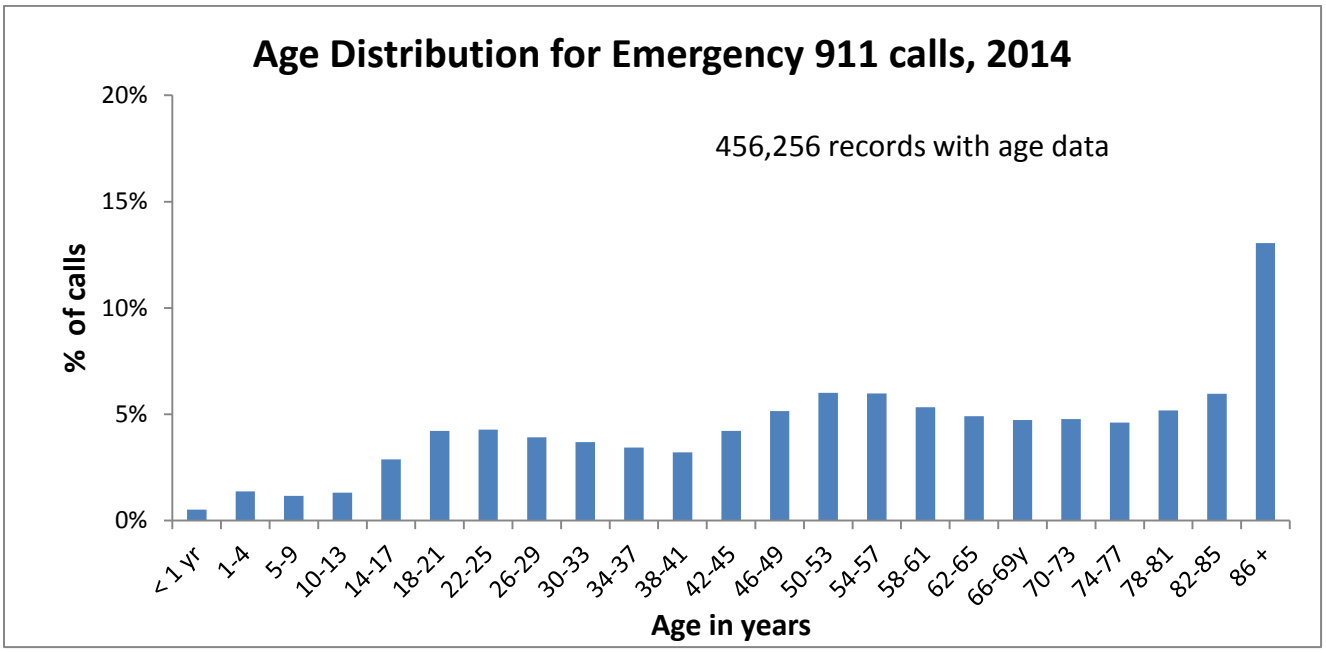
Table 2: Patient Disposition, All Calls

Patient Disposition	Frequency	Percent
Treated, Transport by EMS	493,300	75.6%
Cancelled	68,674	10.5%
Patient Refused Care	43,262	6.6%
No Patient Found	16,054	2.5%
Treated, Transferred Care	14,401	2.2%
Treated and Released	9,893	1.5%
No Treatment Required	4,142	0.6%
Dead at Scene	2,429	0.4%
Treated, Transported by Private Vehicle	160	0.02%
Treated, Transported by Law Enforcement	35	0.01%
1 record missing information	652,350	

Emergency 911 Calls

More than 130,000 emergency 911 calls are received each quarter. Inspection of 2014 data shows some reporting gaps. EMS providers vary in size from small volunteer organizations to large commercial companies. Record counts are the best current estimates available of call volumes and types. Emergency 911 calls are a subset of total calls, defined by the type of service requested. They include "911 response to scene", "intercept" and "mutual aid" calls. This is consistent with reports from previous years.





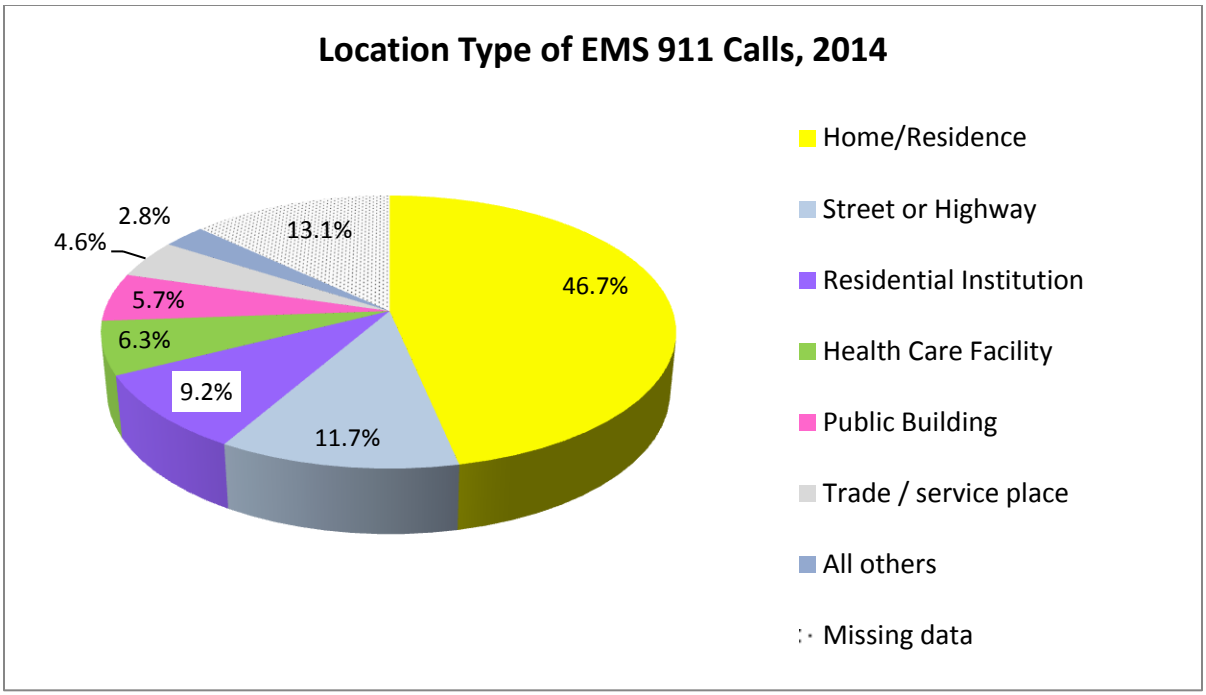


Table 3: Location Type of Emergency 911 Calls

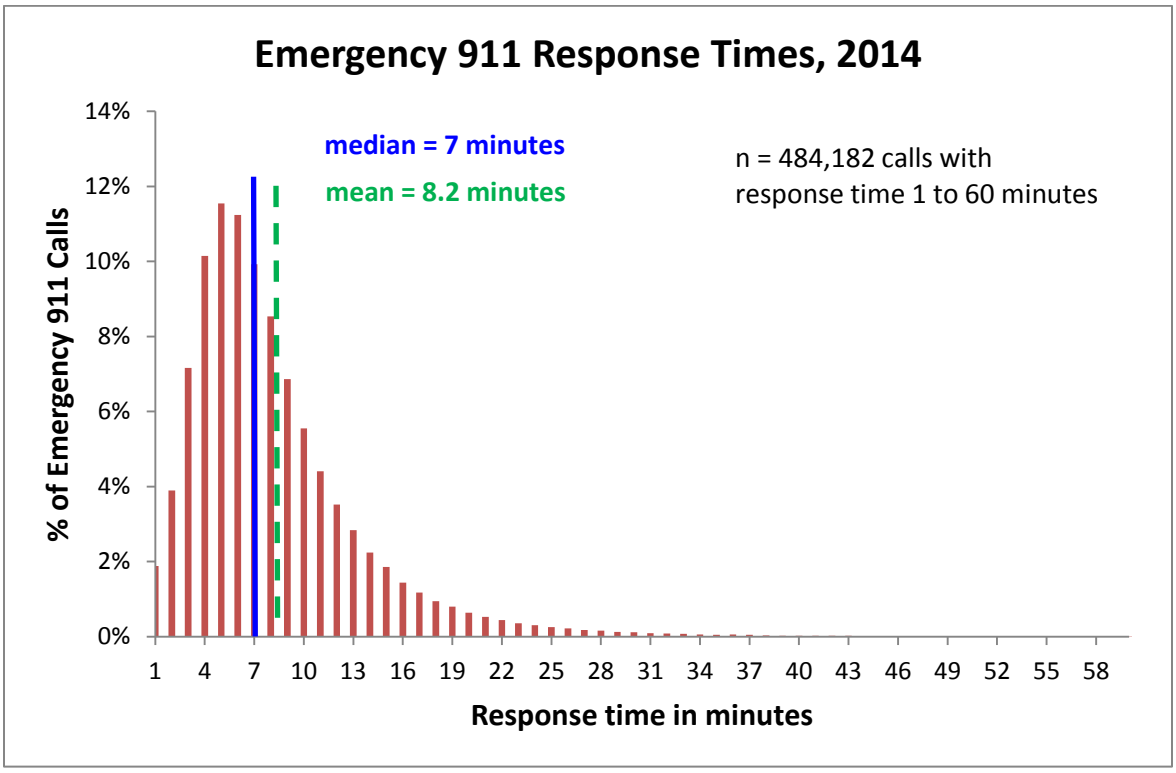
Incident Location Type, 911 Calls	Frequency	Percent
Home/Residence	242,949	46.7%
Street or Highway	60,890	11.7%
Residential Institution	47,789	9.2%
Health Care Facility	32,761	6.3%
Public Building	29,720	5.7%
Trade / service place	23,756	4.6%
All others	14,513	2.8%
Missing location type	68,139	13.1%
	520,517	

Response Times

The response times were calculated by comparing the date and time the EMS unit arrived on the scene with the date and time the EMS unit was notified by dispatch. If the times reported were the same and were on the same date, the interval reported for response time was zero. About two percent of records in the analysis had a response time of zero. Almost five percent of records did not contain date/time data for the response time calculation.

This report uses the calculation of response time as above. The small number of 911 calls from many towns makes estimates of mean response time meaningless when broken out by EMS agency within town of incident. EMS coverage is not homogeneous from town to town, nor is geography or EMS agency staffing. Therefore, mean response time estimates are presented by the EMS Agency (Appendix A) and separately by Incident Town (Appendix B). The figures are not strictly comparable by agency, considering that a large EMS agency can respond to calls in a variety of geographic locations. Towns where emergency events take place will have variations in response times due to local traffic patterns, road construction and other local conditions. In addition, the response times are for all kinds of emergency 911 calls, some more critical than others.

The analysis of response times was limited to the ninety-three percent (484,182) of emergency 911 calls that a calculated response interval of one to sixty minutes. Some of the confidence intervals may still reflect reporting mistakes at the point of data entry. Taken together, the response times included in the analysis had an overall mean of 8.2 minutes. Half of the response times are 7 minutes or less (7 is the median, denoted by the blue vertical line).



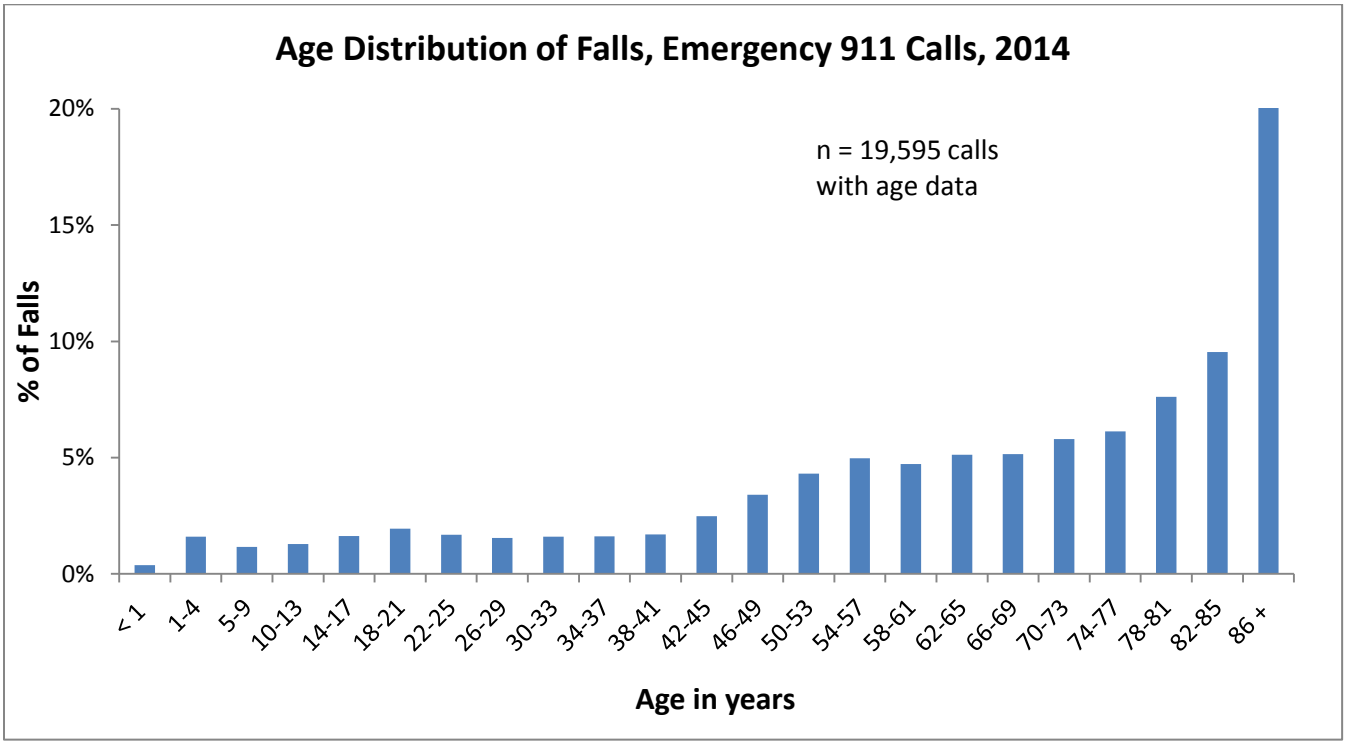
Trauma Calls (38,451 records)
Classification of "trauma" calls was modified for the 2014 report with OEMS staff input. Trauma calls accounted for 7.4% of all reported 911 emergency calls in 2014. Falls were reported as the cause of injury for more than half (51%) of all trauma records. The majority (91%) of trauma calls involved patients who were 18 years or older. Almost two-thirds (63%) of adults who injured themselves in a fall were age 65 years or older.

Table 4: Cause of Injury

Cause of Injury (n=38,451 trauma calls)	Frequency	Percent
Falls	19,662	51.1
Motor Vehicle traffic accident	9,127	23.7
Drug poisoning	2,823	7.3
Struck by Blunt/Thrown Object	2,523	6.6
Motor Vehicle non-traffic accident	1,277	3.3
Pedestrian traffic accident	574	1.5
Stabbing/Cutting Assault	503	1.3
Motorcycle Accident	438	1.1
Bicycle Accident	247	0.6
Machinery accidents	215	0.6
Fire and Flames	175	0.5
Stabbing/Cutting Accidental	132	0.3
Firearm assault	117	0.3
Excessive Heat	96	0.3
Rape	86	0.2
Chemical poisoning	59	0.2
Mechanical Suffocation	56	0.2
Electrocution (non-lightning)	46	0.1
Firearm injury (accidental)	46	0.1
Child battering	42	0.1
Firearm self-inflicted	37	0.1
Smoke Inhalation	39	0.1
Non-Motorized Vehicle Accident	29	0.1
Venomous stings (plants, animals)	26	0.1
Excessive Cold	24	0.1
Water Transport accident	24	0.1
Drowning	18	0.1
Aircraft related accident	8	<0.1
Lightning	1	<0.1
Radiation exposure	1	<0.1
	38,451	

Selected Causes of Injury Reported for Trauma Calls, by Age Group

Age is recorded in separate fields as age and unit of age. All were converted to years. Records with incomplete age data were excluded from the charts.

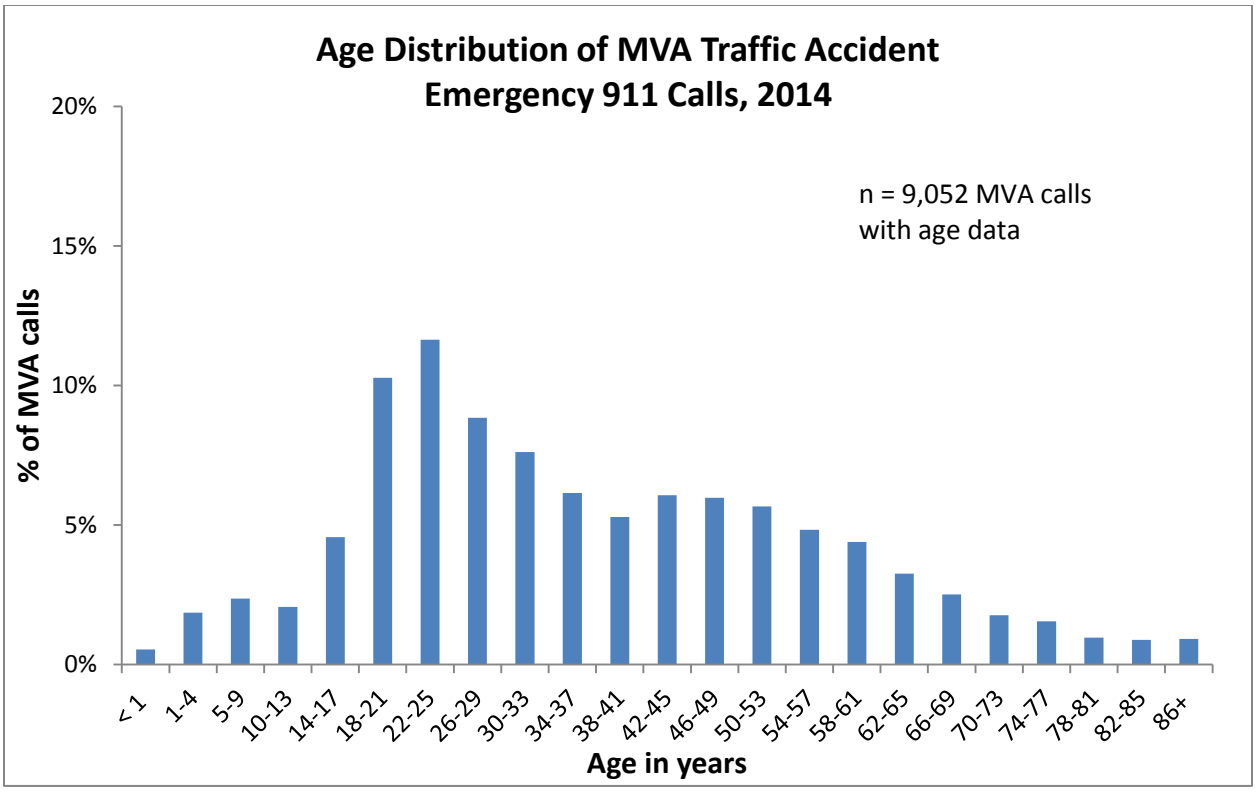


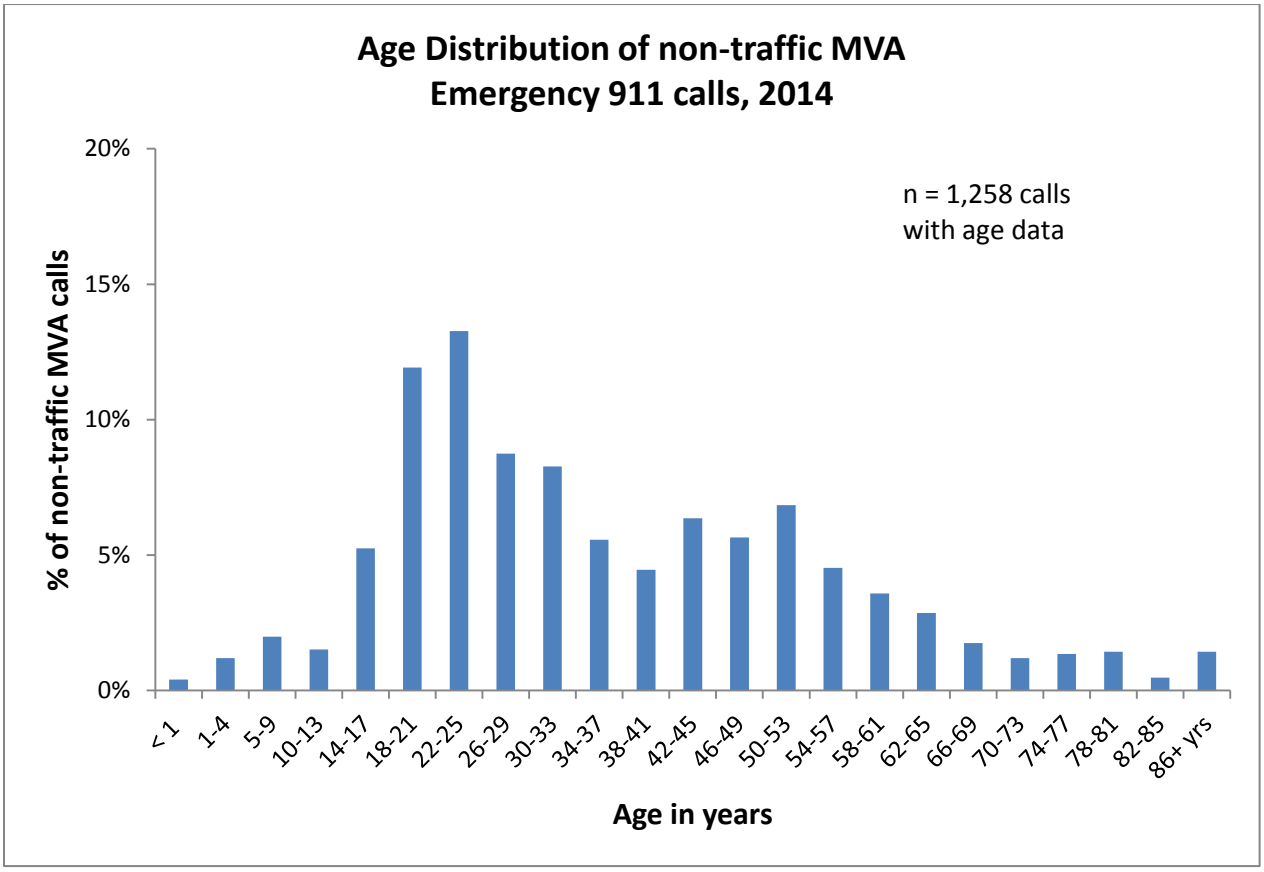
The CDC reports that falls are "the leading cause of non-fatal injury in children". [2] Children age 0 to 17 years account for approximately six percent of the calls for falls injuries reported by the Emergency 911 providers in 2014. Falls are the leading cause of both fatal and non-fatal injuries in adults age 65 and older.[3] The chart may reflect the mode of transport more than the actual falls experience of all age groups. The National Hospital Ambulatory Care Survey[4] suggests that people age 65 years and older are more likely than younger people to arrive at an emergency department via ambulance .

[2] http://www.cdc.gov/safechild/Falls/ Protect the Ones You Love: Childhood Injuries are Preventable. Centers for Disease Control, accessed 8/5/2015.

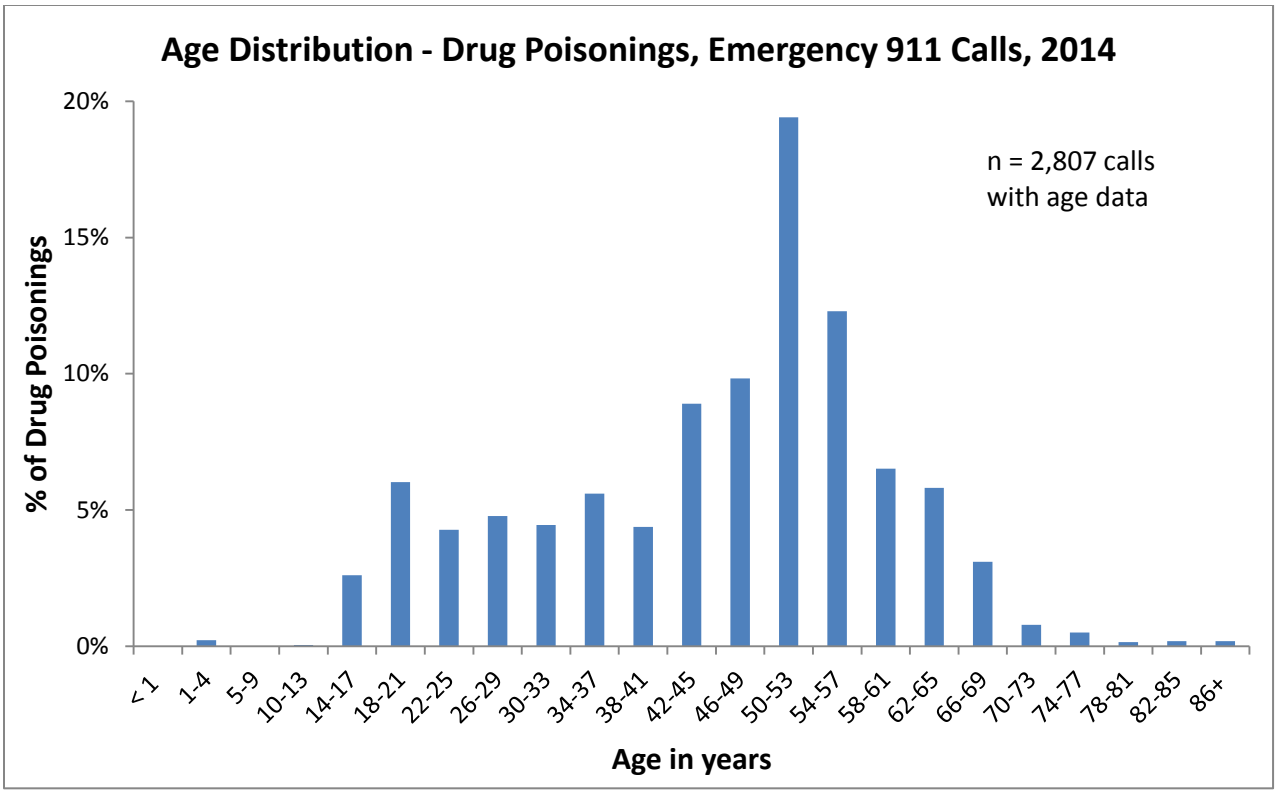
[3] http://www.cdc.gov/homeandrecreationalsafety/falls/adultfalls.html Older Adult Falls: Get the Facts. Centers for Disease Control, accessed 8/5/2015.

[4] http://www.cdc.gov/nchs/data/ahcd/nhamcs_emergency/2011_ed_web_tables.pdf
National Hospital Ambulatory Medical Care Survey: 2011 Emergency Department Summary Table 5, accessed 8/5/2015.

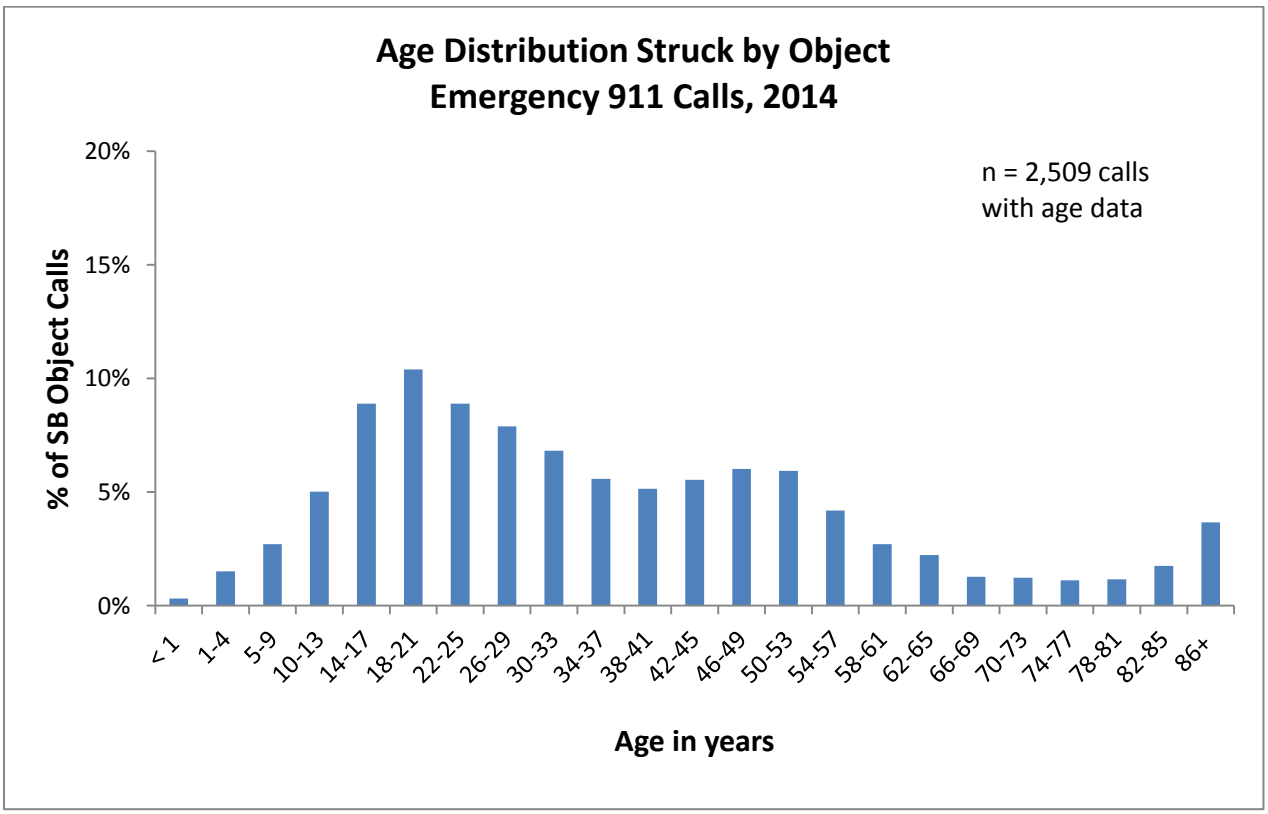


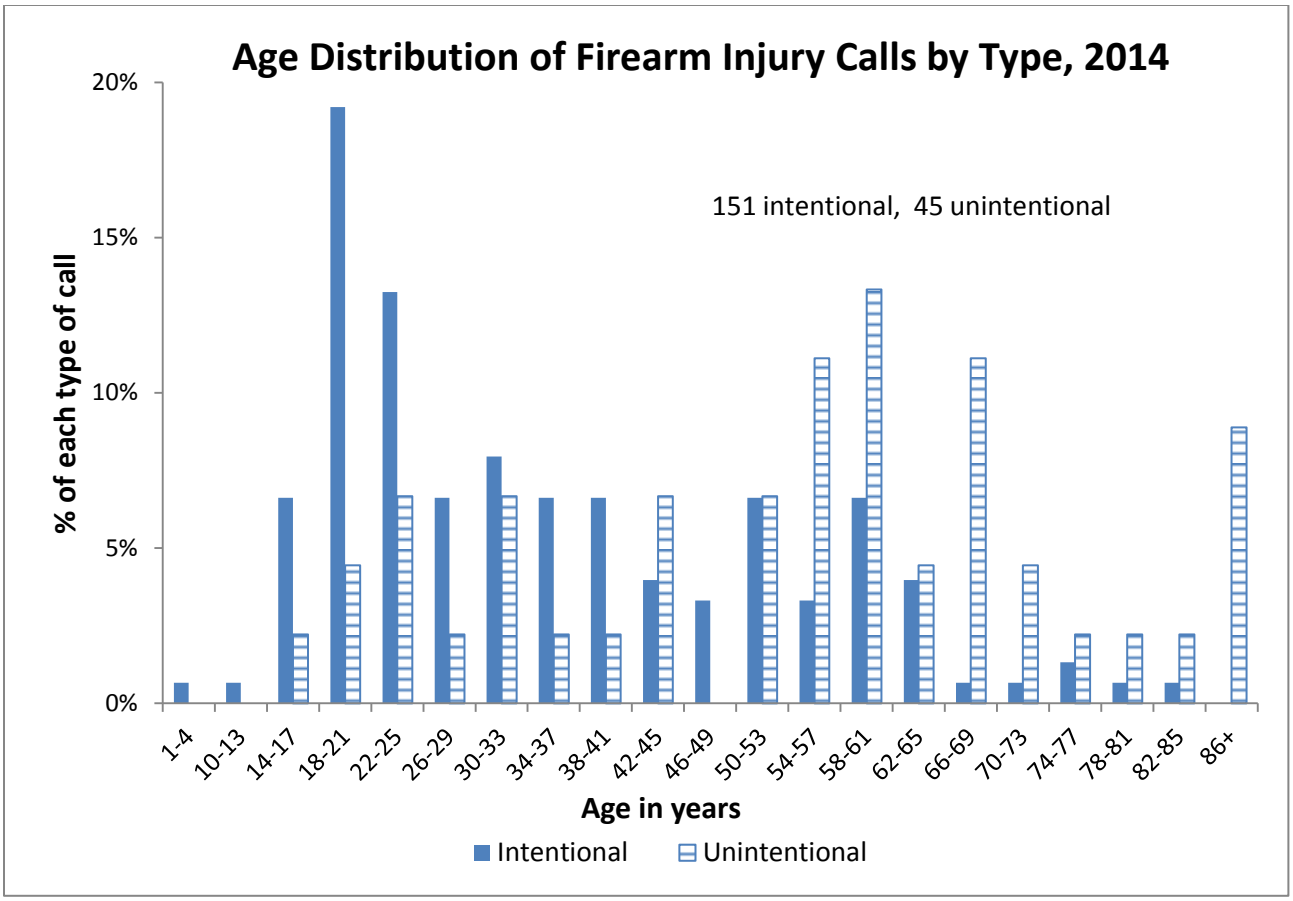


*Motor vehicle non-traffic accidents involve motor vehicles in recreation/sporting activities off the highway, or motor vehicle collisions or accidents that take place entirely off the highway.



Implementation of laws allowing wider distribution and use of Naloxone (Narcan) in 2014 may change future reports.





In 2014, there were two hundred Emergency 911 firearm calls reported; 196 had associated age information. The majority (77%) were intentional. This category includes firearm assaults and self-inflicted injuries. Twenty-three percent of all firearm calls were reported as unintentional injuries.

The chart above shows the distribution by age group separately for intentional and unintentional firearm injuries. The dark blue bars are the percentages of the 151 intentional injuries by age group. The striped bars represent the percentages of the 45 unintentional injuries in each age group.

Table 5: Firearm Injury calls, by Category

Category of Firearm Injury	# records	Percent
Intentional (Firearm assault)	117	59.7%
Intentional (Firearm self-inflicted)	34	17.3%
Unintentional Firearm injury	45	23.0%
	196	

Conclusions and Future Directions

1. Data Quality: The model electronic patient care record (ePCR) used by EMS organizations allows collection of 1,285 pieces of data. Not all of these can or should be collected on every call. There should be some common understanding as to what fields are required for every record, and which must also be filled for specific types of events.

2. A reasonable deadline for quarterly submission of data for all agencies needs to be monitored and followed up at the local level with the cooperation of the epidemiologist, regional coordinators and program director. Some gaps in data submission are apparent. Clearly, some of the agencies have not set up their software to auto-populate agency identification fields.

3. Data collection software: Agencies have chosen their own software vendors, as long as the software is compliant with NEMSIS updates for database standards. Although the NEMSIS implementation due to be in force by the end of 2016 will include validation of data at the data entry level, it is not clear what level of validation is currently part of each different software product, and what issues the EMS agencies are having with their software. Examination of 2014 data suggests that some fields are not being validated, or free text is being used instead of a standard pick list. OEMS will request a detailed document of field validation that is current from each software vendor and each vendor's readiness for the 2016 NEMSIS update.

4. Continuation of end-user education is a responsibility of software vendors used by the EMS agencies, assisted by quality assurance monitoring and follow-up (see item 2).

5. A set of quality assurance edits, feedback and revision cycle has not been part of OEMS data management, so the data are somewhat "dirty". Example: response times.
   The eventual upgrade of NEMSIS in December of 2016 will apply standardized edit checks for some fields at the point of data entry, improving the reliability of the data.

6. Linkage of prehospital data to hospital discharge data and trauma center data is an important step in applying performance standards and investigating clinical outcomes and costs. Presently, the infrastructure for creating and maintaining secure databases and query/report applications for EMS data is not developed. The trauma data application upgrades and integration with information technology structures that make data submissions and reporting possible are in the process of being put together for current use. Development steps and the criteria for accomplishing each step (including personnel, funding and infrastructure) are being elaborated for present and future needs.

7. Collaboration with partners within and outside the Agency and sharing of data, according to confidentiality requirements, is an important step in making best use of collective efforts.

8. Data for multiple years may be combined for some analyses. Performance measures for selected critical response events could be another facet of analysis. A set of performance standards has been developed and is moving through the approval process.

Appendix A: Estimates for Reported Response Times, by EMS Agency, 2014

Some EMS agencies as reported are invalid or unmatched entries. They were included because they represent work done, but they also present quality assurance issues which need to be addressed. Response time estimates are based on records with a calculated response time of 1 to 60 minutes to exclude the most egregious date/time documentation errors. The 95% confidence interval brackets the mean response time that would be expected from repeated random sampling of response times for each agency in 2014. Statistics are not reported for fewer than 30 records. Agencies with more than 10,000 calls are listed separately at the end of Appendix A.

Estimates of Response Time in Minutes by Reported EMS Agency, 2014						
EMS Agency as Reported	# records	Mean	Minimum	Maximum	95% CI	
119 (unidentified)	496	5.2	1	26	4.9	5.5
3595 (unidentified)	82	4.0	1	16	3.4	4.6
Am.Legion Amb. dba Griswold	1,082	7.0	1	54	6.7	7.3
American Legion Ambul. Fund	1,751	8.8	1	32	8.6	9.0
Andover Vol. FD	180	11.5	1	34	10.9	12.2
Ansonia Rescue & Medical Svcs.	2,588	6.1	1	37	6.0	6.2
Ashford Vol. FD.	328	11.4	1	34	10.7	12.1
Baltic FD.	223	10.9	1	30	10.3	11.5
Bantam Fire Co.	202	11.9	2	44	11.1	12.7
Beacon Hose Co.	86	8.7	1	23	7.7	9.7
Bethany Vol. FD. Ambul.	372	12.4	2	50	11.9	13.0
Bethel Volunteer FD.	1,091	7.1	1	37	6.8	7.3
Bethel-Redding Paramedic Alliance	1,359	7.6	1	25	7.4	7.8
Bethlehem (need CO)	5					
Bozrah Vol. Fire Company	232	13.1	3	35	12.4	13.8
Branford FD.-EMS	4,172	6.6	1	43	6.5	6.7
Bridgewater Vol. FD	76	12.8	2	40	11.4	14.2
Brookfield Vol. Fire Co.	1,293	5.5	1	33	5.3	5.7
Burlington Vol. FD.	115	10.1	3	30	9.1	11.0
C166P1 (unidentified)	79	7.7	2	20	6.9	8.5
Campion Ambul. Service	4,284	7.3	1	36	7.2	7.4
Canterbury Vol. Fire Co.	84	14.4	2	41	13.0	15.8
Cheshire	4					
Chester Hose Company	113	13.2	1	44	12.0	14.3
Chesterfield Fire Co.	106	6.7	1	22	6.0	7.4
Clinton Vol. FD.	775	12.9	1	43	12.5	13.3
CO99P1 (unidentified)	455	11.1	1	28	10.6	11.5
Colchester Hayward Vol. Fire Co.	1,257	9.5	1	47	9.2	9.8
Columbia Vol. FD.	311	10.6	2	31	10.0	11.1
Community Fire Co.	698	10.0	1	57	9.5	10.5
Cornwall Vol. FD.	204	15.5	1	37	14.6	16.3
Coventry Vol. Fire Assn.	815	10.0	1	29	9.7	10.3
Cromwell FD.	1,922	8.1	1	59	7.9	8.3

Estimates of Response Time in Minutes by Reported EMS Agency, 2014						
EMS Agency as Reported	# records	Mean	Minimum	Maximum	95% CI	
Danbury Ambul. Service/aka Danbury Me	355	9.6	1	45	8.9	10.2
Danbury EMS/Div. of Danbury FD.	9,881	5.7	1	60	5.6	5.8
Darien EMS - Post 53	1,502	5.7	1	33	5.5	5.9
Deep River Ambul. Assn.	356	13.4	1	28	12.9	13.8
Durham Volunteer Ambul. Corps	441	11.5	1	31	11.1	12.0
East Haddam Ambul. Assn.	567	19.0	1	51	18.5	19.5
East Hampton Ambul. Assn.	876	13.2	1	52	12.8	13.5
East Hartford FD.	7,926	5.7	1	49	5.6	5.7
East Haven FD.	3,107	5.1	1	52	5.0	5.2
East Lyme Ambul.	1,958	6.0	1	30	5.8	6.1
East Windsor Ambul. Assn.	2,485	7.7	1	35	7.5	7.8
Easton Vol. EMS	428	8.1	1	29	7.7	8.6
Echo Hose Hook & Ladder Vol. Amb.	4,230	8.9	1	60	8.8	9.1
Electric Boat Corporation	127	2.8	1	13	2.5	3.1
Ellington Vol. Ambul. Corps	968	8.6	1	59	8.3	8.9
Enfield Community Ambul.	6,070	7.0	1	53	6.9	7.1
Essex Ambul. Assn.	670	14.1	1	38	13.7	14.4
Falls Village Vol. FD.	69	14.0	2	30	12.7	15.4
Franklin Vol. FD.	101	13.1	2	26	12.2	13.9
Gardner Lake Vol. Fire Co.	207	11.6	2	34	10.9	12.3
Georgetown Vol. FD.	536	6.9	1	26	6.6	7.2
Glastonbury Vol. Ambul. Assn.	2,700	5.8	1	41	5.7	6.0
Goshen Vol. Fire Co.	146	14.1	1	44	13.1	15.1
Granby Ambul. Assn.	970	9.9	1	42	9.5	10.2
Greenwich EMS	5,924	5.6	1	57	5.5	5.7
Groton Ambul. Assn.	4,107	8.2	1	52	8.1	8.4
Haddam Vol. Ambul. Service	678	13.5	2	51	13.0	14.0
Harwinton Ambul. Assn.	352	9.9	1	58	9.3	10.4
Hebron Vol. FD.	513	11.7	1	42	11.2	12.2
Heritage Village Ambul. Assn.	885	7.7	1	30	7.4	7.9
KB Ambul. Corps	2,847	8.6	1	45	8.5	8.8
Kent Vol. FD.	440	15.5	1	43	14.9	16.1
Killingworth Ambul. Assn.	308	18.1	2	46	17.5	18.7
Lawrence & Memorial Hospital	4,352	9.9	1	44	9.8	10.0
Lebanon Volunteer FD.	440	14.7	2	45	14.1	15.2
Ledyard Vol. Emergency Squad	810	13.2	1	50	12.8	13.7
Lime Rock Park Ambul.	8					
Litchfield Vol. Ambul. Assn.	862	9.3	1	51	8.9	9.6
Lyme Ambul. Assn.	179	19.6	1	42	18.5	20.6

Estimates of Response Time in Minutes by Reported EMS Agency, 2014						
EMS Agency as Reported	# records	Mean	Minimum	Maximum	95% CI	
Madison Ambul. Association	1,886	6.3	1	30	6.2	6.5
Middlebu (need valid CO)	53	10.8	1	21	9.7	12.0
Middlesex Hospital	6,825	11.3	1	49	11.2	11.4
Milford FD.	1,227	6.1	1	40	5.9	6.3
Mohegan Fire Co.	720	5.9	1	21	5.7	6.2
Mohegan Tribal FD	2,731	5.7	1	32	5.6	5.9
Monroe Vol. EMS	1,201	10.1	1	40	9.9	10.4
Montville Fire Co. Ambul.	754	6.1	1	17	5.9	6.3
Morris Vol. FD.	170	10.4	1	49	9.5	11.2
Mortlake Fire Co.	763	10.1	1	39	9.6	10.5
Mystic River Ambul. Assn.	2,183	8.5	1	50	8.3	8.7
New Canaan Vol. Ambul. Corps	1,712	7.1	1	46	6.9	7.3
New Hartford Vol. FD. Amb. Svc.	734	13.0	1	53	12.6	13.5
New London FD.	5,443	5.0	1	57	4.9	5.0
New Milford Community Ambul.	2,027	10.7	1	52	10.4	10.9
Newtown Vol. Ambul. Corps	2,531	10.0	1	39	9.8	10.2
Norfolk Lions Club Ambul.	187	14.0	2	40	13.1	15.0
North Branford FD. Amb. Co. #4	639	11.5	1	52	11.1	11.9
North Canaan Vol. Ambul. Corps	935	8.3	1	46	8.0	8.7
North Haven FD.	2,322	6.7	1	60	6.5	6.9
Oakdale Fire Co.	339	6.0	1	24	5.6	6.4
Old Lyme South End Vol. Amb. Assn.	442	11.7	1	50	11.1	12.3
Old Saybrook Amb. Assn.	1,268	11.6	1	44	11.3	11.9
Oxford Ambul. Assn.,	185	10.6	2	35	9.8	11.3
Pfizer Inc	59	3.8	1	8	3.4	4.1
Plymouth Vol. Ambul. Corps	1,105	7.1	1	33	6.9	7.4
Pomfret Fire District Pomfret Ambul.	118	16.5	1	48	15.3	17.8
Poquetanuck Vol. FD.	370	11.3	1	32	10.7	11.9
Pratt & Whitney Div. of UTC	78	4.2	1	9	3.8	4.7
Pratt & Whitney--Middletown	35	3.1	1	6	2.6	3.5
Putnam E.M.S. Ambul. Service	1,045	7.1	1	45	6.8	7.3
Redding Fire District	186	11.1	1	41	10.3	12.0
Ridgefield FD.	2,034	7.1	1	39	6.9	7.2
Rocky Hill Vol. Ambul.	759	7.5	1	40	7.2	7.8
Roxbury Ambul. Assn.	146	14.3	2	52	13.1	15.5
Salisbury Vol. Ambul. Service	337	15.1	2	57	14.4	15.8
Scotland Vol. FD.	62	13.7	2	30	12.4	15.1
Sharon FD. Ambul. Squad	221	10.7	2	43	9.9	11.4
Sherman Vol. FD.	200	16.4	1	58	15.5	17.3
Sikorsky Aircraft Corporation	114	3.5	1	9	3.2	3.9
Somers FD. Ambul. Div.	596	8.5	1	31	8.1	8.9

Estimates of Response Time in Minutes by Reported EMS Agency, 2014						
EMS Agency as Reported	# records	Mean	Minimum	Maximum	95% CI	
South Manchester FD.	3,589	4.9	1	54	4.8	4.9
South Windsor Ambul. Corps	654	7.8	1	34	7.6	8.0
Southbury Ambul. Assn.	1,985	8.7	1	31	8.6	8.9
Southbury Training School	422	6.9	1	43	6.4	7.3
Stafford Ambul. Assn.	860	9.9	1	46	9.5	10.3
Stonington Vol. Ambul. Corps	431	11.1	1	46	10.5	11.6
Stony Hill Vol. Fire Co.	726	8.0	1	36	7.6	8.4
Storm Engine Co. Amb. & Rescue Corps	1,102	6.5	1	31	6.3	6.7
Stratford EMS	7,260	7.2	1	47	7.1	7.3
Submarine Base FD.	145	5.5	1	24	4.9	6.1
Suffield Vol. Ambul. Assn.	1,462	10.9	1	50	10.6	11.2
Thomaston Vol. Ambul. Corps.,	240	8.3	2	28	7.7	8.8
Tolland FD.	1,041	11.5	1	57	11.1	11.9
Torringt(need valid CO)	8					
Town of Canton Vol. Fire & EMS	832	9.8	1	58	9.4	10.2
Town of Guilford FD Ambul.	1,976	8.6	1	56	8.3	8.8
Town of Mansfield Fire and Emerg	1,618	7.6	1	55	7.4	7.8
Trumbull EMS	4,396	8.4	1	44	8.3	8.5
UConn FD. - Health Center	1,653	7.6	1	38	7.3	7.9
Valley EMS	5,444	8.6	1	35	8.5	8.7
Vernon FD.	2,232	6.6	1	51	6.4	6.8
Volunteer FD. of New Fairfield	789	12.1	1	49	11.6	12.6
Voluntown Volunteer Fire Company #1	192	11.2	1	44	10.3	12.1
Wallingford Dept. of Fire Svs.	4,765	6.3	1	42	6.2	6.4
Warren Vol. Fire Co.	110	15.9	2	28	14.9	16.9
Washington Ambul. Assn.	251	18.3	3	45	17.5	19.1
Waterbur(need valid CO)	12					
Waterford Ambul. Assn.	3,100	6.7	1	55	6.5	6.8
West Redding Vol. FD. District Co	128	12.6	1	32	11.6	13.5
Westbrook Ambul. Assn.	818	12.6	2	32	12.2	12.9
Westerly Ambul. RI	801	5.4	1	38	5.2	5.7
Weston Vol. EMS	478	14.5	1	51	14.0	15.0
Westport EMS	2,947	6.8	1	42	6.7	7.0
Wethersfield Vol. Ambul. Assn.	1,165	6.4	1	37	6.2	6.6
Willimantic FD.	3,113	5.6	1	29	5.5	5.7
Willington FD.	404	10.0	1	25	9.6	10.4
Wilton Volunteer Ambul. Corps	1,189	8.3	1	39	8.1	8.5
Windham Community Memorial Hospital	3,358	8.2	1	41	8.1	8.4
Windsor Locks Lions Club Ambul.	1,452	4.8	1	28	4.7	5.0
Windsor Vol. Ambul. , d/b/a Windsor EMS	2,535	7.3	1	42	7.1	7.4
Winsted Area Ambul. Assn.	1,607	8.3	1	45	8.0	8.5
Wolcott	235	7.3	2	31	6.9	7.8
Woodbury Ambul. Assn.	711	16.8	2	60	16.4	17.2
Woodstock EMS/Woodstock Vol. Fire Assoc.	462	11.5	1	40	10.9	12.1

Estimates of Response Time in Minutes by Reported EMS Agency, 2014 (10,000 or more records)						
EMS Agency as Reported	# records	Mean	Minimum	Maximum	95% CI	
Aetna Ambul. Service	14,870	6.3	1	33	6.2	6.3
Ambul. Service of Manchester LLC	18,955	7.6	1	37	7.5	7.6
American Ambul. Service	11,867	9.0	1	50	8.9	9.1
American Medical Response of CT	167,994	9.1	1	60	9.1	9.1
Hunter's Ambul. Service	22,068	6.9	1	60	6.8	6.9
New Britain EMS	12,959	6.3	1	56	6.3	6.4
Norwalk Hospital Assn.	12,911	8.4	1	60	8.3	8.4
Stamford EMS	12,894	6.9	1	60	6.8	7.0

Appendix B: Estimates for Reported Response Times, by Town of Incident, 2014

Records with valid Connecticut zip codes were included in this chart. Response time estimates are based on records with a calculated response time of 1 to 60 minutes to exclude the most egregious date/time documentation errors. The 95% confidence interval brackets the mean response time that would be expected from repeated random sampling of response times for events reported for each town in 2014. Statistics are not reported for fewer than 30 records.

Estimates of Response Time in Minutes by Town of Incident, 2014						
Town of Incident	# records	Mean	Minimum	Maximum	95% CI	
Abington	80	8.4	1	23	7.3	9.4
Amston	118	14.1	4	39	13.0	15.2
Andover	263	11.8	1	34	11.3	12.3
Ansonia	3,391	6.3	1	53	6.2	6.4
Ashford	370	12.5	1	33	11.9	13.2
Avon	1,556	9.1	1	59	8.7	9.4
Ballouville	17					
Baltic	321	12.3	1	37	11.7	12.9
Bantam	182	11.3	1	42	10.4	12.1
Barkhamsted	223	13.6	3	53	12.7	14.4
Beacon Falls	179	11.3	1	35	10.5	12.2
Berlin	1,641	6.9	1	31	6.7	7.0
Bethany	562	13.4	1	54	12.9	13.9
Bethel	2,703	6.9	1	37	6.7	7.0
Bethlehem	37	16.6	3	24	14.8	18.3
Bloomfield	1,862	14.5	1	60	14.1	14.8
Bolton	277	9.8	1	26	9.3	10.2
Bozrah	318	12.6	2	35	12.0	13.1
Branford	4,245	6.9	1	43	6.8	7.0
Bridgeport	26,410	7.6	1	58	7.6	7.7
Bridgewater	68	12.3	2	34	10.8	13.8
Bristol	190	12.7	1	34	11.7	13.7
Broad Brook	558	10.3	1	35	10.0	10.6
Brookfield	1,292	5.7	1	45	5.5	5.9
Brooklyn	986	10.3	1	43	10.0	10.7
Burlington	112	9.5	2	26	8.7	10.4
Canaan	893	8.0	1	42	7.7	8.4
Canterbury	198	15.6	2	41	14.6	16.5
Canton	819	11.0	1	58	10.6	11.5
Canton Center	7					
Centerbrook	130	12.8	3	38	12.0	13.6
Central Village	200	7.8	1	33	7.1	8.5

Estimates of Response Time in Minutes by Town of Incident, 2014						
Town of Incident	# records	Mean	Minimum	Maximum	95% CI	
Chaplin	107	11.0	2	32	10.2	11.8
Cheshire	672	7.2	1	37	6.8	7.5
Chester	340	14.7	1	44	14.1	15.2
Clinton	1,311	12.7	1	43	12.5	13.0
Cobalt	74	12.8	5	25	11.7	13.8
Colchester	1,722	10.7	1	47	10.4	10.9
Colebrook	90	15.2	1	28	13.7	16.6
Collinsville	82	6.4	1	18	5.6	7.2
Columbia	390	9.8	2	36	9.4	10.3
Cornwall	66	13.6	1	25	12.3	14.9
Cornwall Bridge	102	15.9	2	33	14.7	17.0
Cos Cob	424	4.2	1	24	4.0	4.5
Coventry	1,183	10.6	1	57	10.3	10.9
Cromwell	2,510	8.7	1	59	8.5	8.9
Danbury	9,114	5.6	1	60	5.5	5.7
Danielson	2,350	8.1	1	46	8.0	8.3
Darien	1,834	6.2	1	32	6.1	6.4
Dayville	1,097	9.8	1	37	9.5	10.0
Deep River	510	13.6	1	32	13.3	14.0
Derby	1,983	7.0	1	54	6.8	7.2
Durham	670	12.8	1	37	12.4	13.2
East Berlin	144	6.6	1	40	6.0	7.2
East Canaan	22					
East Glastonbury	10					
East Granby	252	9.4	1	28	8.8	10.0
East Haddam	543	20.3	3	49	19.8	20.9
East Hampton	1,130	12.7	1	52	12.4	13.0
East Hartford	14,849	6.4	1	60	6.4	6.5
East Hartland	45	13.6	2	42	11.3	15.8
East Haven	7,557	9.4	1	56	9.3	9.6
East Killingly	22					
East Lyme	765	7.9	1	44	7.6	8.3
East Windsor	1,254	5.7	1	26	5.5	5.8
East Windsor Hill	2					
East Woodstock	1					
Eastford	127	14.9	4	31	13.8	16.0
Easton	587	10.1	1	44	9.5	10.6
Ellington	1,163	9.7	1	60	9.2	10.1
Enfield	6,217	7.3	1	58	7.2	7.4
Essex	718	13.4	1	45	13.0	13.9
Fairfield	5,135	7.6	1	51	7.5	7.8
Falls Village	74	13.7	2	37	12.4	15.1

Estimates of Response Time in Minutes by Town of Incident, 2014						
Town of Incident	# records	Mean	Minimum	Maximum	95% CI	
Farmington	3,163	8.7	1	49	8.5	8.9
Gales Ferry	506	14.1	1	38	13.6	14.6
Gaylordsville	73	17.6	8	42	16.0	19.2
Georgetown	98	9.7	1	30	8.6	10.7
Gilman	2					
Glastonbury	3,759	7.0	1	41	6.8	7.1
Goshen	29					
Granby	478	8.7	1	55	8.2	9.3
Greens Farms	1					
Greenwich	4,587	5.7	1	58	5.6	5.8
Grosvenor Dale	24					
Groton	6,029	8.5	1	52	8.4	8.6
Guilford	1,910	8.4	1	56	8.1	8.6
Haddam	596	15.3	4	51	14.8	15.7
Hadlyme	6					
Hamden	7,120	12.7	1	60	12.6	12.9
Hampton	60	13.3	3	30	12.2	14.5
Hanover	18					
Hartford	31,296	7.7	1	60	7.7	7.8
Harwinton	233	9.4	1	28	8.8	10.0
Hawleyville	1					
Hebron	594	12.1	1	42	11.6	12.5
Higganum	297	12.1	2	42	11.4	12.8
Ivoryton	134	15.4	2	39	14.3	16.5
Jewett City	1,592	9.2	1	54	8.9	9.4
Kent	410	15.5	1	40	14.9	16.1
Killingworth	470	18.1	2	47	17.6	18.6
Lakeside	7					
Lakeville	92	14.6	1	57	12.8	16.4
Lebanon	628	13.6	1	45	13.2	14.1
Ledyard	1,464	10.2	1	50	9.8	10.5
Litchfield	557	9.0	2	51	8.6	9.4
Madison	1,841	6.2	1	24	6.0	6.4
Manchester	10,242	6.2	1	54	6.1	6.3
Mansfield Center	914	8.1	1	33	7.9	8.4
Mansfield Depot	5					
Marion	1					
Marlborough	293	14.7	1	60	13.6	15.7
Mashantucket	50	8.9	1	25	6.8	11.0
Meriden	9,603	5.7	1	57	5.7	5.8
Middle Haddam	6					
Middlebury	264	10.7	1	32	10.2	11.3
Middlefield	288	9.7	1	23	9.2	10.1

Estimates of Response Time in Minutes by Town of Incident, 2014						
Town of Incident	# records	Mean	Minimum	Maximum	95% CI	
Middletown	9,043	6.9	1	32	6.8	6.9
Milford	6,233	9.6	1	55	9.4	9.7
Milldale	5					
Monroe	2,061	10.2	1	52	10.0	10.4
Montville	81	7.9	2	35	6.9	9.0
Moodus	231	18.2	1	51	17.4	19.0
Moosup	726	10.0	1	35	9.6	10.4
Morris	160	13.3	2	49	12.1	14.5
Mystic	2,062	9.1	1	50	8.9	9.3
Naugatuck	323	11.8	1	38	11.3	12.2
New Britain	13,367	6.6	1	56	6.5	6.7
New Canaan	2,875	6.9	1	46	6.7	7.1
New Fairfield	773	11.9	1	49	11.4	12.4
New Hartford	515	12.4	1	35	11.9	13.0
New Haven	33,322	8.7	1	59	8.6	8.7
New London	6,441	5.2	1	57	5.1	5.3
New Milford	2,026	10.5	1	52	10.3	10.8
New Preston Marble Dale	63	17.2	7	26	16.1	18.3
Newington	3,658	8.8	1	58	8.6	9.0
Newtown	1,900	9.8	1	38	9.6	10.1
Niantic	1,763	7.6	1	55	7.4	7.8
Norfolk	163	12.4	2	40	11.5	13.3
North Branford	807	12.7	1	52	12.3	13.0
North Franklin	218	12.2	2	31	11.6	12.8
North Granby	34	12.4	3	42	9.6	15.2
North Grosvenordale	436	10.0	1	57	9.4	10.6
North Haven	5,257	9.8	1	60	9.6	10.0
North Stonington	203	13.0	1	51	12.0	14.0
North Westchester	2					
North Windham	517	8.2	1	56	7.9	8.5
Northfield	62	13.3	7	26	12.3	14.3
Northford	340	9.1	1	29	8.5	9.7
Norwalk	10,466	8.4	1	53	8.3	8.5
Norwich	6,294	6.8	1	50	6.7	6.9
Oakdale	674	8.6	1	31	8.2	9.0
Oakville	655	9.4	1	37	9.0	9.8
Old Greenwich	383	5.8	1	37	5.4	6.2
Old Lyme	852	14.1	1	50	13.6	14.5
Old Mystic	13					
Old Saybrook	1,834	11.2	1	44	11.0	11.4
Oneco	47	14.1	2	23	12.7	15.4
Orange	3,124	9.4	1	59	9.1	9.6
Oxford	476	11.2	1	38	10.8	11.7

Estimates of Response Time in Minutes by Town of Incident, 2014						
Town of Incident	# records	Mean	Minimum	Maximum	95% CI	
Pawcatuck	212	7.8	1	24	7.1	8.4
Pequabuck	6					
Pine Meadow	3					
Plainfield	1,324	9.9	1	31	9.6	10.2
Plainville	2,216	8.0	1	48	7.8	8.2
Plantsville	1,202	6.6	1	55	6.3	6.8
Plymouth	252	9.5	1	31	9.0	10.1
Pomfret	53	12.6	3	20	11.4	13.7
Pomfret Center	202	15.2	1	48	14.3	16.1
Poquonock	3					
Portland	1,116	8.6	1	25	8.4	8.8
Preston	633	10.8	1	32	10.4	11.2
Prospect	229	12.8	3	32	12.2	13.4
Putnam	1,404	7.7	1	45	7.5	8.0
Quaker Hill	481	7.3	1	28	7.0	7.6
Quinebaug	58	10.9	2	29	9.6	12.3
Redding	805	9.9	1	60	9.4	10.3
Redding Center	175	11.3	1	41	10.4	12.1
Redding Ridge	66	11.4	3	30	9.9	12.8
Ridgefield	2,061	7.2	1	39	7.0	7.3
Riverside	581	4.3	1	51	4.0	4.6
Riverton	21					
Rockfall	55	7.5	2	19	6.6	8.3
Rocky Hill	2,885	6.3	1	40	6.2	6.4
Rogers	17					
Roxbury	115	14.1	2	52	12.8	15.5
Salem	287	13.1	3	34	12.5	13.7
Salisbury	123	14.1	2	33	13.2	15.0
Sandy Hook	784	11.6	1	46	11.2	12.0
Scotland	81	12.8	5	31	11.9	13.7
Seymour	699	8.7	1	49	8.4	9.0
Shelton	6,721	9.3	1	60	9.2	9.4
Sherman	142	16.5	1	58	15.3	17.6
Simsbury	270	16.4	1	60	15.6	17.2
Somers	889	9.6	1	50	9.2	10.0
Somersville	14					
South Glastonbury	202	10.9	2	26	10.2	11.5
South Kent	64	19.0	8	43	17.5	20.5
South Windham	60	8.9	2	24	7.7	10.1
South Windsor	2,792	7.0	1	36	6.9	7.2
South Woodstock	1					

Estimates of Response Time in Minutes by Town of Incident, 2014						
Town of Incident	# records	Mean	Minimum	Maximum	95% CI	
Southbury	3,405	8.5	1	43	8.4	8.7
Southington	3,336	7.0	1	54	6.8	7.2
Southport	320	9.2	1	42	8.5	9.8
Stafford	3					
Stafford Springs	1,275	9.8	1	46	9.5	10.1
Stamford	12,728	6.9	1	60	6.8	7.0
Sterling	220	15.2	2	42	14.4	16.0
Stevenson	2					
Stonington	573	11.2	1	46	10.8	11.7
Storrs Mansfield	1,667	6.1	1	55	5.9	6.3
Stratford	7,685	7.4	1	49	7.3	7.5
Suffield	1,419	10.4	1	51	10.1	10.7
Taftville	472	9.7	1	31	9.4	10.0
Tariffville	13					
Terryville	917	7.1	1	35	6.8	7.4
Thomaston	412	10.1	2	32	9.6	10.5
Thompson	386	12.4	1	47	11.7	13.1
Tolland	1,379	13.1	1	58	12.6	13.6
Torrington	1,426	5.3	1	28	5.2	5.5
Trumbull	4,957	8.8	1	58	8.7	8.9
Uncasville	3,792	5.0	1	32	5.0	5.1
Unionville	565	11.1	1	46	10.6	11.6
Vernon Rockville	3,908	9.4	1	60	9.1	9.7
Versailles	7					
Voluntown	240	12.8	1	43	12.0	13.7
Wallingford	6,252	7.7	1	53	7.6	7.9
Washington	111	18.7	3	45	17.4	20.0
Washington Depot	46	16.0	4	26	14.7	17.2
Waterbury	11,449	7.5	1	51	7.4	7.6
Waterford	3,197	7.1	1	55	7.0	7.3
Watertown	1,416	11.2	1	44	11.0	11.5
Wauregan	170	9.2	2	30	8.4	9.9
Weatogue	19					
West Cornwall	68	13.5	3	30	12.2	14.7
West Granby	17					
West Hartford	10,465	6.9	1	56	6.8	7.0
West Hartland	38	18.2	5	34	16.1	20.3
West Haven	7,399	11.4	1	60	11.3	11.6
West Mystic	5					
West Simsbury	15					
West Suffield	218	14.4	2	50	13.5	15.3

Estimates of Response Time in Minutes by Town of Incident, 2014						
Town of Incident	# records	Mean	Minimum	Maximum	95% CI	
Westbrook	1,012	11.9	1	55	11.5	12.3
Weston	819	13.4	1	51	13.1	13.8
Westport	3,118	7.6	1	56	7.4	7.8
Wethersfield	3,512	6.4	1	38	6.3	6.5
Willimantic	3,559	5.0	1	34	4.9	5.1
Willington	481	11.2	2	57	10.7	11.7
Wilton	2,098	8.3	1	43	8.2	8.5
Winchester Center	30	13.5	6	24	11.5	15.5
Windham	525	7.9	2	29	7.6	8.1
Windsor	3,308	7.9	1	58	7.8	8.1
Windsor Locks	1,732	5.3	1	37	5.2	5.5
Winsted	1,494	7.7	1	45	7.4	7.9
Wolcott	346	8.1	2	31	7.7	8.6
Woodbridge	1,990	8.9	1	59	8.5	9.2
Woodbury	896	17.3	2	60	16.9	17.7
Woodstock	543	11.9	1	40	11.3	12.5
Woodstock Valley	58	16.7	1	29	15.3	18.0
Yantic	8					