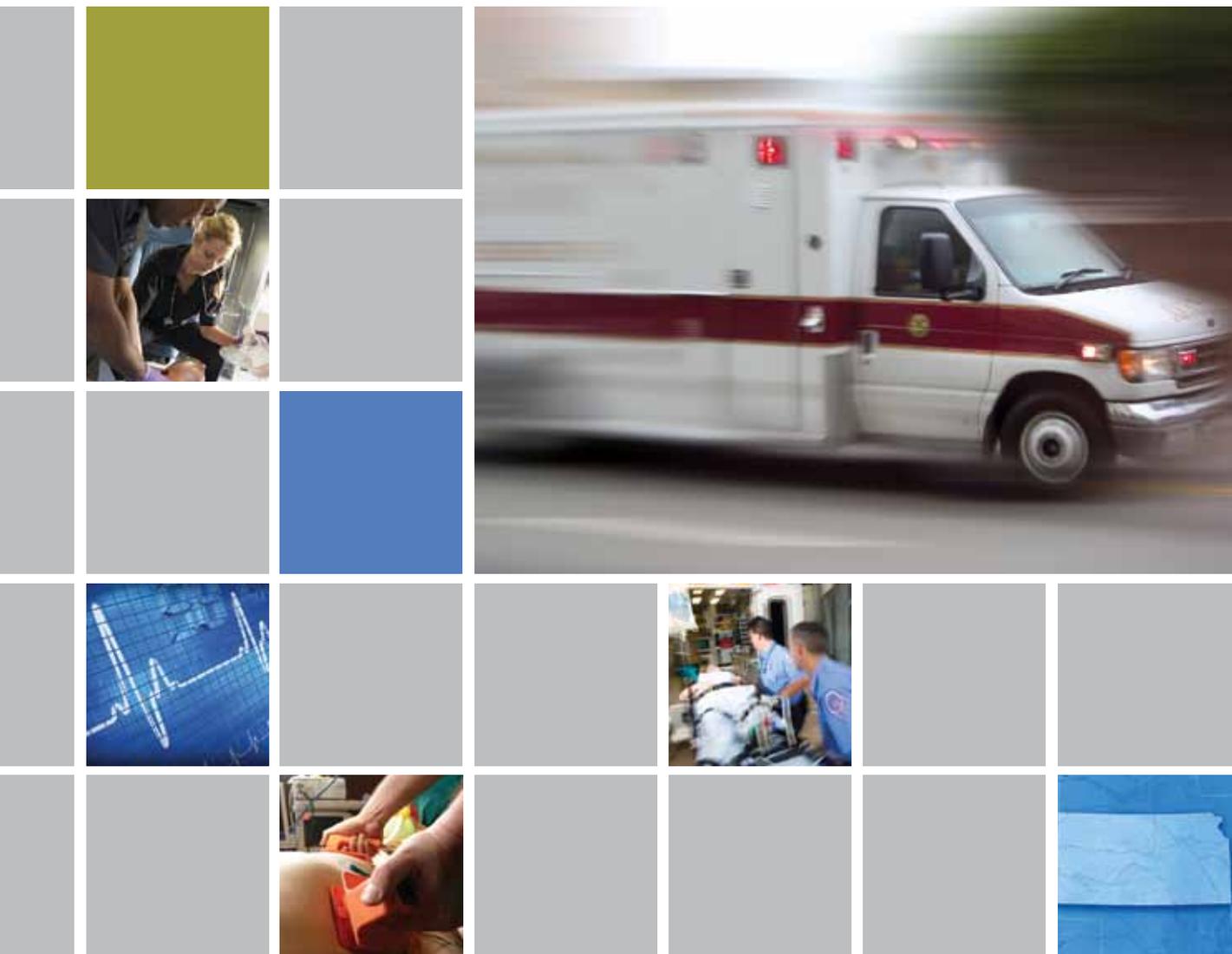


Survey of EMS Practices for Heart Disease and Stroke

Kansas 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*

	Kansas			All 9 States		
	Total	Min [†]	Max [‡]	Total	Min [†]	Max [‡]
Volunteer Staff						
EMT-Basic	713	0	78	8,514	0	100
EMT-Intermediate	225	0	18	2,520	0	60
EMT-Paramedic	51	0	4	934	0	50
Paid Staff						
EMT-Basic	653	0	100	14,769.6	0	100
EMT-Intermediate	368	0	30	3,139.3	0	75
EMT-Paramedic	725	0	100	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*

	Kansas			All 9 States		
	Total	Min [†]	Max [‡]	Total	Min [†]	Max [‡]
Total non-fire	197,280	30	32,000	4,749,605	1	130,000
Chest pain	17,333	5	1,500	453,831	0	25,200
Cardiac arrest	3,092	0	600	58,703	0	2,400
Stroke	6,435	0	1,092	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

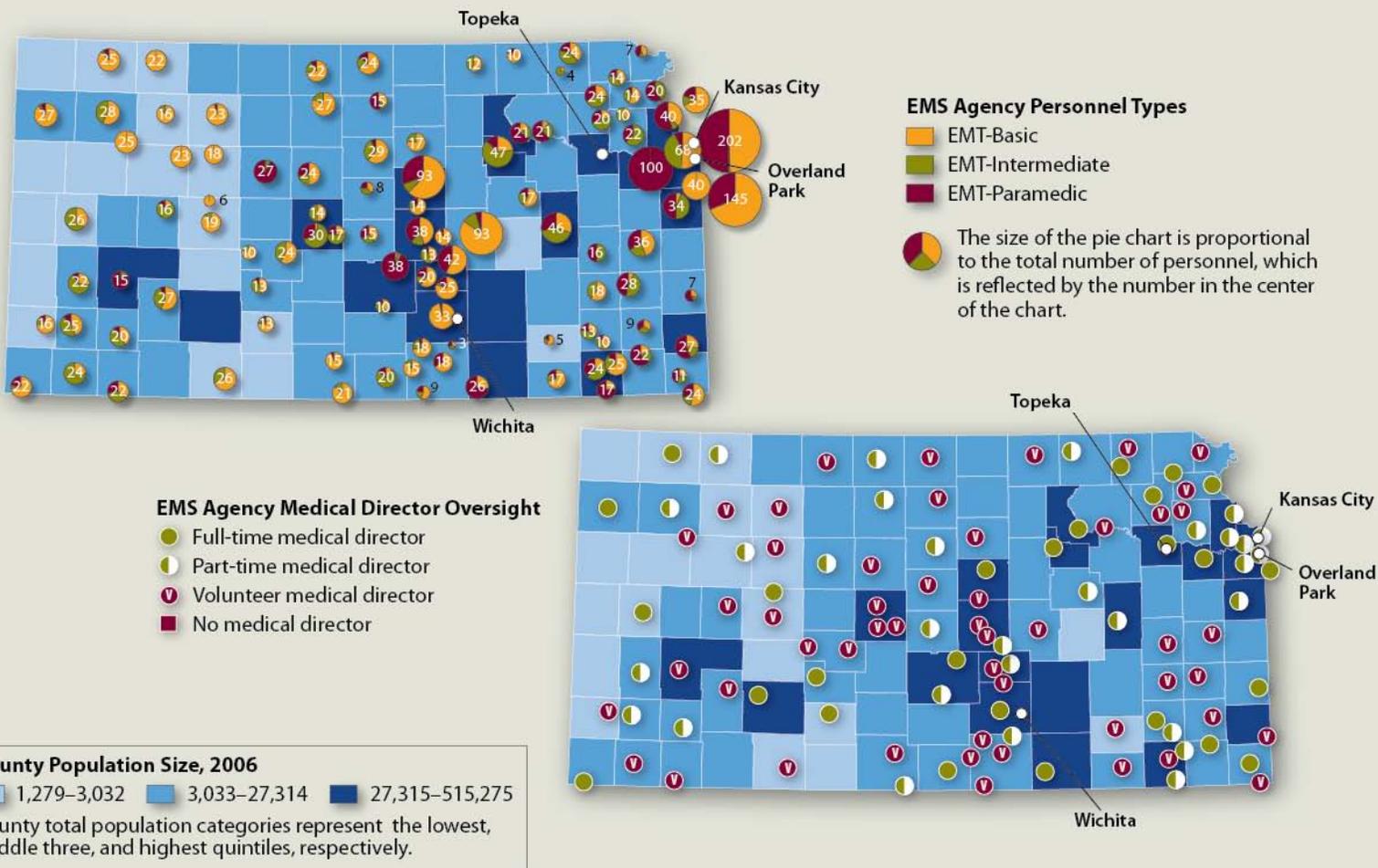
There are nine separate state summaries—one for each of the states that participated in the survey. Each state summary report provides an overview of the state-specific results and comparison data for all nine states combined. The tables and maps in this summary are survey results from participating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

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.

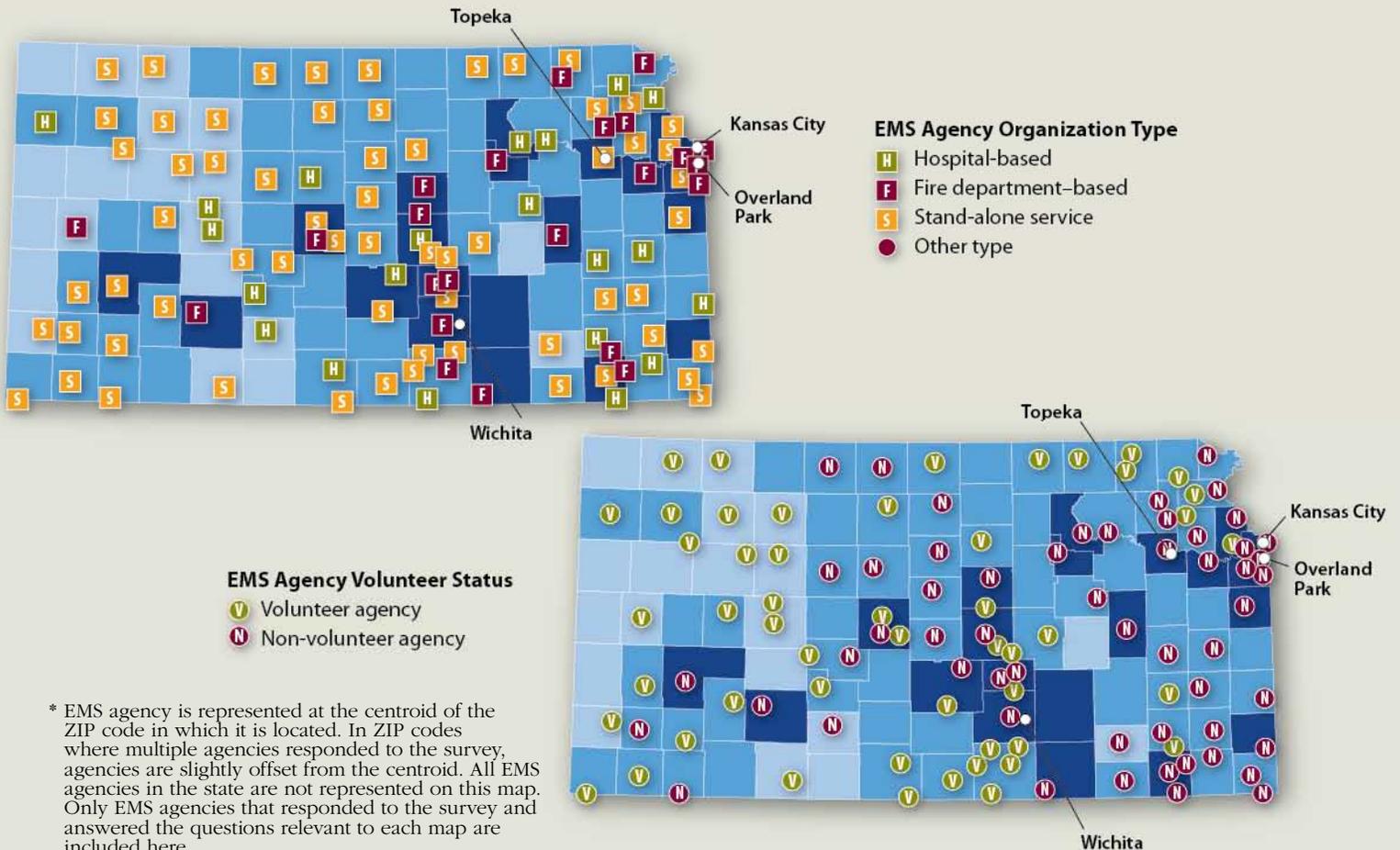
Characteristics of EMS Agencies in Kansas*



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

Interventions	Kansas			All 9 States		
	EMT-Basic (%)	EMT-Intermediate (%)	EMT-Paramedic (%)	EMT-Basic (%)	EMT-Intermediate (%)	EMT-Paramedic (%)
Thrombolytic agent	0.0	0.0	32.9	0.6	1.6	25.1
Morphine or equivalent	0.0	0.0	92.7	0.5	27.7	91.6
Surgical airway	0.0	1.1	84.2	0.6	2.2	78.8
Beta blocker	0.0	0.0	87.8	0.6	5.6	78.2
Anti-arrhythmic medication	0.0	1.1	92.7	0.7	24.0	93.2
Pressor agent	0.0	0.0	91.5	0.8	9.9	86.3
Central IV	1.0	9.0	35.4	1.0	15.2	35.0
Endotracheal intubation	1.0	46.1	95.1	8.7	41.0	95.4
Peripheral IV	3.0	95.5	98.8	9.2	93.3	97.1
Nitroglycerin from EMT supply	9.1	12.4	93.9	15.5	56.4	95.0
12-lead ECG	17.2	31.5	76.8	22.8	36.7	88.2
Monitor end-tidal CO2	21.7	37.9	77.8	26.4	45.0	90.2
Aspirin (ASA) from EMT supply	47.5	58.4	95.1	63.7	80.8	98.1
Alternate mechanical airway	91.9	95.5	98.8	66.7	91.9	97.0
Glucometry	87.9	96.6	100.0	83.9	95.3	98.2
Assistance with patient's nitroglycerin	86.9	92.1	98.8	86.7	91.6	93.1
Assistance with patient's aspirin	85.9	87.6	97.6	87.6	91.6	94.0
Pulse oximetry	98.0	100.0	100.0	93.8	98.0	99.1

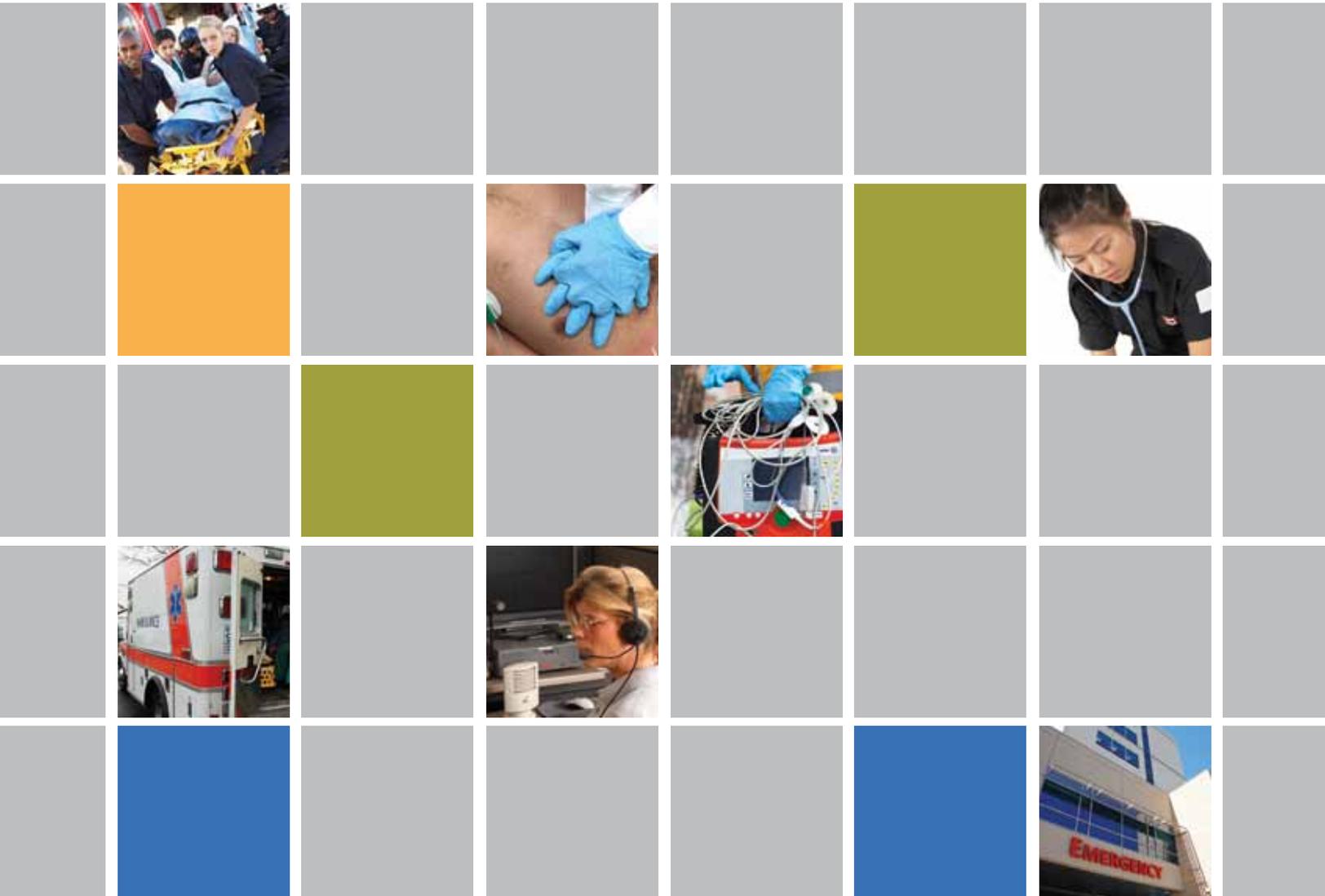
* Source: Survey of EMS Practices for Heart Disease and Stroke, 2008. In Kansas, 107 EMS agencies participated in the survey. In the total 9 states, 1,292 EMS agencies participated in the survey. However, not all of the respondents answered all questions in the survey. Therefore, the proportions reported may have slightly different denominators. Results displayed are not comprehensive and do not reflect all important characteristics for cardiovascular emergency response.



EMS Agency Characteristics That Are Important for Cardiovascular Emergency Response*

		Kansas		All 9 States	
Number of Agencies that Responded to Survey		107		1,292	
		Count	(%)	Count	(%)
Location	Rural	90	84.1	665	51.5
	Urban	17	15.9	627	48.5
Organization Type	Fire based	26	24.3	756	58.5
	Non-fire based	81	75.7	536	41.5
Volunteer Status	Volunteer	51	47.7	545	42.4
	Non-volunteer	56	52.3	672	55.2
Medical Director Involvement	Full-time	25	23.6	520	40.9
	Part-time	30	28.3	354	27.8
	Volunteer	51	48.1	383	30.1
	No medical director	0		15	1.2
	Involvement in past 4 weeks	61	57.0	633	50.4
Communication Center	Prioritizes dispatching	47	44.8	678	54.2
	Provides caller with CPR instructions	64	61.5	861	69.5
	Uses automatic vehicle location technology	10	9.5	210	16.6
Highest EMS Level of Life Support	Basic life support	12	11.3	187	15.6
	Intermediate life support	21	19.8	187	15.6
	Advanced life support	73	68.9	828	68.9
Online Immediate Access to Medical Consultation	Always, 24 hours a day, 7 days a week	97	90.7	1,155	90.3
	Sometimes, less than 24 hours a day	9	8.4	88	6.9
	Never	1	0.9	36	2.8
Provides On-Scene Time Benchmark	Chest pain or suspected heart attack	92	86.0	1,045	82.0
	≤ 15 min	73	80.2	914	87.7
	> 15 min	18	19.8	128	12.3
	Cardiac arrest	89	83.2	969	76.1
	≤ 15 min	65	73.9	806	83.4
	> 15 min	24	27.3	160	16.6
	Stroke	92	86.0	1,037	81.4
	≤ 15 min	75	82.4	921	89.1
> 15 min	16	17.6	113	10.9	
Uses Stroke Scale for Diagnosing Stroke		78	72.9	1,018	80.3
Patient Information to Receiving Hospital in Advance of Arrival	Yes	106	100.0	1,158	96.3
	No	0		45	3.7
New Therapy or Technology Adopted for Stroke in the Past Year					
Most common therapies/technologies reported (if specified):					
12-lead EKG		33	30.8	399	31.4
New or updated stroke protocol					
Funding Basis	Private for-profit	2	1.9	102	8.0
	Private not-for-profit	10	9.4	184	14.4
	Public/government	87	82.1	933	72.8
	Public-private partnership	9	8.5	62	4.8
System Capabilities	Basic 9-1-1 system	16	15.1	160	12.6
	Enhanced 9-1-1 system	90	84.9	1,073	84.2
	Other	0		41	3.2

* Source: Survey of EMS Practices for Heart Disease and Stroke, 2008. In Kansas, 107 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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