



# Michigan's Ongoing Stroke Registry to Accelerate Improvement of Care (MOSAIC)

***EMS Stroke Quality Improvement Activities***

# Learning Objectives

- Discuss the role of the Department, Medical Control Authorities, and EMS agencies in the EMS system
- Define the different types of EMS providers and capabilities
- Discuss EMS performance measures and data feedback for quality improvement initiatives

# Michigan EMS System

820 Agencies

3557 Vehicles

29,000 Providers



- Public Health Code Parts 201 & 209
- Administrative Rules
- EMS System Development
- Advisory Body is EMS Coordination Committee and 11 Subcommittees
- Trauma and Time Dependent Emergencies Systems
- Hospital Designations
- Personnel Licensure
- Agency Licensure
- Vehicle Licensure
- EMS Education
- MCA Structure
- Medical Direction/Protocols
- MEDCOM Plan
- Data/Quality
- Compliance

State

Local MCA

- Supervise and coordinate EMS as prescribed, adopted and enforced through State approved protocols
- Medical Control Authority Board appointed by participating organizations to carry out responsibilities of the MCA
- Adopt State Protocols (Can modify to meet jurisdictional need with approval of Quality Assurance Task Force)
- Medical Director
- Provider Competence
- Medical Oversight to Agencies within the MCA
- Local Professional Standards Review Committee
- Local Continuous Quality Improvement Program
- Assure compliance of each life support agency and EMS providers based on protocols established by the MCA and approved by the State
- Ensure local communications system congruent with State MEDCOM Plan

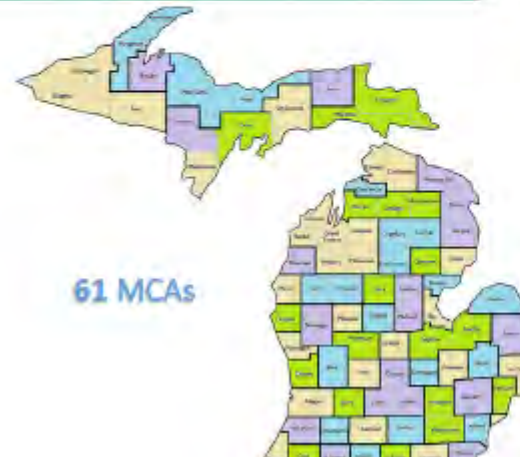
8 Regions



- Trauma Networks: Regional trauma activities including involvement with development of regional trauma protocols, Regional Professional Standards Review Committee specific to Trauma System Issues. The structure in place will be leveraged to support further development of additional time dependent emergencies such as stroke and STEMI
- Regional Medical Control Authority Networks: Work collaboratively on EMS projects agreed upon by MCAs within the region or in some cases adjacent regions to improve patient outcomes and support the EMS system
- Healthcare Coalitions: Emergency Preparedness Planning boards, work with the MCAs and other partners such as LTC, Behavioral Health, Local Public Health Dialysis Units, etc. to support regional preparedness and response to public health emergencies and disasters.

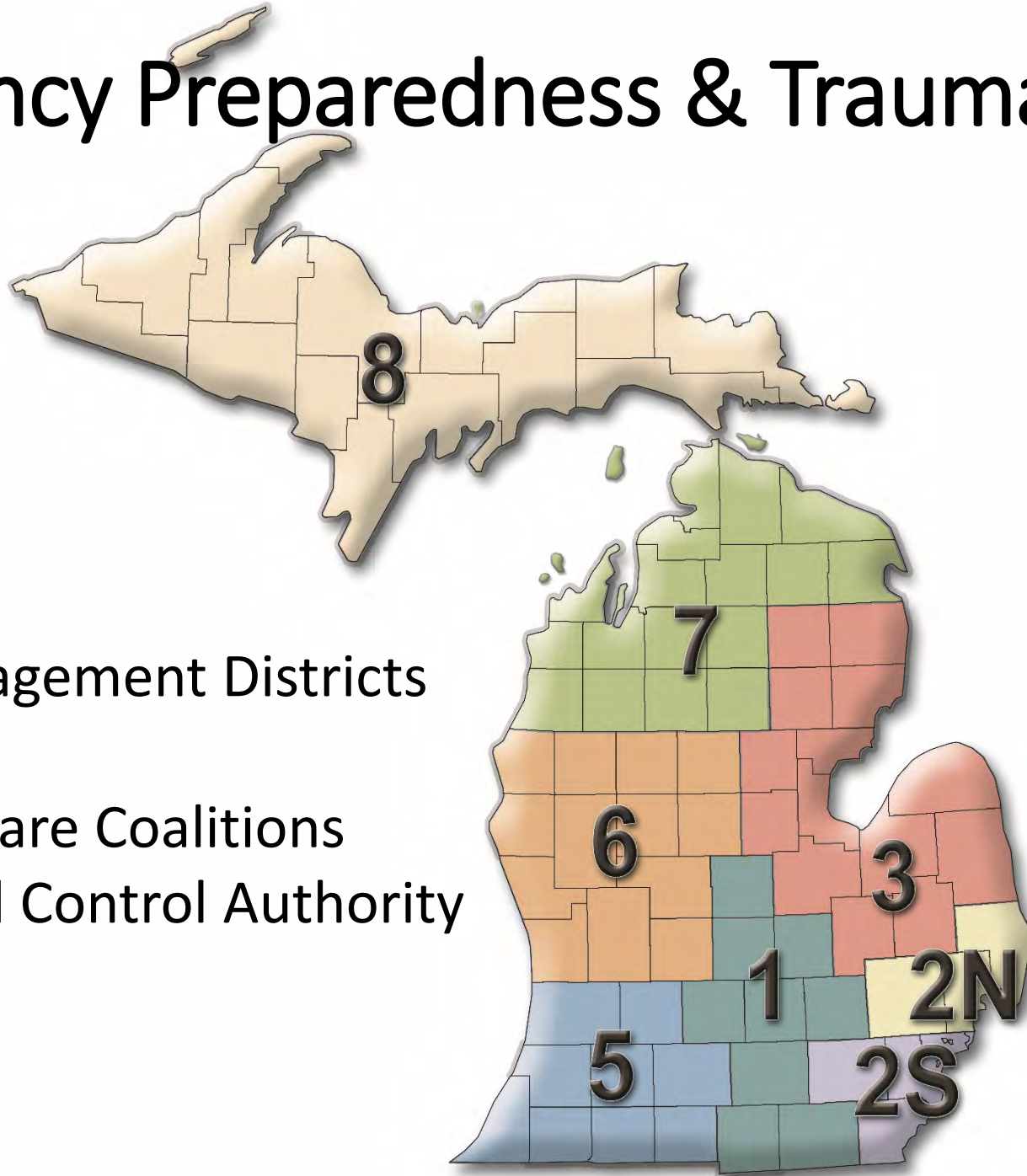
Regional Networks

61 MCAs





# Emergency Preparedness & Trauma Regions



- ❖ Emergency Management Districts
- ❖ Trauma Regions
- ❖ Regional Healthcare Coalitions
- ❖ Regional Medical Control Authority Networks

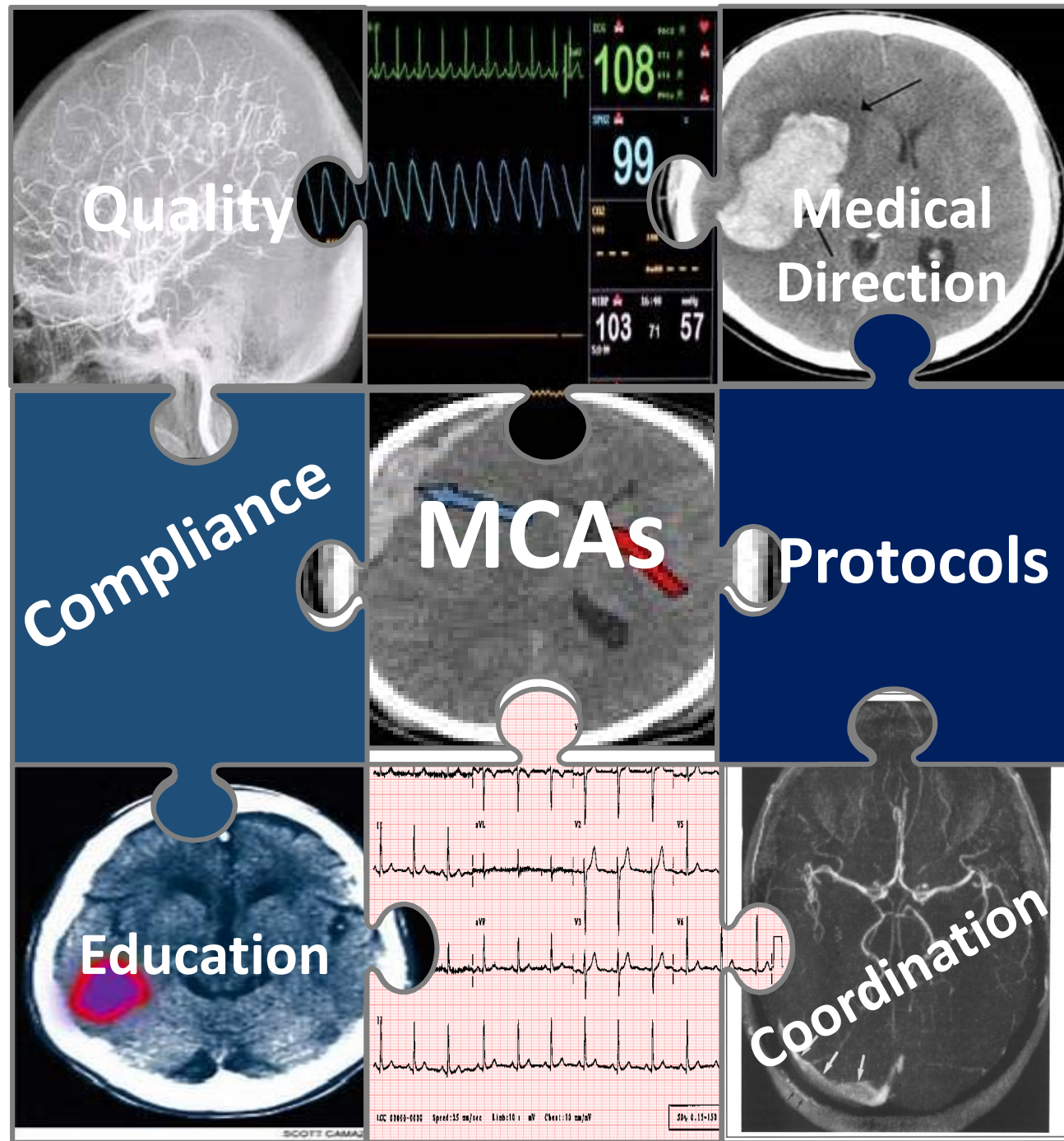




# Medical Control Authority Coverage



- |    |                              |    |                          |
|----|------------------------------|----|--------------------------|
| 1  | Keweenaw MCA                 | 32 | Gratiot County MCA       |
| 2  | Baraga County MCA            | 33 | Saginaw Valley MCA       |
| 3  | Gogebic/Ontonagon MCA        | 34 | Sanilac County MCA       |
| 4  | Marquette-Alger MCA          | 35 | Muskegon County MCA      |
| 5  | Luce County MCA              | 36 | Montcalm County MCA      |
| 6  | Eastern UP MCA               | 37 | Ottawa County MCA        |
| 7  | Iron County MCA              | 38 | Kent County MCA          |
| 8  | Schoolcraft County MCA       | 39 | Ionia County MCA         |
| 9  | Dickinson County MCA         | 40 | Shiawassee County MCA    |
| 10 | Delta County MCA             | 41 | Genesee County MCA       |
| 11 | Bay Area MCA                 | 42 | Lapeer County MCA        |
| 12 | Northern Michigan MCA        | 43 | St. Clair County MCA     |
| 13 | Charlevoix County MCA        | 44 | Allegan County MCA       |
| 14 | Otsego County MCA            | 45 | Barry County MCA         |
| 15 | Northeast Michigan MCA       | 46 | Tri-County MCA           |
| 16 | Northwest Regional MCA       | 47 | Oakland County MCA       |
| 17 | North Central MCA            | 48 | Macomb County MCA        |
| 18 | Manistee County MCA          | 49 | Berrien County MCA       |
| 19 | Ogemaw County MCA            | 50 | VanBuren County MCA      |
| 20 | Iosco County (aka Huron MCA) | 51 | Kalamazoo County MCA     |
| 21 | Mason County MCA             | 52 | Calhoun County MCA       |
| 22 | Lakola MCA                   | 53 | Jackson County MCA       |
| 23 | Clare County MCA             | 54 | Washtenaw/Livingston MCA |
| 24 | Arenac County MCA            | 55 | Wayne County MCA         |
| 25 | Oceana County MCA            | 56 | Detroit East MCA         |
| 26 | Mecosta County MCA           | 57 | Cass County MCA          |
| 27 | Isabella County MCA          | 58 | St. Joseph County MCA    |
| 28 | Midland-Gladwin County MCA   | 59 | Branch County MCA        |
| 29 | Bay County MCA               | 60 | Hillsdale County MCA     |
| 30 | Huron County MCA             | 61 | Lenawee County MCA       |
| 31 | Newaygo County MCA           | 62 | Monroe County MCA        |





# EMS Agencies

- Primary Goal: Quality Patient Care
  - 24/7/365 service
  - Adherence to protocols
  - Oversight of agency operations and personnel
  - Provision of data







# Mi-EMSIS







*Michigan*  
**Adult Treatment Protocols**  
**CEREBROVASCULAR ACCIDENT (CVA, STROKE)**

Date: May 31, 2012

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*Cerebrovascular Accident (CVA, Stroke)*

**Pre-Medical Control**

**MFR/EMT/SPECIALIST/PARAMEDIC**

1. Follow General Pre-hospital Care Protocol.

**EMT/SPECIALIST/PARAMEDIC**

2. Measure blood glucose
  - A. If blood glucose less than 60 mg/dl treat per Altered Mental Status Protocol
3. If seizure, follow Seizures Protocol.
4. Utilize the Cincinnati Pre-hospital Stroke Scale. Try to elicit the following signs:
  - A. Facial droop (have patient show teeth or smile)
  - B. Arm drift (have patient close eyes and hold both arms straight out for 10 seconds)
  - C. Abnormal speech (have patient say the sky is blue in Michigan)
5. Document time last seen normal (for patient).
6. Minimize scene time and begin transport.
7. Make contact with destination hospital, notify as soon as possible.

**SPECIALIST/PARAMEDIC**

8. Initiate vascular access.

**PARAMEDIC**

9. Monitor ECG. (**DO NOT** delay scene time for IV and ECG monitoring.)



# CDC Performance Measures

1. % of stroke transports with an on-scene time <15 minutes
2. % of stroke transports with a BGL checked and recorded
3. % of stroke transport where EMS called in a stroke alert pre-notification
4. % of stroke transports that had a stroke screen completed and recorded
5. % of stroke transports that had a documented time last known to be well
6. % of stroke transports that had a documented time of discovery
7. % of stroke transports that had a thrombolytic stroke check completed and documented
8. % of stroke transports where EMS diagnosis agreed with hospital diagnosis

# EMS Recruitment

- Recruited 9 EMS agencies, which account for 2.3% of stroke transports in the State of Michigan.
- 6 EMS agencies serve the Lansing area, which is the third largest metro area in Michigan (2 Coverdell hospitals)
- 3 EMS agencies serve under Kent County Emergency Medical Services (KCEMS) (1 Coverdell hospital)
- Met with Detroit area MCAs to discuss the program and potential recruitment (2 Coverdell hospitals)



# EMS Outcome Reports

- Linked EMS data with hospital registry data to include outcome data on EMS reports
- Developed EMS data reports based on feedback from participating MCAs

Table 1: All Cases Transported to Coverdell Facilities via EMS with a Primary or Secondary Impression of Stroke			Table 2: All Cases with a Primary or Secondary Impression of Stroke Confirmed as Stroke by Hospital			Table 3: Patient Outcomes Among Cases Confirmed as Stroke by Hospital		
	N	%		N	%		N	%
<b>Total:</b>		---	<b>Total:</b>		---	<b>Total:</b>		---
<b>Cases Transported by Hospital:</b>			<b>Cases Transported by Hospital:</b>			<b>Stroke type</b>		
Sparrow			Sparrow			Ischemic		
McLaren-Greater Lansing			McLaren-Greater Lansing			Hemorrhagic		
N/A						TIA		
						Stroke Not Specified		
<b>DEMOGRAPHICS</b>			<b>DEMOGRAPHICS</b>					
<b>Age</b>			<b>Age</b>			<b>Received t-PA?(Ischemic Stroke Cases Only)</b>	N =	
Mean			Mean			Yes		
Median			Median			No		
Range			Range					
<b>Gender</b>			<b>Gender</b>			<b>Length of Stay</b>		
Female			Female			Mean		
Male			Male			Median		
Not Available			Not Available			Range		
<b>Race</b>			<b>Race</b>			<b>Comfort Measures Only</b>		
Black or African American			Black or African American			Yes		
White			White			No		
Asian			Asian			Timing Unclear		
Other Race			Other Race					
Not Applicable			Not Applicable					
<b>Performance Measure</b>								
All Cases with Primary or Secondary Impression of Stroke								
1.On-scene time ≤15 minutes			<b>Recorded by EMS</b>			<b>Discharge Disposition</b>		
2.Blood Glucose level checked and recorded			1.On-scene time ≤15 minutes			Home		
3.EMS called in a stroke alert / pre-notification			2.Blood Glucose level checked and recorded			Hospice-Home		
4.Stroke screen completed and recorded			3.EMS called in a stroke alert / pre-notification			Hospice-Healthcare Facility		
5.Time last known to be well was documented			4.Stroke screen completed and recorded			Acute Care Facility		
			5.Time last known to be well was documented			Other Healthcare Facility		
			<b>Recorded by Hospital</b>			Expired		
			EMS called in a stroke alert / pre-notification			Left Against Medical Advice/AMA		

# 2016 MOSAIC EMS Survey

- MOSAIC and our partners are working to assess and reduce barriers to communication among EMS agencies and their receiving hospitals as it relates to stroke care.
- The EMS Survey was created to assess:
  - Pre-hospital communication
  - Hand-off communication and the Patient Care Record submission process
  - Hospital to EMS agency follow up communication
  - Community involvement for stroke activities
- The survey is limited to EMS agencies that transport patients to hospitals currently participating in the MOSAIC project.



# Quality Improvement

- The feedback from the agencies will allow MOSAIC team to determine ways they can assist EMS and hospitals in working together to improve patient hand-off and the transfer of crucial outcome information.
- Greater Lansing Stroke Collaborative – team created by the Lansing area partners (hospital and emergency medical services) to collaborate on quality improvement projects and coordinate actions focused on improvement of stroke care.

# Contact Information

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