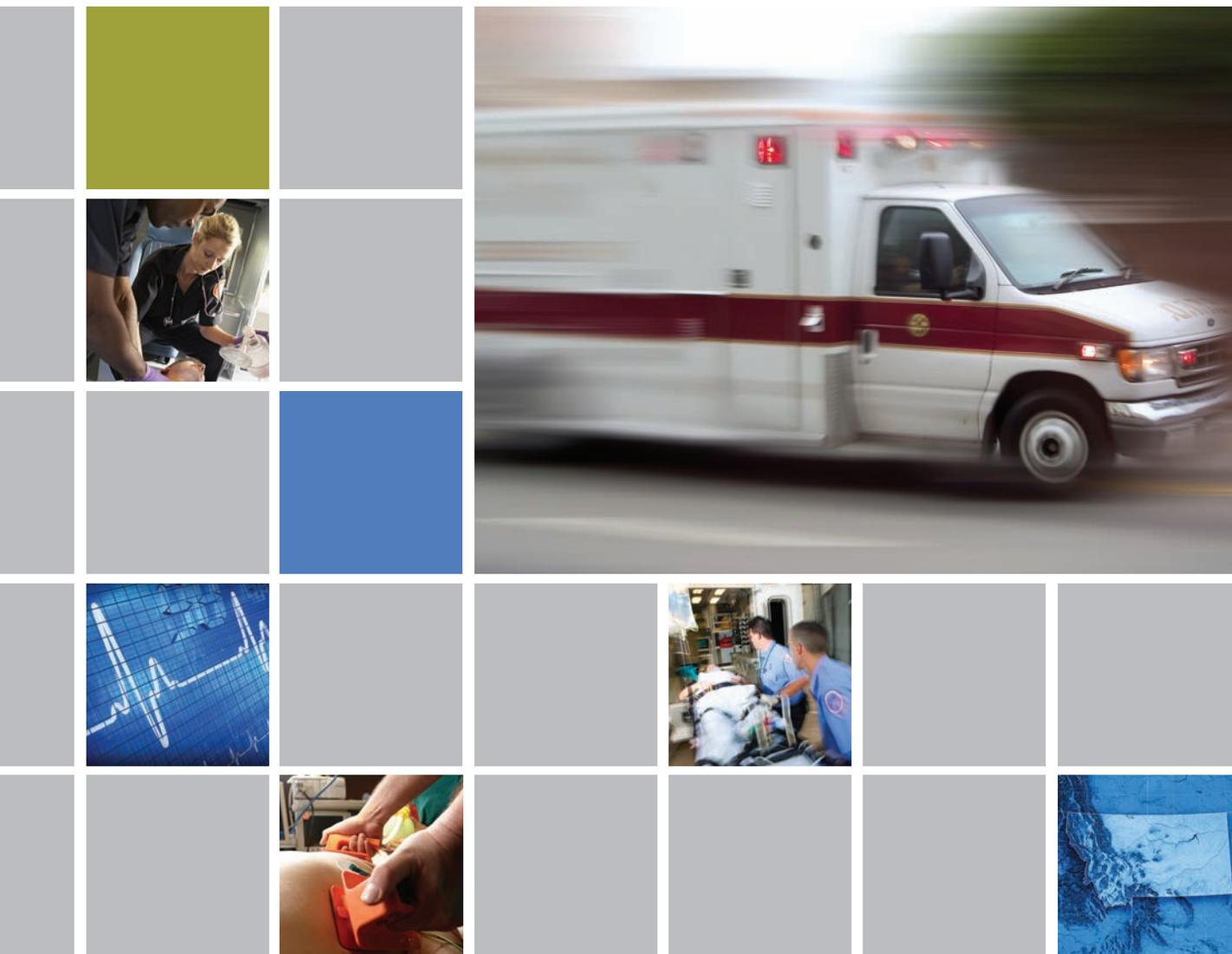


Survey of EMS Practices for Heart Disease and Stroke

Montana Summary of Results



Survey of EMS Practices for Heart Disease and Stroke: Summary of Results

Background

Heart and stroke-related deaths are, respectively, the first and fourth leading causes of mortality in the United States and major causes of disability. The most current comprehensive statistics on cardiovascular disease from the American Heart Association, published in February 2011, show that an estimated 82,600,000 American adults (1 in 3) have one or more types of cardiovascular disease. It is estimated that approximately 1,255,000 heart attacks and 795,000 strokes will occur in 2011. Also, statistics show that approximately 1 in 6 deaths are due to coronary heart disease (the most common type of heart disease) and 1 in 18 deaths are due to stroke.¹

Approximately half of heart- and stroke-related deaths² occur before a patient arrives at a hospital, underscoring the important role of pre-hospital emergency medical care in the “chain of survival” for heart attack and stroke. The statistics for cardiac arrest are difficult to pinpoint, but the best estimates are a survival rate of just 7.6%.³ Time to treatment is critical for these patients, and rapid emergency medical services (EMS) response, intervention, and transport to specialized medical facilities is essential for positive patient outcomes. The Institute of Medicine has noted, however, that across the United States, the delivery of emergency care across the health care system is fragmented, which could influence timeliness and quality of care provided for cardiovascular-related emergencies.⁴

Survey Objectives

In light of the important role of pre-hospital care in the treatment of heart and stroke events, the Division for Heart Disease and Stroke Prevention (DHDSP) at the Centers for Disease Control and Prevention (CDC) conducted a survey of state and

local EMS managers to better understand EMS capacity for emergency care of acute cardiovascular events. DHDSP developed this survey as part of its mission to increase early detection and treatment of heart disease and stroke, promote coordinated systems of care policies, enhance collaboration between CDC and state and local agencies, and identify at-risk populations to help eliminate disparities. The survey also serves to inform CDC programs in their designated role to support EMS through the Federal Interagency Committee on EMS (FICEMS).

Survey Response Rates for the 9 Participating States

State	Percent Responded
Florida	76.7
Massachusetts	74.8
Kansas	71.1
Montana	69.8
New Mexico	50.2
Wisconsin	67.6
Oregon	71.7
South Carolina	57.4
Arkansas	60.9

EMS Agency Personnel*

	Montana			All 9 States		
	Total	Min [†]	Max [‡]	Total	Min [†]	Max [‡]
Volunteer Staff						
EMT-Basic	1,380	0	100	8,514	0	100
EMT-Intermediate	121	0	17	2,520	0	60
EMT-Paramedic	80	0	20	934	0	50
Paid Staff						
EMT-Basic	552.5	0	92	14,769.6	0	100
EMT-Intermediate	100.5	0	27	3,139.3	0	75
EMT-Paramedic	307	0	45	16,159.9	0	100

* Source: Survey of EMS Practices for Heart Disease and Stroke, 2008.

[†] The smallest number of staff reported from a single agency.

[‡] The largest number of staff reported from a single agency.

EMS Agency Call Volume*

	Montana			All 9 States		
	Total	Min [†]	Max [‡]	Total	Min [†]	Max [‡]
Total non-fire	106,835	3	18,000	4,749,605	1	130,000
Chest pain	11,315	0	1,800	453,831	0	25,200
Cardiac arrest	2,594	0	300	58,703	0	2,400
Stroke	5,158	0	900	143,711	0	9,600

* Source: Survey of EMS Practices for Heart Disease and Stroke, 2008. Results reported are approximate numbers. When respondents reported a range for the number of received calls, an average of the two numbers was reported.

[†] The smallest number of calls reported from a single agency.

[‡] The largest number of calls reported from a single agency.

Survey Description

The survey consisted of 46 questions covering location and characteristics of the service area; basic descriptive information, such as EMS capacity, service levels, and types of care provided; medical direction; heart attack and stroke patient encounters; and transportation protocols. Also included was a list of 18 medical interventions (i.e., medications, devices, and procedures) relevant to emergency medical care for out-of-hospital cardiovascular crises.

The computer-assisted standardized telephone survey was administered by trained interviewers to 1,292 ground-based emergency care agency supervisors in nine states (Florida, Massachusetts, Kansas, Montana, New Mexico, Wisconsin, Oregon, South Carolina, and Arkansas). The response rate for each state ranged from 50.2% to 76.7%. The survey was designed by a team of researchers based on

literature reviews and recommendations of a panel of emergency care experts to devise a set of questions relevant to assessing cardiovascular emergency care capabilities.

Results

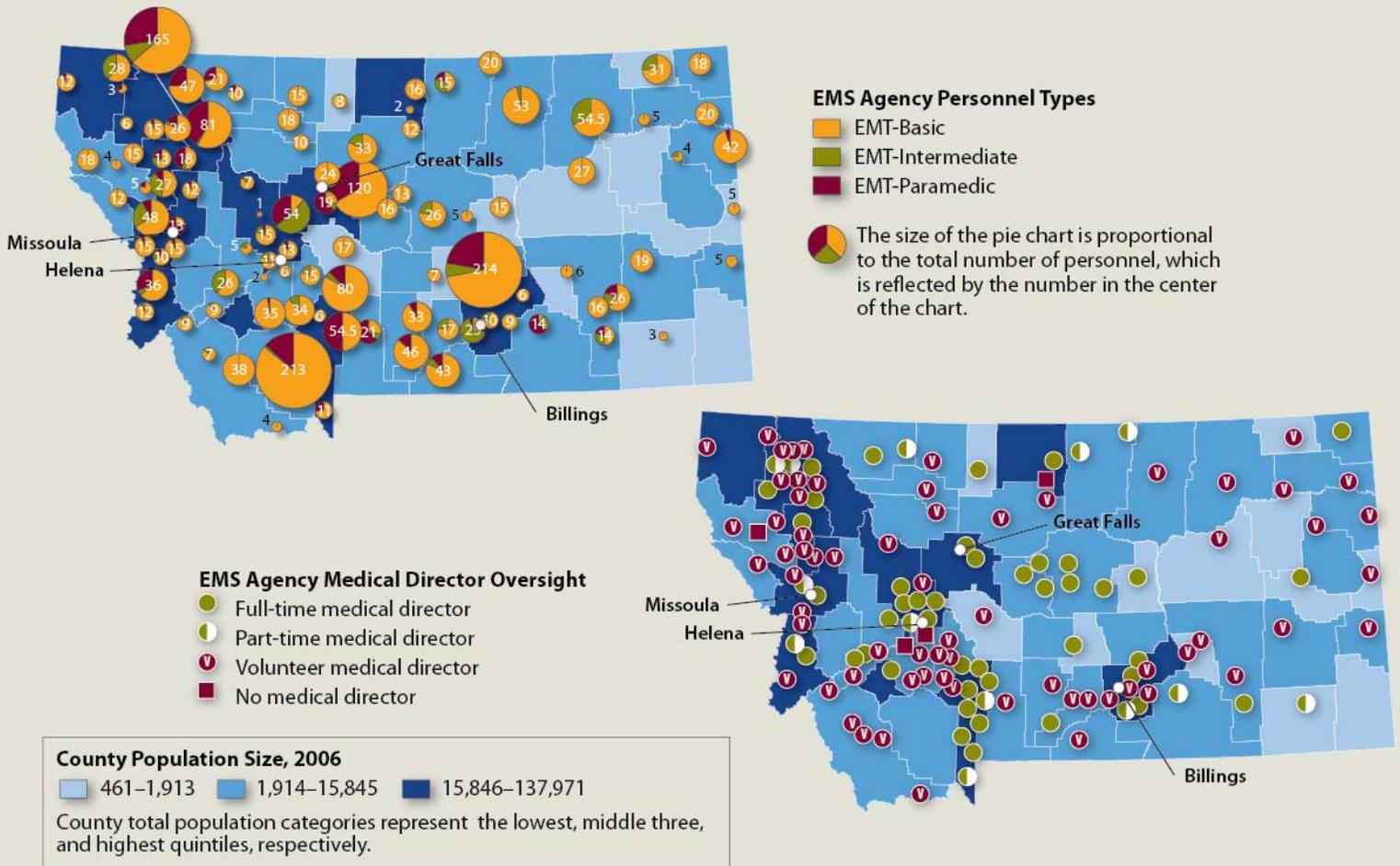
There are nine separate state summaries—one for each of the states that participated in the survey. Each state summary report provides an overview of the state-specific results and comparison data for all nine states combined. The tables and maps in this summary are survey results from participating EMS agencies in Montana.

These data will be useful for state and local EMS agencies and policymakers to provide a snapshot of heart- and stroke-related emergency response policies and personnel capabilities as well as highlight the importance of these policies for providing care to residents. These data also will provide

a useful planning resource for state and local EMS providers and serve as the basis for continued dialogue with CDC to help the agency better understand the critical care challenges that face EMS and identify ways that CDC can support emergency response for cardiovascular disease.

1. Roger VL, Go AS, Lloyd-Jones DM, et al. Heart disease and stroke statistics—2011 update. A report from the American Heart Association. *Circulation*. 2011;123:e18–e209.
2. Centers for Disease Control and Prevention. State specific mortality from sudden cardiac death: United States, 1999. *MMWR*. 2002;51(6):123–126.
3. Sasson C, Rogers MA, Dahl J, Kellerman AL. Predictors of survival from out-of-hospital cardiac arrest: A systematic review and meta-analysis. *Circ Cardiovasc Qual Outcomes*. 2010;3:63–81.
4. Institute of Medicine, Committee on the Future of Emergency Care in the United States Health System. *Emergency Medical Services: At the Crossroads*. Washington, DC: National Academies Press; 2007.

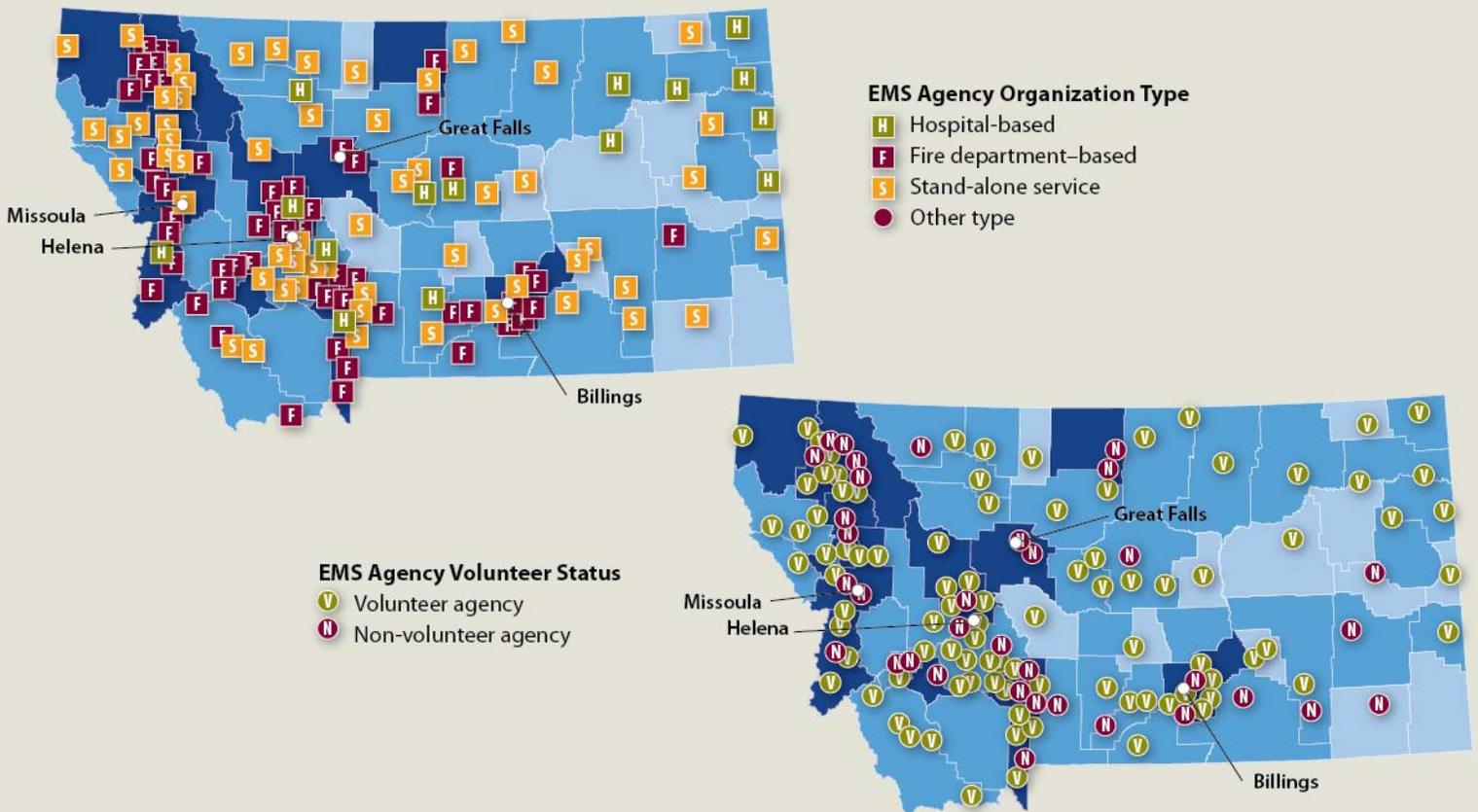
Characteristics of EMS Agencies in Montana*



EMS Scope of Practice for Cardiovascular Events: Percentage of EMS Agencies That Authorize EMTs to Perform Each Intervention*

Interventions	Montana			All 9 States		
	EMT-Basic (%)	EMT-Intermediate (%)	EMT-Paramedic (%)	EMT-Basic (%)	EMT-Intermediate (%)	EMT-Paramedic (%)
Thrombolytic agent	1.7	2.0	22.9	0.6	1.6	25.1
Morphine or equivalent	0.8	28.0	81.3	0.5	27.7	91.6
Surgical airway	0.0	6.0	83.3	0.6	2.2	78.8
Beta blocker	1.7	12.2	55.3	0.6	5.6	78.2
Anti-arrhythmic medication	1.7	32.7	83.0	0.7	24.0	93.2
Pressor agent	1.7	18.0	72.9	0.8	9.9	86.3
Central IV	5.0	12.0	31.3	1.0	15.2	35.0
Endotracheal intubation	21.5	74.0	93.8	8.7	41.0	95.4
Peripheral IV	38.8	84.3	95.8	9.2	93.3	97.1
Nitroglycerin from EMT supply	42.5	64.7	89.6	15.5	56.4	95.0
12-lead ECG	7.4	33.3	79.2	22.8	36.7	88.2
Monitor end-tidal CO2	19.2	56.9	89.6	26.4	45.0	90.2
Aspirin (ASA) from EMT supply	47.1	64.7	91.7	63.7	80.8	98.1
Alternate mechanical airway	60.3	80.4	91.7	66.7	91.9	97.0
Glucometry	74.0	88.2	95.8	83.9	95.3	98.2
Assistance with patient's nitroglycerin	91.7	92.0	95.8	86.7	91.6	93.1
Assistance with patient's aspirin	82.4	88.0	89.4	87.6	91.6	94.0
Pulse oximetry	84.9	90.2	97.9	93.8	98.0	99.1

* Source: Survey of EMS Practices for Heart Disease and Stroke, 2008. In Montana, 129 EMS agencies participated in the survey. In the total 9 states, 1,292 EMS agencies participated in the survey. However, not all of the respondents answered all questions in the survey. Therefore, the proportions reported may have slightly different denominators. Results displayed are not comprehensive and do not reflect all important characteristics for cardiovascular emergency response.

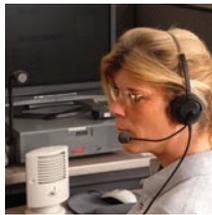
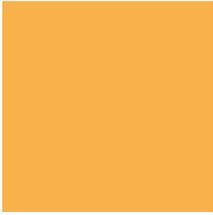


* EMS agency is represented at the centroid of the ZIP code in which it is located. In ZIP codes where multiple agencies responded to the survey, agencies are slightly offset from the centroid. All EMS agencies in the state are not represented on this map. Only EMS agencies that responded to the survey and answered the questions relevant to each map are included here.

EMS Agency Characteristics That Are Important for Cardiovascular Emergency Response*

		Montana		All 9 States	
Number of Agencies that Responded to Survey		129		1,292	
		Count	(%)	Count	(%)
Location	Rural	112	86.8	665	51.5
	Urban	17	13.2	627	48.5
Organization Type	Fire based	59	45.7	756	58.5
	Non-fire based	70	54.3	536	41.5
Volunteer Status	Volunteer	91	71.7	545	42.4
	Non-volunteer	36	28.3	672	55.2
Medical Director Involvement	Full-time	41	32.5	520	40.9
	Part-time	14	11.1	354	27.8
	Volunteer	67	53.2	383	30.1
	No medical director	4	3.2	15	1.2
	Involvement in past 4 weeks	48	40.0	633	50.4
Communication Center	Prioritizes dispatching	67	54.5	678	54.2
	Provides caller with CPR instructions	76	62.8	861	69.5
	Uses automatic vehicle location technology	12	9.7	210	16.6
Highest EMS Level of Life Support	Basic life support	39	33.9	187	15.6
	Intermediate life support	19	16.5	187	15.6
	Advanced life support	57	49.6	828	68.9
Online Immediate Access to Medical Consultation	Always, 24 hours a day, 7 days a week	92	74.2	1,155	90.3
	Sometimes, less than 24 hours a day	24	19.4	88	6.9
	Never	8	6.5	36	2.8
Provides On-Scene Time Benchmark	Chest pain or suspected heart attack	97	77.0	1,045	82.0
	≤ 15 min	89	91.8	914	87.7
	> 15 min	8	8.2	128	12.3
	Cardiac arrest	93	73.8	969	76.1
	≤ 15 min	86	92.5	806	83.4
	> 15 min	7	7.5	160	16.6
	Stroke	96	76.2	1,037	81.4
	≤ 15 min	89	92.7	921	89.1
> 15 min	7	7.3	113	10.9	
Uses Stroke Scale for Diagnosing Stroke		96	76.8	1,018	80.3
Patient Information to Receiving Hospital in Advance of Arrival	Yes	108	93.1	1,158	96.3
	No	8	6.9	45	3.7
New Therapy or Technology Adopted for Stroke in the Past Year					
Most common therapies/technologies reported (if specified):					
Adapted new stroke scale		5	33.3	399	31.4
New stroke protocol					
Pre-arrival alert of stroke team at hospital					
Funding Basis	Private for-profit	16	12.6	102	8.0
	Private not-for-profit	33	26.0	184	14.4
	Public/government	63	49.6	933	72.8
	Public-private partnership	14	11.0	62	4.8
System Capabilities	Basic 9-1-1 system	28	22.2	160	12.6
	Enhanced 9-1-1 system	88	69.8	1,073	84.2
	Other	10	7.9	41	3.2

* Source: Survey of EMS Practices for Heart Disease and Stroke, 2008. In Montana, 129 EMS agencies participated in the survey. In the total 9 states, 1,292 EMS agencies participated in the survey. However, not all of the respondents answered all questions in the survey. Therefore, the proportions reported may have slightly different denominators. Results displayed are not comprehensive and do not reflect all important characteristics for cardiovascular emergency response.



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