Overview of the 2018 Michigan EMS Protocol Rollout
Instructor Guide

Instructor Resource Guide

Overview of the 2018 Michigan EMS Protocol Rollout

Format: Lecture

Purpose: The purpose of this continuing education (CE) session is to overview of the new Michigan EMS protocols that will go into effect in 2018.

Please contact the State of Michigan BETP MCA Coordinator, Emily Bergquist, by email at BergquistE@michigan.gov with any questions regarding the contents of this Instructor Resource Guide.

The Oakland County Medical Control Authority (OCMCA) in collaboration with the State of Michigan EMS section developed this instructor guide.

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Lesson Plan - TEMPLATE

The education contained within this document is not preapproved by the State of Michigan Bureau of EMS, Trauma and Preparedness (BETP) office. EMS I/Cs and CE Sponsorship Representatives may use the lesson plan below to apply for EMS credits for this education.

Specific Topic Title: *Overview of the 2018 Michigan EMS Protocol Rollout*

EMS Credit Category: Preparatory
EMS Credits: MFR: 0L **EMT:** 0L **SPEC:** 0L **EMT-P:** 0L
Format: Lecture

Presenter: TBD
Date/Time: TBD
Time Duration: 0.5 hours

CE Description: The purpose of this continuing education (CE) session is designed to familiarize Michigan EMS providers with the updated 2018 Michigan EMS protocols.

Rationale: On October 25, 2017 the Michigan Department of Health and Human Services (MDHHS) released the updated 2018 Michigan EMS Protocols. Since these protocols are the foundation for all patient care that occurs within the State of Michigan, it is crucial that EMS providers are informed of major changes to the protocols.

Objectives: By the conclusion of the CE session, the student will be able to:
- Appreciate the importance of protocol knowledge.
- Identify the date that the new protocols take effect.
- Describe the triennial EMS Protocol Review Process.
- Describe the new format of the 2018 Michigan EMS protocols.
- List the major changes found in the 2018 Michigan EMS protocols.

CE Outline

1. **Introduction**
    a. This CE course is an OVERVIEW of updated 2018 Michigan EMS protocols
    b. Implementation
        i. Timeline
        ii. It is the responsibility of all Michigan LSAs and EMS providers to familiarize themselves with the 2018 Michigan EMS protocols
    c. Triennial EMS Protocol Review Process
        i. All Michigan EMS protocols are revised every three years
        ii. All protocols were available for public comment
2. **Overview of changes**
    a. Format of Protocols
        i. Flowchart
        ii. Icons
    b. Organization of Protocols
    c. Major Changes
        i. Push Dose Epinephrine
        ii. Pain Management
        iii. Chest Pain/Acute Coronary Syndrome
        iv. Tranexamic Acid
        v. Special Pathogen Response Network
3. **Conclusion**
    a. Questions/concerns

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Instructor Guide

CE Content

1. Introduction

On October 25, 2017 the MDHHS released the updated 2018 Michigan EMS Protocols. The updated protocols include extensive content changes based on a review of current best practices in EMS. In addition, the format and organization of the protocols has been modified in an effort to make them easier to use for EMS providers. It is incumbent on each individual life support agency (LSA) and EMS provider to assure they are familiar with all of the new protocol changes by the time they go live on April 1, 2018.

a. This CE course is an OVERVIEW of updated 2018 Michigan EMS protocols.

The 2018 Michigan EMS protocols represent a comprehensive overhaul of the previous protocols. The changes impact: protocol use, organization, layout, and patient care. This course supplies EMS providers with a basic overview of the changes to protocol organization and layout.

b. Implementation

i. Timeline

ii. It is the responsibility of all Michigan LSAs and EMS providers to familiarize themselves with the 2018 Michigan EMS protocols

This course is not designed to inform and train EMS providers on every change to the protocols. This course is intended to serve as an introduction and overview of the new protocols. LSAs will need to facilitate further education to ensure their providers are informed of changes to specific protocols.

c. Triennial EMS Protocol Review Process

i. All Michigan EMS protocols are revised every three years

Every 3 years each protocol is reviewed and revised as necessary. This is a massive undertaking and helps ensure Michigan EMS protocols are in line with current best practices in EMS. In order to accomplish this, members of the Quality Assurance Task Force (QATF) compare current protocols to national guidelines and other protocols from around the United States. Input from specialty physicians is solicited and included in the process as well. This information is utilized to produce draft protocols for public comment.

ii. All protocols were available for public comment

Once the QATF is satisfied with the changes, draft protocols are sent to each Medical Control Authority in Michigan for comment. The draft protocols are also posted on the State website for approximately 60 days. The public may comment during this period by utilizing a spreadsheet that is posted along with the protocols on the State website.

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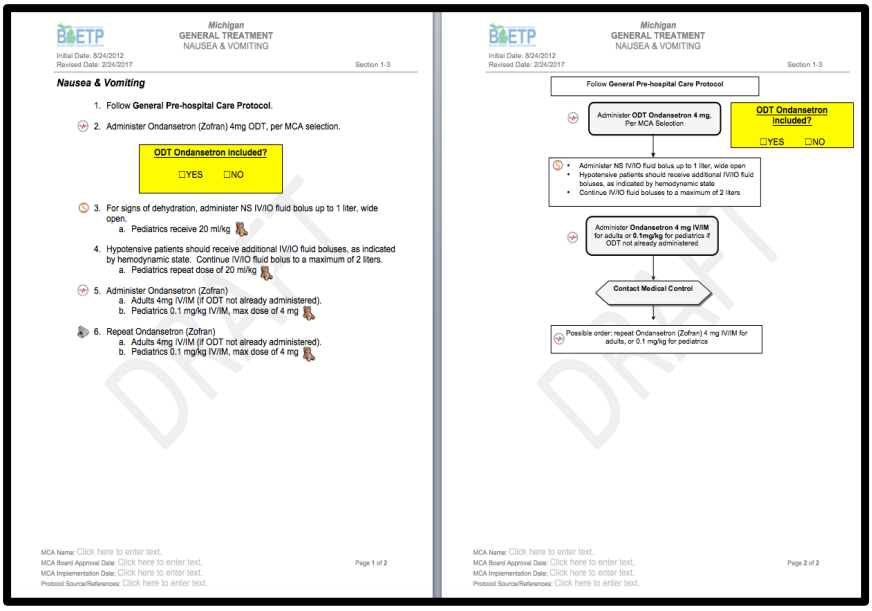
2. Overview of Changes

During this protocol revision and update, a concerted effort was made to assure the new protocol format was user friendly and in line with best practices in EMS. While the new protocols may initially appear quite foreign, it is incumbent on each EMS provider and their agency to familiarize themselves with the new protocol format, as well as the associated content changes. With training and repeated use, the new protocol format is expected to become a welcome upgrade to our EMS system.

a. Format of Protocols

Let's begin by reviewing the format of the new protocols. All protocols will follow the same format for consistency and ease of use. The assessment and treatment steps associated with each protocol have been organized in chronological order. In addition, the protocols have been modified to be more treatment based rather than education based. The Nausea and Vomiting General Treatment Protocol Section 1-3 will serve as an example, below.



Michigan
GENERAL TREATMENT
NAUSEA & VOMITING

Initial Date: 8/24/2012
Revised Date: 2/24/2017
Section 1-3

Nausea & Vomiting

1. Follow **General Pre-hospital Care Protocol**.
2. Administer Ondansetron (Zofran) 4mg ODT, per MCA selection.

ODT Ondansetron included?
☐YES ☐NO

3. For signs of dehydration, administer NS IV/IO fluid bolus up to 1 liter, wide open.
   a. Pediatrics receive 20 ml/kg
4. Hypotensive patients should receive additional IV/IO fluid boluses, as indicated by hemodynamic state. Continue IV/IO fluid bolus to a maximum of 2 liters.
   a. Pediatrics repeat dose of 20 ml/kg
5. Administer Ondansetron (Zofran)
   a. Adults 4mg IV/IM (if ODT not already administered).
   b. Pediatrics 0.1 mg/kg IV/IM, max dose of 4 mg
6. Repeat Ondansetron (Zofran)
   a. Adults 4mg IV/IM (if ODT not already administered).
   b. Pediatrics 0.1 mg/kg IV/IM, max dose of 4 mg

MCA Name: Click here to enter text.
MCA Board Approval Date: Click here to enter text.
MCA Implementation Date: Click here to enter text.
Protocol Source/References: Click here to enter text.
Page 1 of 2

DRAFT

Michigan
GENERAL TREATMENT
NAUSEA & VOMITING

Initial Date: 8/24/2012
Revised Date: 2/24/2017
Section 1-3

Follow **General Pre-hospital Care Protocol**

Administer **ODT Ondansetron 4 mg**, Per MCA Selection

ODT Ondansetron included?
☐YES ☐NO

- Administer NS IV/IO fluid bolus up to 1 liter, wide open
- Hypotensive patients should receive additional IV/IO fluid boluses, as indicated by hemodynamic state
- Continue IV/IO fluid boluses to a maximum of 2 liters

Administer **Ondansetron 4 mg IV/IM** for adults or **0.1mg/kg** for pediatrics if ODT not already administered

Contact Medical Control

Possible order: repeat Ondansetron (Zofran) 4 mg IV/IM for adults, or 0.1 mg/kg for pediatrics

MCA Name: Click here to enter text.
MCA Board Approval Date: Click here to enter text.
MCA Implementation Date: Click here to enter text.
Protocol Source/References: Click here to enter text.
Page 2 of 2

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The header shows the protocol's title, section number, and section title. Directly beneath the header, the title of the protocol is listed a second time. Again, the protocol content is typically listed in chronological order. The protocols will typically start at the MFR level and progress to the paramedic level, as necessary. The licensure level of a treatment is indicated by an icon to the left of the line. These icons will be defined in the next section.

A yellow Medication/Treatment box, like the one shown in the example above, indicates a medication or medications that may be selected by an individual MCA. If selected by your MCA, a check will appear next to the "Yes" option. If it is not selected by your MCA, a check will appear next to the "No" option.

i. Flow chart

For most protocols, a flowchart is included on the last page. This provides a quick reference and offers visual learners a clear representation of the protocol's various treatment pathways.

The flowchart mirrors the major content of the protocol and also includes the yellow Medication/Treatment boxes that allow MCAs to select medications and treatments.

Providers must remember that the flowchart does not include all the content from the entire

protocol. The flowchart may serve as a quick reference guide. Refer to the protocol for a more comprehensive description of its assessment steps and treatments.

ii. Icons

Icons have been added to the protocols to make them more user friendly. Icons accomplish this by clearly indicating the licensure level of a particular treatment, or by illustrating when Medical Control should be contacted. The five icons are shown and defined below:

 Contact Medical Control

 Paramedic level treatment

 Specialist level treatment

 EMT level treatment (Note: Certain treatments that are traditionally EMT level can be adapted for the MFR level if selected by the MCA.)

 Pediatric treatment/dosage

In the new protocol, all of the steps and treatments listed beneath any of the above icons are intended to apply to that licensure level, until a new icon is shown. If no icon is listed, the subsequent steps are intended to apply to all license levels.

In some cases, the outline format of a protocol may show an icon associated with a specific sub step. For example, in the below protocol, all of Steps 1 and 2 apply to all licensure levels, but Step 2 f. indicates that it is a paramedic treatment. Step 3 goes out a level in the outline and as a result goes back to the level of the previous icon, which in this case, is all license levels.

Primary Survey

1. Airway:
   - A. Protect spine from movement in trauma victims. Provide continuous spinal precautions. Follow the **Spinal Injury Assessment Protocol**.
   - B. Observe the mouth and upper airway for air movement.
   - C. Establish and maintain the airway. Follow the **Emergency Airway Procedure.**
   - D. Look for evidence of upper airway problems such as vomitus, bleeding, facial trauma, absent gag reflex.
   - E. Clear upper airway of mechanical obstruction as needed.
2. Breathing: Look, Listen and Feel
   - A. Note respiratory rate, noise, and effort.
   - B. Treat respiratory distress or arrest with oxygenation and ventilation.
   - C. Observe skin color and level of consciousness for signs of hypoxia.
   - D. Expose chest and observe chest wall movement, as appropriate.
   - E. Look for life-threatening respiratory problems and stabilize.
   - F. Tension pneumothorax: Follow **Pleural Decompression Procedure.**
3. Circulation
   - A. Check pulse and begin CPR if no central pulse. Follow **Cardiac Arrest – General Protocol Adult or Pediatric** or **Neonatal Resuscitation Protocol**.
   - B. Note pulse quality and rate; compare distal to central pulses as appropriate.
   - C. Control hemorrhage by direct pressure. (If needed, use elevation, pressure points or follow the **Tourniquet Application Procedure.**)
   - D. Check capillary refill time in fingertips.
   - E. If evidence of shock or hypovolemia begin treatment according to **Shock Protocol.**

b. Organization of Protocols

The new protocols are organized into the following 10 sections:

Section 1 - General Treatment Protocols: These protocols outline general treatments that apply to both adult and pediatric patients. The Nausea and Vomiting Protocol, for example, contains pediatric and adult dosing for odansetron. This prevents providers from having to refer to separate protocols for adult and pediatric patients.

Section 2 - Trauma and Environmental Protocols: These protocols refer the management of patients presenting with trauma or environmental emergencies such as hypothermia. As with the General Treatment Protocols, these apply to both adult and pediatric patients.

Section 3 - Adult Specific Protocols: Medical conditions that require specific interventions for the adult patient are found here. Since many of the previous Adult Treatment Protocols have been combined with the previous Pediatric Treatment Protocols in the new General Treatment Protocols or Trauma and Environmental Protocols, this section is noticeably shorter.

Section 4 - Obstetrics and Pediatrics Protocols: Conditions specific to the pediatric and newborn patient are found here. Since many of the previous Pediatric Treatment Protocols have been combined with the previous Adult Treatment Protocols in the new General Treatment Protocols or Trauma and Environmental Protocols, this section is noticeably shorter.

Section 5 - Adult Cardiac Protocols: This section contains protocols for managing the adult cardiac patient. This section is similar to the previous Adult Cardiac Protocols.

Section 6 - Pediatric Cardiac Protocols: This section contains protocols for managing the pediatric cardiac patient. This section is similar to the previous Pediatric Cardiac Protocols.

Section 7 - Procedures Protocols: These protocols detail how to perform specific procedures, such as vascular access or oxygen administration. EMS providers can turn to this resource for procedure specific information.

Section 8 - System Protocols: This section contains protocols related to the delivery of emergency medical services by a life support agency. From choosing an appropriate response mode to performing quality improvement, the information contained in these protocols specifically applies to EMS operations.

Section 9 - Medication Section: Designed as a reference, this section lists all medications and their respective protocols. Other information found within includes indications, contraindications, dosing, expected effects, and side effects.

Section 10 - Special Operations Protocols: This section contains protocols related to the Special Pathogen Response Network, hazardous materials, CBRNE (chemical, biological, radiological, nuclear, and explosive) and mass casualty incidents. The information contained within these protocols is critical to the safe and effective resolution of these incidents.

c. Major Changes

The reorganization and modification of the protocols has led to changes throughout the entire protocol manual. Remember, it is incumbent on each LSA and EMS provider to assure they are familiar with the new content associated with the protocol changes. The following section highlights several significant changes associated with the new protocols. This list does NOT include all of the content changes associated with the new protocols. A complete list of changes is beyond the scope of this course.

The MI-MEDIC has not yet been updated to reflect the changes to drugs and dosages. To address this issue, the MDHHS is developing a new card that will be placed at the end of the MI-MEDIC. This will include the new pain management medications and all other changes. Once complete, this will available for download or may be requested directly from the MDHHS.

For now, the MDHHS requests that EMS providers utilize the protocols as the primary source of information and the MI-MEDIC as a tool.

i. Push Dose Epinephrine

Push dose epinephrine has replaced dopamine in the following protocols:

- General Treatment
  - Shock
  - Return of Spontaneous Circulation (ROSC)
- Adult Cardiac
  - Bradycardia

Push dose epinephrine is designed for immediate blood pressure control for patients presenting with severe hypotension that is not corrected with a fluid bolus. For the bradycardic patient, it is effective at increasing the heart rate when atropine is ineffective.

Begin preparing push dose epinephrine by gathering supplies. The following supplies are required:

- Epinephrine 0.1mg/1mL
- Normal saline
- 10mL syringe

The next step is to mix 9mL of normal saline with 1mL of epinephrine 0.1mg/1mL in the 10mL syringe. Begin by drawing 9mL of normal saline into the 10mL syringe. Then add 1mL of 0.1mg/1mL epinephrine to the 9mL of normal saline. This produces a total volume of 10mL in the syringe. The syringe now contains epinephrine 10mcg/1mL.

Be sure to shake the syringe to ensure thorough mixing of the epinephrine and normal saline.

It is important to confirm with a partner that you have performed this correctly. Label the syringe after confirming with a partner that you have the correct concentration on hand.

Administer push dose epinephrine as required by each protocol. Dosing of push dose epinephrine is as follows:

- Adults
  - Administer 1-2mL IV every 3-5 minutes
  - Titrate to SBP greater than 90mm/Hg
- Pediatrics
  - Administer 1mcg/kg (0.1mL/kg) IV, max dose 10mcg
  - Every 3-5 minutes

The onset of push dose epinephrine is less than 1 minute. The effects typically last 5 minutes or less.

ii. Pain Management

The pain management protocol has been completely overhauled in order to more effectively manage the varying levels of pain experienced by patients. This has been accomplished by adding several new medications to tailor treatment to the patient's level of pain. Not only will this assure pain is alleviated, the administration of opioid analgesia can be minimized.

All pain management begins with placing the patient in a position of comfort and verbally reassuring the patient. The next step is to assess the patient's pain on the Wong Pain Scale. The patient's rating of their pain will help dictate which medication to administer. The Pain Management Procedure divides pain into the following categories:

- Mild to moderate pain: 1- 4 on the Wong Pain Scale
- Significant pain: Greater than 4 on the Wong Pain Scale
- Severe pain: Greater than 8 on the Wong Pain Scale

For patient with mild to moderate pain, rated 1-4 on the Wong Pain Scale non-opioid analgesia is indicated. MCAs may select any of the following medications for management of mild to moderate pain:

- Acetaminophen 15mg/kg PO (max dose 1g)
- Ibuprofren 10mg/kg PO (not appropriate for patients <6 months or during pregnancy, maximum dosage 800mg)
- Ketorolac (Toradol)
    - Adult 15mg IM/IV (not appropriate during pregnancy)
    - Pediatric 1mg/kg (max dose 15mg)

For patients with significant pain, rated greater than 4 on the Wong Pain Scale, consider administering ketamine. The dosage for ketamine is as follows:

- Adults (or >80lb)
    - 0.2mg/kg IV/IO or 0.5mg/kg IN
    - Maximum single dose 25mg
    - May repeat after 10 minutes to a maximum dosage of 50mg
- Pediatrics (or <80lb)
    - 0.2mg/kg IV/IO 0.5mg/kg IN
    - Maximum single dose 25mg
    - May repeat after 10 minutes to a maximum dose of 0.4mg/kg IV/IO or 1.0mg/kg IN

If pain persists after a repeat dosage of ketamine, providers may contact medical control for permission to administer opioid analgesia.

For patients with severe pain, greater than 8 on the Wong Pain Scale, administer an opioid analgesic. MCAs may select any of the following medications for management of severe pain:

- Morphine 0.1mg/kg IV/IO (maximum single dose 10mg) may repeat one time. Total dose may not exceed 20mg.
- Fentanyl 1mcg/kg IV/IO (IN, if available) Maximum single dose 100mcg, may repeat one time. Total dose may not exceed 200mcg. (Note: This is a change from the 3 doses that were previously permitted.)
- Hydromorphone (Dilaudid) 0.5mg IV/IO (for extended transports,) may be repeated every 10 minutes, for a maximum dose of 2mg.

Remember that only one opioid may be administered. Example: a patient receives one dose of fentanyl. The repeat dose must also be fentanyl.

iii. Chest Pain/Acute Coronary Syndrome

The Chest Pain/Acute Coronary Syndrome Protocol now utilizes fentanyl for suspected cardiac chest pain that is not relieved by nitroglycerin. This is a deviation from the previous protocol, which allowed providers to select morphine or fentanyl.

The dose for fentanyl is 1mcg/kg IV/IO. The IN route is permitted as well. Maximum single dose is 100mcg with the total dose not exceeding 200mcg. (Note: This is a change from the 3 doses that were previously permitted.)

iv. Tranexamic Acid (TXA)

TXA has been added to the General Treatment Shock Protocol as an optional medication for patients presenting with hemorrhagic shock from a traumatic injury. MCAs may or may not select this medication. Indications for administration of TXA include the following (traumatic cause only):

- Evidence of marked blood loss
- Sustained tachycardia (>110/min, despite a 500mL fluid bolus)
- Initial systolic BP <90
- Sustained hypotension (<100 systolic, despite a 500mL fluid bolus)
- Major trauma with suspicion for pelvic and/or abdominal injury
- Major arterial bleeding requiring a tourniquet

TXA is given as an IV infusion over 10 minutes. Adult and pediatric dosing is as follows:

- Adults
  - 1g of TXA mixed in 100mL of normal saline
  - Administered over 10 minutes
- Pediatrics
  - May be given only under special studies
  - 15mg/kg TXA
  - Administered over 10 minutes

This initial dosage is a loading dose. The second dose will be administered in the hospital and the medication's effectiveness depends on administering the second dosage at the correct time. To ensure this is performed, EMS providers need to accurately communicate the time that TXA was administered in the field both orally and in their written documentation. This helps assure the hospital staff is able to correctly time administration of the second dosage.

v. Special Pathogen Response Network (SPRN)

The Michigan SPRN was created following the Ebola outbreak in 2014 with the goal of improving Michigan's emergency response to new or emerging health threats. Optional SPRN protocols have been added to the Special Operations Section of the new protocols. These protocols are all-inclusive and outline how the Michigan Department of Health and Human Services and SPRN will manage and oversee patients with a "special pathogen". As defined in the new protocols, a "special pathogen" refers to highly infectious diseases that include hemorrhagic viral diseases such as Ebola and similar infections. From selection of appropriate personal protective equipment to ambulance decontamination, these protocols are an excellent resource for best practice guidelines in the event of a highly infectious disease patient encounter.

3. Conclusion

Thank you for utilizing this Instructor Resource Guide in preparation for delivery of continuing education. This course is intended to serve as an introduction and overview of the new protocols. LSAs will need to facilitate further education to ensure their providers are informed of changes to specific protocols.

a. Questions/concerns
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