

Michigan's EMS System

Structure and Function



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Disclosures and Conflicts



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- No disclosures
- No conflicts

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- Disclosures
 - Professor of Emergency Medicine
 - Western Michigan University School of Medicine
 - EMS Medical Director
 - Kalamazoo County Medical Control Authority
 - Yellowstone National Park
- No conflicts

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Objectives



- The attendee will understand the components of the EMS System and how they work together.
- The attendee will understand the state office, different roles and contacts and where to find resources.
- The attendee will gain awareness of the EMSCC, the roles represented, and their advisory role.
- The attendee will become aware Medical Control Authorities, including potential opportunities for involvement.
- The attendee will understand the issues integration between 911 and EMS.
- The attendee will gain awareness of ways to ensure positive interactions with EMS.
- The attendee will understand opportunities to improve emergency care for nursing home patients

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EMS and the “System”



- "**Emergency medical services (EMS)**" means the EMS personnel, ambulances, non-transport prehospital life support vehicles, aircraft transport vehicles, medical first response vehicles, and equipment required for transport or treatment of an individual requiring medical first response life support, basic life support, limited advanced life support, or advanced life support.
- "**EMS system**" means a *comprehensive and integrated* arrangement of the personnel, facilities, equipment, services, communications, medical control, and organizations necessary to provide EMS and trauma care within a particular geographic region.

MCL 333.20904

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Components of the System



- MDHHS
- Emergency Medical Services Coordination Committee (EMSCC) and Subcommittees (15)
- Medical Control Authorities (59)
- EMS Agencies (810)
- EMS Personnel (~29,000)

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DESoC Mission:
Supporting the safe, effective, integrated,
and inclusive provision of EMS and Systems
of Care in Michigan



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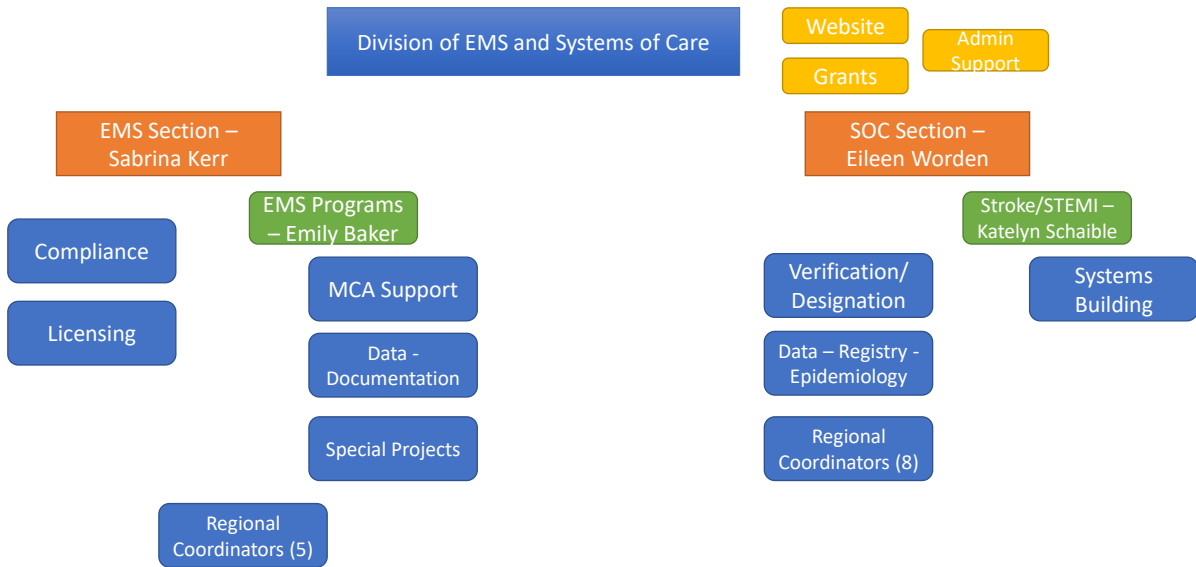
DESoc Vision:

An effective statewide system of coordinated, standardized, and evidence-based care that is patient-centered and outcome-focused. An integrated system spans the entire continuum of care, from prevention, through the emergency, to post acute care.



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Office Structure.

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Medical Control Authorities.

- Geographically based
- Administered by the hospitals
- Delegated authority from MDHHS
- Numerous boards and committees

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EMS Agencies.

- Varied structure
 - Municipal
 - Fire Based
 - Private
 - Hospital Owned
- Different roles
 - Transporting
 - First Response
- Varying Levels
 - Medical First Response
 - Basic Life Support
 - Intermediate Life Support
 - Advance Life Support

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EMS Personnel

- Often volunteer or paid on call
- Levels
 - Medical First Responder
 - Emergency Medical Technician
 - Specialist
 - Paramedic

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911 Interface.

- Local driven resource.
- Very few state level laws for interface.
- Primary and Secondary access points.
- Different response levels depending on the situation.

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Expectations for Interactions

- If 911 is called, you may receive more than one asset.
- They believe the facility has a relationship with the patients.
- They are trained to treat where they are, before moving.
- They are educated clinicians who will do assessments – it isn't "you call we haul"

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Michigan's EMS Response to Nursing Homes *and* Nursing Homes Response to Medical Emergencies



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2022 EMS (Ambulance) Response to Nursing Homes



- Statewide emergency EMS responses in 2022: 1.3 million
 - Emergency responses to nursing homes: 96,563 (7.4%)
 - 264 responses per day / 11 responses per hour
 - ~97 per 10,000 population



Source: MDHHS/Biospatial

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2022 EMS (Ambulance) Response Times to Nursing Homes

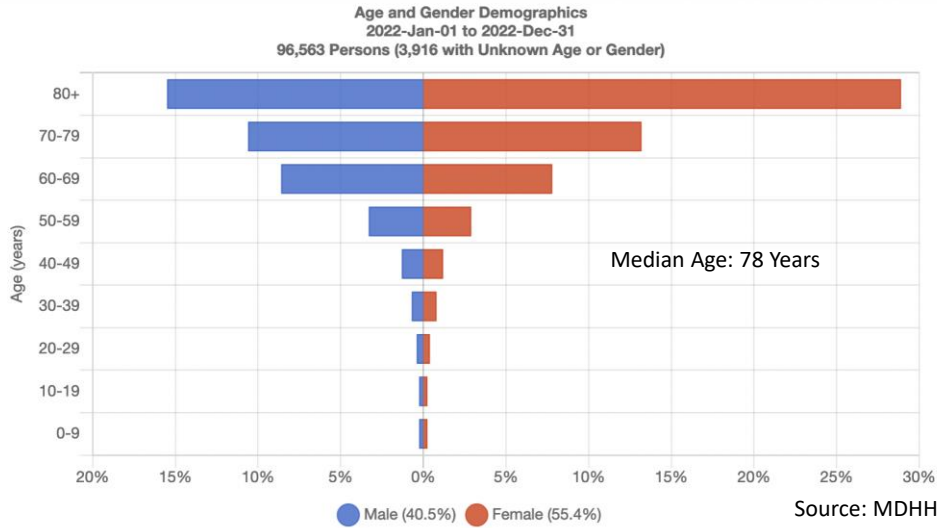


- EMS response time to nursing homes (**all incidents**)
 - Median: 7.2 minutes **14.0 min all locations**
 - 75th/90th percentile: 11.2/18.0 minutes
- EMS response time to nursing homes (**high priority** - N=26,469)
 - Median: 6.9 min **7.4 min all locations**
 - 75th/90th percentile: 10.3/15.1 minutes
- EMS Response time to nursing homes (**cardiac arrest** N=1,959)
 - Median response time: 5.4 minutes **6.1 min all locations**
 - 75th/90th percentile response time: 8.0/10.7 minutes

Source: MDHHS/Biospatial

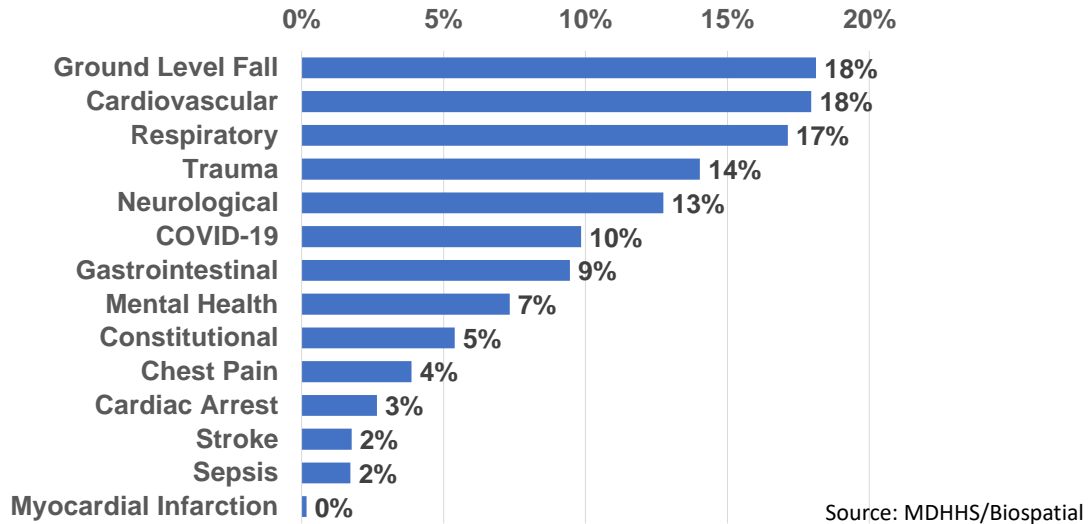
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EMS Response to Nursing Homes Patient Age and Gender



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EMS Response to Michigan Nursing Homes in 2022 By Percent of Clinical Syndrome (N=96,563)



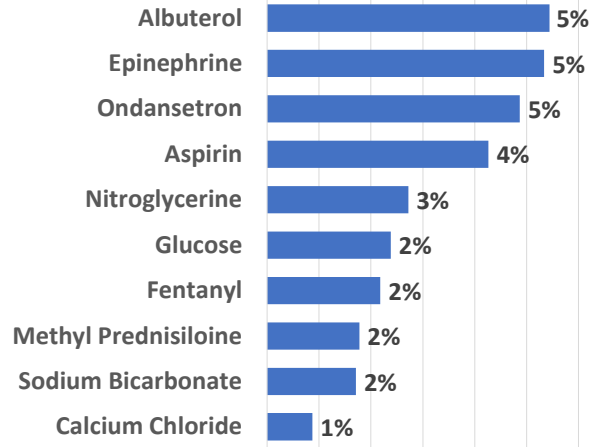
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Medications Administered by EMS



- Number of patients receiving meds (excluding O2)
 - ~9,300 (9.6%)
- Med administration by med category
 - Cardiac and ACLS meds
 - ~4,636 (4.8%) patients
 - Respiratory meds
 - ~2,134 (2.2%) patients
 - Pain meds
 - 792 (0.8%)

Top 10 Meds Administered (excluding Oxygen)



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Michigan's Nursing Homes *A Part of the EMS System (?)*



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The EMS “System”



- "**EMS system**" means a **comprehensive and integrated** arrangement of the personnel, facilities, equipment, services, communications, medical control, and organizations necessary to provide EMS and trauma care within a particular geographic region.

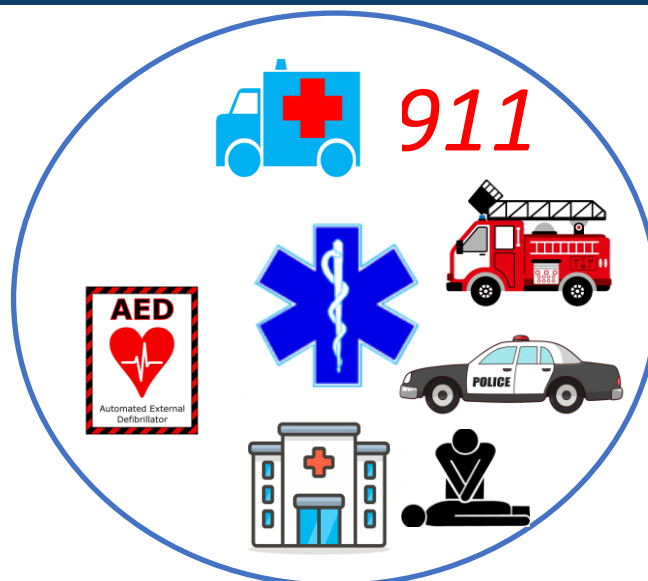
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Bringing Nursing Homes into the EMS “System”

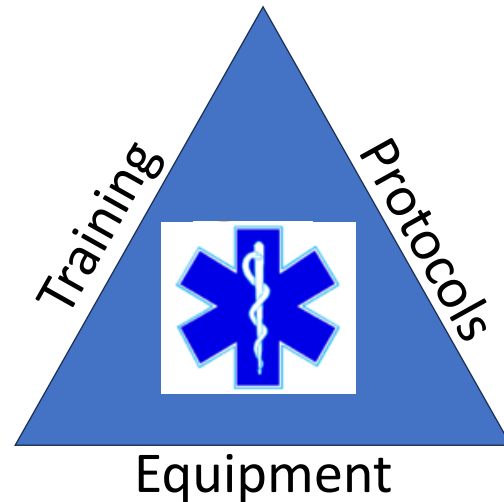


Nursing
Home



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Improving Nursing Home Emergency Care



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Emergency Medical Equipment



- **A**irway Management
 - Oral and nasal airways, handheld portable suction
- **B**reathing Support
 - O₂ with nasal cannula, non-rebreathing mask, CPAP, bag-valve mask
 - Nebulizers with bronchodilator meds
- **C**irculation
 - AED
 - IV fluids (+/-)
- Medications for intramuscular / intranasal use
 - Epinephrine, nitro, aspirin, analgesic, anticonvulsant, glucagon

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Emergency Medical Training



- Knowledge – Skills – Attitudes
- Target audience
 - Nurses
 - CNAs, etc.
- Unaware of any emergency response CE course targeting nursing home nurses to improve emergency care
- Potential for asymmetric learning with a “flipped classroom”
 - Preparatory component online to learn core knowledge
 - In person component to develop skills
 - Apply knowledge and skills using simulation
- Need for regular refresher training

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Emergency Medical Training



- **A**irway Management - Basic
 - Oral/nasal pharyngeal airways, suctioning
- **B**reathing
 - Assessment of breathing and early recognition of respiratory failure
 - Use of nasal canula, NRB mask, CPAP, BVM, breathing treatments
- **C**irculation
 - Recognition of cardiac arrest, shock (sepsis), flash pulmonary edema
 - High quality, CPR, epinephrine for anaphylaxis, nitroglycerine use
- Altered mental status and stroke
 - Recognition and treatment of hypoglycemia, hypoxia, OD, etc.
 - Clinical assessment of stroke, including large vessel occlusions
- Pain management
- End of life and palliative care
- Interfacing with EMS

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Emergency Medical Protocols



- Could modify the MDHHS State EMS Protocols
- Serve as standing orders approved by facility medical director
- Improve interoperability with EMS

<p>MDHHS Bureau of Emergency Preparedness, EMS and Systems of Care Michigan GENERAL TREATMENT GENERAL PRE-HOSPITAL CARE Initial Date: 11/15/2012 Revised Date: 05/08/2023 Section 1-1</p>	<p>MDHHS Bureau of Emergency Preparedness, EMS and Systems of Care Michigan ADULT TREATMENT RESPIRATORY DISTRESS Initial Date: 11/15/2012 Revised Date: 08/11/2023 Section 3-3</p>
<p>RHONCHI (SUSPECTED PNEUMONIA):</p> <ol style="list-style-type: none"> 1. Sit patient upright. 2. Consider CPAP per CPAP-Procedure Protocol. 3. Consider NS or LR IV/IO fluid bolus up to 1 liter, wide open if tachycardia, repeat as needed per Vascular Access and IV Fluid Therapy-Procedure Protocol <p>CRACKLES):</p> <ol style="list-style-type: none"> 1. Crackles of suspected non cardiac etiology/fluid – follow wheezing, diminished breath sound below. For crackles of suspected cardiac etiology/CHF/cardiogenic shock refer to Pulmonary Edema/Cardiogenic Shock-Treatment Protocol. <p>WHEEZING, DIMINISHED BREATH SOUNDS (ASTHMA, COPD):</p> <ol style="list-style-type: none"> 1. Assist the patient in using their own albuterol Inhaler, if available <ol style="list-style-type: none"> a. Administer albuterol 2.5 mg/3mL NS nebulized (Per MCA selection may be EMT skill) per Medication Administration-Medication Protocol 	
<p>Monitoring-Procedure Protocol</p> <p>NOTE: When possible, provide a list of the patient's medications or bring the medications to the hospital.</p> <p>MCA Name: MCA Board Approval Date: MCA Implementation Date: MDHHS Approval: 5/8/23</p> <p style="text-align: right;">Page 1 of 1</p> <p style="text-align: center;">MDHHS Reviewed 2023</p>	<p>WHEEZING, DIMINISHED BREATH SOUNDS (ASTHMA, COPD):</p> <ol style="list-style-type: none"> 1. Assist the patient in using their own albuterol Inhaler, if available <ol style="list-style-type: none"> a. Administer albuterol 2.5 mg/3mL NS nebulized (Per MCA selection may be EMT skill) per Medication Administration-Medication Protocol <p>MCA Name: MCA Board Approval Date: MCA Implementation Date: MDHHS Approval: 8/11/23</p> <p style="text-align: right;">Page 1 of 3</p> <p style="text-align: center;">MDHHS Reviewed 2023</p>

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Case 1 – Respiratory Distress



A nurse is called to assess a 82 YO female with an abrupt onset of shortness of breath, speaking only in single words. She finds the patient alert and in severe distress. Vitals are P=120, R=32, BP=188/110, SpO₂ = 80% (RA), Afeb. Course crackles are heard in all lung fields. The nurse suspects flash pulmonary edema. EMS is called.

- | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> • Nurse Initiates Care: <ul style="list-style-type: none"> • O₂ by nasal cannula at 4 LPM • SpO₂ increases to 84% • EMS Arrives: <ul style="list-style-type: none"> • Patient minimally responsive • Changes to NRB mask at 15 LPM • Administers NTG SLx1 • Patient deteriorates requiring positive pressure ventilation and intubation | <ul style="list-style-type: none"> • Nurse Initiates Care: <ul style="list-style-type: none"> • O₂ by non-rebreather at 15 LPM • NTG SL given q3 minutes x3 • CPAP started after first NTG • SpO₂ increases to 96% • EMS Arrives: <ul style="list-style-type: none"> • Patient alert, talking in full sentences • P=92, R=22, BP=142/86 • EMS continues CPAP, NTG • Patient weans to RA in ED and discharged back to nursing home |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

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Case 2 – Ground Level Fall



A nurse is called to assess an 89 YO male after a ground level fall. The patient complains of pain in the right hip which is noticeably shortened and externally rotated. Vitals are P=84, R=24, BP=174/102, SpO₂ = 94% (RA), Afeb. No other injuries are apparent. EMS is called.

- **Nurse Initiates Care:**
 - Provides emotional support
- **EMS Arrives:**
 - No change in condition
 - Cervical collar applied
 - Severe pain with attempts to move patient
 - IV started + pain med given
 - After 10 minutes patient moved to cot and transported to ED
- **Nurse Initiates Care:**
 - Provides emotional support
 - Cervical collar applied
 - Morphine administered IM
- **EMS Arrives:**
 - Patient in minimal pain
 - Vitals remain stable
 - EMS and staff place patient on cot with minimal discomfort
 - Ambulance returns to service 10 minutes sooner and able to respond to a cardiac arrest with successful outcome

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Summary



- The EMS system is a complex arrangement of many resources to serve the emergency patient
- Long term care and emergency care are not mutually exclusive
- Nursing home patients frequently require EMS response
- Is there an opportunity for us to work together to:
 - Improve emergency care provided by EMS to nursing home patients?
 - Improve emergency care provided by nursing homes to EMS patients?
- **Time to welcome nursing homes into our EMS “system”!**

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Questions? Thoughts?
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