12-Lead ECG

Paramedic Protocol (may be Specialist or EMS per MCA selection)

Aliases: EKG, 12 lead

Indications:

1. A 12-lead ECG is indicated on patients exhibiting any of the following signs/symptoms:
    A. Chest pain or pressure
    B. Upper abdominal pain
    C. Syncope
    D. Shortness of breath
    E. Pain/discomfort which are often associated with cardiac ischemia:
        a. Jaw, neck, shoulder, left arm or other presentations; unless no other symptoms exist and the cause of the specific pain can be identified with a traumatic or musculoskeletal injury.
        b. If there is any doubt about the origin of the pain/discomfort, or the presentation seems atypical for the mechanism, a 12-lead should be performed.

2. Patients exhibiting the following signs/symptoms should have a 12-lead ECG performed if the etiology of the illness is indicative of an Acute Coronary Syndrome or the etiology of the illness is indeterminate:
    A. Nausea
    B. Vomiting
    C. Diaphoresis
    D. Dizziness
    E. Patient expression of “feelings of doom”

3. A 12-lead ECG may be performed based on the clinical judgment of the paramedic even in the absence of the above signs/symptoms.

Procedure:

1. Follow **General Pre-hospital Care-Treatment Protocol.**

2. Perform 12-lead ECG per manufacturer guidelines, if available.

MCA approval to obtain ECG
- ☑ Specialist
- ☑ EMT

MCA approval to transmit ECG (and notify of STEMI)
- ☑ Specialist
- ☑ EMT

MCAs will be responsible for maintaining a roster of the BLS and LALS agencies choosing to participate and will submit roster to MDHHS

3. Report if acute MI is suspected, either by device or paramedic provider interpretation and promptly relay either the 12-lead findings via MCA approved communications system or transmit 12-lead to the receiving facility.

4. Agencies in cooperation with hospitals with pre-hospital 12-lead ECG receiving capability should have the relay done electronically as soon as possible for the following conditions:
   A. ST elevation ≥1mm in 2 contiguous leads.
   B. Chest pain patient with left bundle branch block.
   C. EMS personnel request assistance by hospital for interpretation of ECG.
   D. Hospital requests ECG be sent.

5. The Acute MI Report relayed to the receiving facility should include the following:
   A. *** **Acute MI Suspected** *** or equivalent machine indication of Acute MI.
   B. Location of MI, “ST elevation, consider _____injury”.
   C. Time of onset of the chest pain if present.
   D. Current level of pain.
   E. Cardiac history (previous MI, CHF, CABG, Angioplasty or Stent).
   F. Presence of possible indicators of false positive ECG (tachyarrhythmia, left bundle branch block, pacemaker, wide complex QRS, positive ECG with artifact after previous negative ECG).

6. Transport patients per MCA transport protocol.

7. Repeat 12 Lead is indicated for prolonged transports or changes in condition.

Child Abuse & Neglect (Suspected)

Aliases: Child abuse, 3200 form, mandatory reporting

Purpose: To provide the process for assessment and management for patients of suspected child abuse.

When emergency personnel suspect that a patient has been abused (physically and/or sexually), neglected, or exploited, **a verbal and written report must be made to the emergency physician on arrival at the hospital and to the Protective Services Agency (child or adult)**. The primary purpose is protection of the patient from further harm. Do not confront the patient or family members with such suspicions at the scene.

Michigan law (MCL 722.623) requires that licensed EMS providers who have "reasonable cause to suspect child abuse or neglect" shall report "immediately, by telephone or otherwise" their suspicions to the Protective Services Agency for the County involved. In cases of suspected child abuse, this oral report shall also be followed with a written report on the Department of Human Services forms available in every hospital emergency department.

Michigan law (MCL 400.11a) also requires this same oral report for suspected cases of abuse or neglect of an adult.

Licensed providers are required to make an immediate verbal report and a written report within 72 hours when they suspect child abuse or neglect. Mandated reporters must also notify the head of their organization of the report. Reporting the suspected allegations of child abuse and/or neglect to the head of the organization does not fulfill the requirement to report directly to MDHHS.

The verbal report can be completed by calling 855-444-3911. The pdf form is found here DHS3200_report.dot (live.com) and is included in the protocol for reference. Reports can be made online (login required).

1. Definitions

"**Child Abuse**" means harm or threatened harm to a child's health or welfare by a parent, legal guardian, or any other person responsible for the child's health or welfare…that occurs through non-accidental physical or mental injury; sexual abuse; sexual exploitation, or maltreatment.

"**Child Neglect"** means harm or threatened harm to a child's health or welfare by a parent, legal guardian, or any other person responsible for the child health or welfare that occurs through either of the following: 1) Negligent treatment, including the failure to provide adequate food, shelter, or medical care; 2) Placing a child at an unreasonable risk to the child's health or welfare by failure of the parent, legal guardian, or any other person responsible for the child's health or welfare to intervene to eliminate that risk when that person is able to do so and has, or should have, knowledge of the risk.

2. Indicators of Possible Abuse

- History of abuse provided by the patient
- Delay in seeking care for injury
- Injury inconsistent with history provided
- Conflicting reports of injury from patient and care-giver
- Patient unable, or unwilling, to describe mechanism of injury
- Lacerations, bruises, burns, or fractures in various stages of healing
- Scald burns with demarcated immersion lines
- Scald burns involving anterior or posterior half of extremity
- Scald burns involving buttocks or genitalia
- Cigarette burns
- Bruising in a non-ambulatory child
- Rope burns or marks
- Patient confined to restricted space or position
- Pregnancy or presence of venereal disease in a child less than 12 years

3. Physical Assessment

A. Treat and document physical injury per the appropriate medical treatment protocol.
B. Observe for:
   - Potential over-sedation
   - Inappropriate fear
   - Avoidance behavior
   - Poor parent-child bonding
   - Inappropriate interaction with care giver

4. Evaluation and Documentation

- Focus the interview on the patient's physical injury. Do not address the specifics of abuse or neglect at this point.
- Obtain and record pertinent history related to the presenting problems.
- Determine and chart past medical history, and any cognitive or physical impairment.
- Note signs of inadequate housing or lack of facilities such as heat or water.
- Carefully and specifically document the patient's statement of instances of rough handling, sexual abuse, alcohol or drug abuse by family members, verbal or emotional abuse, isolation or confinement, misuse of property or theft, threats, gross neglect such as restriction of fluids, food or hygiene.
- Attempt to record, verbatim (word for word), any excited utterances (spontaneous comments).
- If necessary, ask the caregiver for information regarding the patient's medical condition. Observe mental health of caregiver.

- Request police assistance if there is any history of threatening, abusive, or violent acts. Protect yourself while obtaining a safe environment for the patient.

5. **Special Considerations**
   - If the patient is not transported, the suspected abuse must still be reported. Law enforcement may also be contacted, at the discretion of EMS providers.
   - Careful and specific documentation is vital because the “story” often changes as the investigation proceeds.
   - Contact the Department of Health and Human Services Hotline at 1-855-444-3911.

REPORT OF ACTUAL OR SUSPECTED CHILD ABUSE OR NEGLECT

Michigan Department of Health and Human Services

Was Complaint Phoned to MDHHS?
☐ Yes ☐ No ▶ If yes, Intake ID # _____ ▶ If no, contact Centralized Intake (855-444-3911) immediately

INSTRUCTIONS: REPORTING PERSON: Complete items 1-19 (20-28 should be completed by medical personnel, if applicable). Send to Centralized Intake at the address listed on page 2.

1. Date

2. List of Child(ren) Suspected of Being Abused or Neglected. **To insert additional rows, tab at the end of last row to create a new row.**

NAME	BIRTH DATE	SOCIAL SECURITY #	SEX	RACE
"Click Here and Type"				
3. Mother's Name				
4. Father's Name				

5. Child(ren)'s Address (No. & Street)	6. City	7. County	8. Phone No.

9. Name of Alleged Perpetrator of Abuse or Neglect	10. Relationship to Child(ren)
11. Person(s) The Child(ren) Living With When Abuse/Neglect Occurred	12. Address, City & Zip Code Where Abuse/Neglect Occurred

13. Describe Injury or Conditions and Reason for Suspicion of Abuse or Neglect

14. Source of Complaint (Add reporter code below)

01 Private Physician/Physician's Assistant	11 School Nurse	42 MDHHS Facility Social Worker
02 Hosp/Clinic Physician/Physician's Assistant	12 Teacher	43 DMH Facility Social Worker
03 Coroner/Medical Examiner	13 School Administrator	44 Other Public Social Worker
04 Dentist/Register Dental Hygienist	14 School Counselor	45 Private Agency Social Worker
05 Audiologist	21 Law Enforcement	46 Court Social Worker
06 Nurse (Not School)	22 Domestic Violence Providers	47 Other Social Worker
07 Paramedic/EMT	23 Friend of the Court	48 FIS/ES Worker/Supervisor
08 Psychologist	25 Clergy	49 Social Services Specialist/Manager (CPS, FC, etc.)
09 Marriage/Family Therapist	31 Child Care Provider	56 Court Personnel
10 Licensed Counselor	41 Hospital/Clinic Social Worker	

15. Reporting Person's Name	Report Code (see above)	15a. Name of Reporting Organization (school, hospital, etc.)			
15b. Address (No. & Street)		15c. City	15d. State	15e. Zip Code	15f. Phone Number
16. Reporting Person's Name	Report Code (see above)	16a. Name of Reporting Organization (school, hospital, etc.)			
16b. Address (No. & Street)		16c. City	16d. State	16e. Zip Code	16f. Phone Number
17. Reporting Person's Name	Report Code (see above)	17a. Name of Reporting Organization (school, hospital, etc.)			
17b. Address (No. & Street)		17c. City	17d. State	17e. Zip Code	17f. Phone Number
18. Reporting Person's Name	Report Code (see above)	18a. Name of Reporting Organization (school, hospital, etc.)			
18b. Address (No. & Street)		18c. City	18d. State	18e. Zip Code	18f. Phone Number
19. Reporting Person's Name	Report Code (see above)	19a. Name of Reporting Organization (school, hospital, etc.)			
19b. Address (No. & Street)		19c. City	19d. State	19e. Zip Code	19f. Phone Number

DHS-3200 (Rev. 6-18) Previous edition may be used. 1

TO BE COMPLETED BY MEDICAL PERSONNEL WHEN PHYSICAL EXAMINATION HAS BEEN DONE

20. Summary Report and Conclusions of Physical Examination (Attach Medical Documentation)		
21. Laboratory Report	22. X-Ray	
23. Other (specify)	24. History or Physical Signs of Previous Abuse/Neglect ☐ YES ☐ NO	
25. Prior Hospitalization or Medical Examination for This Child **DATES**	**PLACES**	
26. Physician's Signature	27. Date	28. Hospital (if applicable)

The Michigan Department of Health and Human Services (MDHHS) does not discriminate against any individual or group because of race, religion, age, national origin, color, height, weight, marital status, genetic information, sex, sexual orientation, gender identity or expression, political beliefs or disability.	AUTHORITY: P.A. 238 of 1975. COMPLETION: Mandatory. PENALTY: None.

INSTRUCTIONS

GENERAL INFORMATION:
This form is to be completed as the written follow-up to the oral report (as required in Sec. 3 (1) of 1975 PA 238, as amended) and mailed to Centralized Intake for Abuse & Neglect. Indicate if this report was phoned into MDHHS as a report of suspected CA/N. If so, indicate the Log # (if known). The reporting person is to fill out as completely as possible items 1-19. Only medical personnel should complete items 20-28.

Mail this form to:
Centralized Intake for Abuse & Neglect
5321 28th Street Court, SE
Grand Rapids, MI 49546

OR

Fax this form to 616-977-8900 or 616-977-8050 or 616-977-1158 or 616-977-1154
OR
email this form to MDHHS-CPS-ClGroup@michigan.gov

1. Date – Enter the date the form is being completed.
2. List child(ren) suspected of being abused or neglected – Enter available information for the child(ren) believed to be abused or neglected. Indicate if child has a disability that may need accommodation.
3. Mother's name – Enter mother's name (or mother substitute) and other available information. Indicate if mother has a disability that may need accommodation.
4. Father's name – Enter father's name (or father substitute) and other available information. Indicate if father has a disability that may need accommodation.

5.-7. Child(ren)'s address – Enter the address of the child(ren).

8. Phone Number – Enter phone number of the household where child(ren) resides.
9. Name of alleged perpetrator of abuse or neglect – Indicate person(s) suspected or presumed to be responsible for the alleged abuse or neglect.
10. Relationship to child(ren) – Indicate the relationship to the child(ren) of the alleged perpetrator of neglect or abuse, e.g., parent, grandparent, babysitter.
11. Person(s) child(ren) living with when abuse/neglect occurred – Enter name(s). Indicate if individuals have a disability that may need accommodation.
12. Address where abuse / neglect occurred.
13. Describe injury or conditions and reason of suspicion of abuse or neglect – Indicate the basis for making a report and the information available about the abuse or neglect.
14. Source of complaint – Check appropriate box noting professional group or appropriate category.

Note: If abuse or neglect is suspected in a hospital, also check hospital.

15.-19 - Reporting person's name - Enter the name and address of person(s) reporting this matter.

DHS-3200 (Rev. 6-18) Previous edition may be used. 2

Crime Scene Management

Aliases: Crime scene preservation

1. Follow **General Pre-hospital Care Protocol-Treatment Protocol**
2. Preserve evidence whenever possible.
    A. Wear gloves for all patient care and other activities within the crime scene.
    B. Never cut through holes in clothing created by bullets or knives.
    C. Retain all clothing, place in a paper bag. Be alert for torn clothing, fragments of cloth, blood, or body fluids, etc. for they need to be preserved as evidence.
    D. Law enforcement is responsible for the disposition of this evidence.
    E. When transporting a patient who may be dying, ascertain name and/or description of assailant if possible.
    F. At an outdoor crime scene do not disturb shoe prints, tire marks, shell casings, etc.
    G. Limit movement at the crime scene.
    H. Attempt to keep others out of the area.
3. Advise patient to not shower, change clothes, or dispose of pertinent objects. If applicable, refer to **Sexual Assault-Treatment Protocol**.
4. Assess patient for injury and treat according to protocol.
5. Use sensitivity in asking victim about history/events.
6. Thoroughly document all injuries and voluntary statements of patient. Red marks may disappear and your documentation may be the only witness that the victim was choked or struck, even though he/she stated it.
7. Document patient's emotional state.
8. Assure law enforcement agency has been notified.
    A. Notify the investigating law enforcement of any alteration of the crime scene by EMS personnel including:
        a. Any movement of furniture, tables, etc.
        b. The original position of the patient and items.
        c. If you turned on lights.
        d. What you touched, moved, etc.
9. Transport, treating according to appropriate protocol.
    A. If transport is refused, refer patient to support agency and/or hospital whenever possible and contact medical control if applicable.

NOTES:

1. Your first duty is to provide emergency medical care at the scene of an illness/injury.
2. Certain measures can be taken to assist law enforcement personnel in preserving a crime without jeopardy to the patient.
3. The investigation of the circumstances surrounding the incident is the responsibility of the law enforcement agency.
4. Do not touch firearms (loaded or unloaded) unless it poses a potential or immediate threat. Secure any weapon that can be used against you or the crew out of the reach of the patient and bystanders.

Vulnerable Adult Abuse, Neglect, or Exploitation (Suspected)

Aliases: elder abuse, mandatory reporting

Purpose: To provide the process for assessment and management of vulnerable adult patients with suspicion of elder abuse.

I. Definitions

a. Vulnerable adult – means an individual age 18 and older who is unable to protect himself or herself from abuse, neglect or exploitation because of a mental or physical impairment or because of advanced age.
b. Abuse - means harm or threatened harm to an adult's health or welfare caused by another person. Abuse includes, but is not limited to, non-accidental physical or mental injury, sexual abuse, or maltreatment.
c. Exploitation - means an action that involves the misuse of an adult's funds, property, or personal dignity by another person.
d. Neglect - means harm to an adult's health or welfare caused by the inability of the adult to respond to a harmful situation or by the conduct of a person who assumes responsibility for a significant aspect of the adult's health or welfare. Neglect includes the failure to provide adequate food, clothing, shelter, or medical care.

   Note: A person shall not be considered to be abused, neglected, or in need of emergency or protective services for the sole reason that the person is receiving or relying upon treatment by spiritual means through prayer alone in accordance with the tenets and practices of a recognized church or religious denomination, and this act shall not require any medical care or treatment in contravention of the stated or implied objection of that person.

II. Procedure

a. Do not confront the suspected abuser with suspicions as this could create an unsafe situation for the patient and EMS personnel.
b. Do not question the patient about suspected abuse/maltreatment in front of the suspected abuser. The primary goal, after treating life threatening injuries, is to protect the patient and personnel from harm.
c. Request police assistance if there is any history of threatening, abusive, or violent acts. Protect yourself while obtaining a safe environment for the patient.
d. Focus the interview on the patient's injury. Do not address the specifics of abuse, maltreatment, or neglect at this point.
e. Determine and chart past medical history, and any cognitive or physical impairment.
f. During assessment, pay attention to signs and symptoms of abuse, neglect, or exploitation.
   i. Physical

1. Injury inconsistent with history provided
2. Delay in seeking care for injury
3. Lacerations, bruises, burns, or fractures in various stages of healing
4. Scald burns with demarcated immersion lines
5. Scald burns involving anterior or posterior half of extremity
6. Cigarette burns
7. Rope burns or marks
8. Potential over-sedation
9. Appearance of malnourishment

ii. Environmental
1. Patient confined to restricted space or position
2. Inadequate housing including:
   a. Hazardous situations
   b. Hoarding
   c. Squalor
3. Lack of facilities, such as heat or water
4. Restricted access or lack of adequate food and fluids

iii. Psychosocial
1. History of abuse provided by the patient
2. Conflicting reports of injury from patient and caregiver
3. Patient unable or unwilling to describe mechanism of injury
4. Inappropriate fear
5. Avoidance behavior
6. Disappearing from contact with neighbors, friends, or family
7. Inappropriate interaction with care giver

g. Treat patient according to appropriate protocol for their condition.
h. Transport patient according to MCA transportation protocol and transfer care to receiving facility. Discreetly notify the receiving health care provider of suspected abuse, maltreatment, or neglect.
i. Documentation of suspected abuse, neglect, or exploitation includes, but is not limited to:
   i. Pertinent history related to the presenting problems
   ii. Any statements of the patient pertaining to instances of rough handling, sexual abuse, alcohol or drug abuse by family members, verbal or emotional abuse, isolation or confinement, misuse of property or theft, threats, gross neglect such as restriction of fluids, food or hygiene
   iii. Excited utterances (spontaneous comments) should be documented verbatim (word for word)
   iv. Mental health of caregiver
   v. Any other suspicious findings

III. Other Indications of Exploitation

a. Oversight of finances surrendered to others without explanation or consent
b. Transferring assets to “new friends” assisting with finances
c. Unexplained or unauthorized changes to wills or other estate documents

d. Advance directives or other decisions being made by those who appear to have a conflict of interest
e. Patient does not understand current finances, offers improbable explanations
f. Unexplained disappearances of cash, valuable objects, or financial statements

IV. Mandatory Reporting

a. Michigan law (MCL 400.11a) requires a verbal report for suspected cases of abuse, neglect, or exploitation of a vulnerable adult to Michigan Department of Health and Human Services Centralize Intake for Abuse and Neglect at **855-444-3911.**
b. Reporting the suspected allegations of abuse, neglect, or exploitation to an organization does not fulfill the requirement to report directly Michigan Department of Health and Human Services Centralize Intake for Abuse and Neglect.

V. Special Considerations

a. If the patient is not transported, the suspected abuse must still be reported. Law enforcement may also be contacted, at the discretion of EMS providers.
b. Do not rely on someone else on scene of the incident to report.

Protocol Source/References: MCL 400.11

Continuous Positive Airway Pressure (CPAP) Administration

For use of this protocol, patients must meet one or more of the indications. Contraindicated patients and those that do not meet the inclusion criteria will be treated according to existing protocols without the application of CPAP.

Indications:
Severe respiratory distress not responding to initial treatment with any of the following:

1. CHF/Pulmonary edema/near drowning
2. Hypoxia, i.e., SpO2 less than 92% on supplemental oxygen.
3. Acute exacerbation of asthma/COPD.

Contraindications:

1. Respiratory/cardiac arrest.
2. Blood Pressure
    a. Adult (≥10 years of age) less than 90mmHg systolic
        i. NOTE: 70 + (2x10 years of age) = 90 mmHg
    b. Pediatrics (<10 years of age) less than (70 mmHg + [2x age in years]).
        i. Small adult CPAP mask does not properly fit the patient and/or pediatric size CPAP mask is not available.
3. Inability to maintain patent airway.
4. Major trauma, pneumothorax, penetrating or blunt chest trauma and blast injury.
5. Vomiting or active GI bleeding with emesis.
6. Unstable facial fractures.

Procedure

1. EXPLAIN THE PROCEDURE TO THE PATIENT.
2. Apply appropriately sized and properly sealing CPAP mask per manufacturer's recommendations.
3. Place the patient on continuous pulse oximetry.
4. Secure the mask with provided straps and tighten to obtain a good seal, check for air leaks.
5. Continue to coach the patient to keep the mask in place, readjust as needed.
6. Begin with 5 cmH20 with titration as necessary and as tolerated.
7. Advise medical control of CPAP use during radio report.
8. If respiratory status deteriorates, remove the device and assist ventilations with a BVM/supplemental oxygen; place an appropriate airway control device.
9. Obtain/monitor vital signs.
10. Administer medications, per appropriate protocol, as indicated**.**
    a. The CPAP mask can be briefly removed for oral or SL medication (e.g., nitroglycerin) administration.
11. Contact medical control and consider sedation to reduce anxiety per **Patient Procedural Sedation- Procedure Protocol.**

Discontinuing CPAP Therapy

1. CPAP therapy needs to be continuous and should not be stopped without Medical Control contact unless:
    a. Patient cannot tolerate the mask.
    b. Patient has marked deterioration including respiratory arrest.
    c. Patient has decreasing LOC.
    d. Pat has or is at risk for vomiting.
    e. It is determined to be clinically detrimental.

2. Assist ventilations as necessary and contact Medical Control regarding the discontinuation of CPAP therapy.

Special Notes:

1. For patients with a decreased level of consciousness, continuously closely monitor patient while on CPAP.
2. Upon arrival at receiving facility, do not remove CPAP until hospital therapy is ready to be placed on the patient.
3. Watch the patient for gastric distention.
4. CPAP may be used on DNR patients not in arrest.
5. Due to changes in cardiac preload and afterload during CPAP therapy, a complete set of VS must be obtained every 10 minutes (5 minutes in short transport situations).

Dead on Scene & Termination of Resuscitation

Aliases: DOA, DOS, Termination of Resuscitation

Purpose: For patients in cardiac arrest, when and when not to initiate CPR, and when to terminate efforts.

A. Dead on Scene Criteria - CPR should NOT be initiated in the following cardiac arrest patients:
   1. Decomposition
   2. Rigor mortis (Caution: do not confuse with stiffness due to cold environment)
   3. Dependent lividity
   4. Decapitation
   5. Traumatic cardiac arrest while entrapped (witnessed or unwitnessed)
   6. Incinerated or frozen body
   7. Submersion greater than 90 minutes in cold water (water temperature less than 70° F/21° C) as documented by the licensed health care professional after arrival on scene.
   8. Submersion greater than 30 minutes in warm water (water temperature greater than 70° F/21° C) as documented by the licensed health care professional after arrival on scene.
   9. Gross dismemberment or obvious mortal wounds/conditions (injuries inconsistent with life – i.e., crushing injuries of the head and/or chest)
   10. Unwitnessed arrest of traumatic origin, without organized electrical activity (must be asystole or pulseless rhythm with rate less than 40/min).
       i. Exception to this is electrocution (including lightning strike) or acute hypothermia.
   11. Patient has a valid "Do Not Resuscitate" identification bracelet or order refer to **DNR-Procedure Protocol**
   12. Patient has MI-POST with Do Not Resuscitate selected in section A refer to **MI POST-Procedure Protocol**
   13. In cases of mass casualty incidents, where the number of patients exceeds the providers and resources to care for them, any patient who is pulseless and apneic may be triaged as deceased.

B. Exceptions to Dead on Scene Criteria in which CPR should be initiated:
   1. In EMS professional judgement potential viability despite meeting Dead on Scene criteria.
   2. Pregnant patient arrest witnessed by either bystanders or EMS personnel
      i. Resuscitation and immediate transport to the closest receiving facility

      ii. Contact Medical Control as early as possible

C. For all other patients:
   1. Follow the **Adult or Pediatric Cardiac Arrest-Treatment Protocol**.

2. Medical cardiac arrest patients undergoing attempted resuscitation will not be transported unless return of spontaneous circulation (ROSC) is achieved.
    i. If the resuscitation cannot be safely performed on scene patient should be loaded into transporting unit and vehicle should be moved to closest appropriate area to continue resuscitation efforts
    ii. Contact Medical Control for special circumstances requiring early transport and document accordingly.
3. Patients will have resuscitation continued at the scene for at least 30 minutes.
    i. Contact Medical Control for special circumstances and document accordingly.
4. If ROSC is achieved see **Adult or Pediatric Return of Spontaneous Circulation-Treatment Protocol**

D. <u>Termination of Resuscitation if ROSC is NOT Achieved</u>

1. ALS Termination of Resuscitation, after 30 minutes of ALS time contact Medical Control for:
    i. Consideration of termination of resuscitation for Asystole in all 3 leads or PEA with a rate of less than 40.
    ii. Consideration of termination and/or further orders/potential transport for PEA with a rate greater than 40 or persistent V Fib.

2. BLS Termination of Resuscitation
    i. AHA Guidelines suggest that the following are reliable and valid criteria for BLS termination of resuscitation when **<u>ALL</u>** of the following apply:
        a. Arrest not witnessed by EMS personnel
        b. ROSC is not present after 20 minutes of high-quality CPR with an adequate airway.
        c. No AED shock was delivered by EMS personnel or prior to arrival.
    ii. Contact Medical Control for the following:
        a. Termination of efforts
        b. Further orders for on scene care/treatment
        c. Consideration of transport in extreme situations
3. The medical examiner system will be activated consistent with **Medical Examiner Notification and Body Disposition Protocol**
4. Prehospital personnel will provide information to the family which should include medical control procedures for termination of resuscitation when applicable.
5. The following must be documented
    a. Time of death as pronounced by physician
    b. Name of hospital and physician providing time of death
    c. Notification of law enforcement
    d. Gift of life status

Do-Not-Resuscitate

Aliases: DNR

Purpose: The purpose of this policy is to provide a guideline to prehospital providers, who under certain circumstances may accommodate patients who do not wish to receive and/or may not benefit from cardiopulmonary resuscitation. This policy is drafted in accordance with Public Act 368 of 1978, as amended, as well as Act 192 and 193 of the Public Acts of 1996. This policy is intended to facilitate kind, humane, and compassionate service for patients who have executed a valid "Do-not-resuscitate order" under the aforementioned Acts.

1. **Definitions**
   - A. Attending Physician – means the physician who has primary responsibility for the treatment and care of a declarant.
   - B. Declarant – means a person who has executed a do-not-resuscitate order, or on whose behalf a do-not-resuscitate order has been executed pursuant to applicable laws.
   - C. Do-not-resuscitate order – means a document executive pursuant to Act 193, directing that in the event a patient suffers cessation of both spontaneous respiration and circulation in a setting outside of a hospital, nursing home, or mental health facility owned or operated by the Department of Community Health, no resuscitation will be initiated.
   - D. Do-not-resuscitate Identification Bracelet or Identification Bracelet – means a wrist bracelet that meets the requirements of Act 193 and worn by a declarant while a do-not-resuscitate order is in effect.
   - E. Order – means a do-not-resuscitate order.
   - F. Patient Advocate – means an individual designated to make medical treatment decisions for a patient under Section 496 of the revised probate code, Act No. 642 of the Public Acts of 1978, being section 700.496 of the Michigan Compiled Laws.
   - G. Vital Sign – means a pulse or evidence of respiration.
   - H. MI-POST Michigan Physician Order for Scope of Treatment see **MI POST-Procedure Protocol**

2. **Procedure**

   A do-not-resuscitate order is applicable to all prehospital life support agencies and personnel. A do-not-resuscitate order may be executed by an individual 18 years of age or older and of sound mind **OR** by an individual 18 years of age or older and of sound mind, and adherent of a church or religious denomination whose members depend upon spiritual means through prayer alone for healing **OR** by a patient advocate of an individual 18 years of age or older.

   - A. CRITERIA: EMS providers **shall not attempt** resuscitation of any individual who meets **ALL** of the following criteria:
     - a. 18 years of age or older

b. Patient has no vital signs. This means no pulse or evidence of respiration.
c. Patient is wearing a do-not-resuscitate identification bracelet which is clearly imprinted with the words "Do-Not-Resuscitate Order", name and address of declarant, and the name and telephone number of declarant's attending physician, if any **OR** The EMS provider is provided with a do-not-resuscitate order for the patient. Such an order form shall be in substantially the form outlined in Annex 1 or 2 and shall be dated and signed by all parties.

B. A patient wearing a "do-not-resuscitate order" identification bracelet, or who has executed a valid "do-not-resuscitate order" form, **but who has vital signs, shall not be denied** any treatments or care otherwise specified in protocols.

C. If a do-not-resuscitate order form is presented and is not substantially in the form as outlined in Annex 1 or 2, or is not complete and signed by all parties, **resuscitation will be initiated** while Medical Control is being contacted for direction.

D. In the event care has been initiated on a patient, and subsequently a valid do-not-resuscitate order form is identified, and the patient meets the criteria in (2.A.) above, discontinue resuscitation and contact Medical Control.

E. A do-not-resuscitate order will not be followed if the declarant or patient advocate revokes the order. An order may be revoked at any time and in any manner by which the declarant or patient advocate is able to communicate this intent. **Resuscitation efforts will be initiated** and EMS personnel shall contact on-line Medical Control to advise them of the circumstances.

F. A patient care record will be completed for runs handled within this protocol. The patient care record will clearly specify the circumstances and patient condition found by the EMS providers, and describe the do-not-resuscitate documents involved.

Note: The forms included in this protocol are samples, and examples of what a DNR may look like and should include. A valid DNR form does not need to look like this, but must contain fundamentally these items.

"DO-NOT-RESUSCITATE ORDER"

I have discussed my health status with my physician _____. I request that in the event my heart and breathing should stop, no person shall attempt to resuscitate me.

This order is in effect until it is revoked by me.

Being of sound mind, I voluntarily execute this order, and I understand its full import.

_____ _____
(**Declarant's signature**) (Date)

_____
(Type or print declarant's full name)

_____ _____
(**Signature of person who signed for declarant, if applicable**) (Date)

_____
(Type or print full name)

_____ _____
(**Physician's signature**) (Date)

_____
(Type or print physician's full name)

ATTESTATION OF WITNESSES

The individual who has executed this order appears to be of sound mind, and under no duress, fraud, or undue influence. Upon executing this order, the individual has (has not) received an identification bracelet.

_____ _____
(**Witness signature**) (Date) (**Witness signature**) (Date)

_____ _____
(Type or print witness's name) (Type of print witness's name)

This form was prepared pursuant to, and in compliance with, The "Michigan do-not-resuscitate procedure act".

ANNEX 1

"DO-NOT-RESUSCITATE ORDER"
Adherent of Church or Religious Denomination

I request that in the event my heart and breathing should stop, no person shall attempt to resuscitate me.

This order is in effect until it is revoked by me.

Being of sound mind, I voluntarily execute this order, and I understand its full import.

_____ _____
(**Declarant's signature**) (Date)

_____
(Type or print declarant's full name)

_____ _____
(**Signature of person who signed for declarant, if applicable**) (Date)

_____
(Type or print full name)

ATTESTATION OF WITNESSES

The individual who has executed this order appears to be of sound mind, and under no duress, fraud, or undue influence. Upon executing this order, the individual has (has not) received an identification bracelet.

_____ _____
(**Witness signature**) (Date) (**Witness signature**) (Date)

_____ _____
(Type or print witness's name) (Type of print witness's name)

This form was prepared pursuant to, and in compliance with,
The "Michigan do-not-resuscitate procedure act".

ANNEX 2

Electrical Therapy

Aliases: AED, Cardioversion, defibrillation, pacing

I. Precautions for all Electrical Therapy

1. Dry the chest-wall if wet or diaphoretic
2. Nitroglycerin paste should be removed; paddles should not be placed over nitroglycerin patches.
3. Avoid placing the paddles over a pacemaker or an implantable cardioverter defibrillator (ICD).
4. Ensure no provider or bystander contact with the patient or the pads during defibrillation.

II. Automatic External Defibrillation (AED)

1. Do NOT apply AED to patient with LVAD, go **LVAD-Procedure Protocol**.
2. The AED shall be applied only to patients found in cardiopulmonary arrest.
3. Interruptions to CPR should be kept to a minimum.
4. The AED should not be used on patients found lying on conductive surfaces or patients in moving vehicles.
5. For all patients, anterior/posterior placement of pads is preferred and should be used, if possible.
6. There are no age or weight limits for AED use.
7. In pediatric patients, attenuated pads should be used, if available. If adult pads are used in pediatric patients, pads must be placed in an anterior/posterior configuration.
8. The word “shock” instead of defibrillation shall be used in this section as devices utilize this verbiage.
9. Follow the **Adult or Pediatric Cardiac Arrest-Treatment Protocol** .
10. Stop CPR to analyze patient and shock once, if indicated.
11. Continue CPR immediately after the shock, or immediately if no shock is indicated and continue for 2 minutes (5 cycles) or when AED initiates analysis.
12. If no pulse, analyze the patient and repeat one shock, if indicated.
13. If patient converts to a non-shockable rhythm at any time, continue CPR until AED prompts to check the patient.
14. Should a patient who is successfully defibrillated arrest again, analyze the patient again.

III. Manual Defibrillation

1. Indications:
   A. Ventricular fibrillation
   B. Pulseless ventricular tachycardia
   C. Unstable irregular wide complex tachycardia
2. Technique:
   A. Turn defibrillator on.
   B. Apply defibrillator pads according to manufacturer specifications. For all patients, anterior/posterior placement of pads is preferred and should be used, if possible.

C. Charge defibrillator to energy level specified in appropriate protocol or according to manufacturer specifications.
D. Verify shockable rhythm.
E. Assure that no one is touching the patient.
F. Defibrillate patient.
G. Immediately initiate or resume CPR.
H. Repeat defibrillations at 2-minute intervals if the patient remains in a shockable rhythm per protocol.
I. Continue to treat the patient according to the appropriate protocol.
J. For refractory v-fib after 3 shocks, consider double sequential defibrillation per **Double Sequential Defibrillation-Procedure Protocol** (MCA Optional Protocol)

3. Precautions
   A. If visible muscle contraction of the patient did not occur, defibrillation did not occur, check equipment.
   B. If pediatric pads were used with an AED prior to ALS management, continue using AED or use ALS monitor with appropriate pads. Do not use attenuated pediatric AED pads with an ALS monitor.

IV. Synchronized Cardioversion

1. Indications: Hemodynamically unstable patient with the following rhythms:
   A. Regular Wide Complex Tachycardia (Presumed Ventricular Tachycardia).
   B. Narrow Complex Tachycardia (Supraventricular Tachycardia (SVT) or Atrial Fibrillation with a rapid ventricular response).
2. Contraindications: Heart rate < 150 unless ordered by Medical Control
3. Technique:
   A. Consider IV sedation per **Patient Procedural Sedation-Procedure Protocol.**
   B. Turn on defibrillator (monophasic or biphasic)
   C. Attach monitor leads to the patient and ensure proper display of the patient's rhythm.
   D. Turn SYNC on, assure that QRS complex is marked
   E. Apply defibrillator paddles/pads according to manufacturer specifications.
   F. Charge defibrillator to energy level specified in appropriate protocol or according to manufacturer specifications.
   G. Check Rhythm.
   H. Assure that no one is touching the patient.
   I. Cardiovert patient
   J. Recheck pulse and rhythm.
   K. If rhythm does not convert, repeat cardioversion according to the appropriate protocol.
   L. Recheck the "sync mode" after each synchronized cardioversion as many defibrillators default back to unsynchronized mode.
   M. If ventricular fibrillation occurs, deactivate synchronized mode and defibrillate.
4. Precautions
   A. Ensure sync mode has been selected.

B. In "sync" mode, the button(s) may need to be held until cardioversion is delivered per manufacturer's instructions. If cardioversion is not delivered the first time, repeat the sequence per manufacturer's instructions.
C. If a sinus rhythm is achieved by cardioversion, even briefly, and then reverts to previous rhythm, repeat the cardioversion at the same setting as was initially successful.

V. Transcutaneous Pacing (TCP)

1. Indications: Symptomatic Bradycardia with inadequate perfusion.
2. Technique:
   A. Monitor rhythm.
   B. Follow manufacturer's guidelines for pacing. For some monitors, ECG electrodes must be in place, along with pacing pads or combo-pads, in order for the pacer to function.
   C. Apply pacing electrodes per manufacturer's instructions.
   D. Consider sedation, per **Patient Procedural Sedation-Procedure Protocol.**
   E. If QRS complexes are present, select a lead in which the QRS is the most positive or upright (so machine can sense their presence).
   F. Set external pacemaker rate to 60 bpm to begin.
   G. Initiate pacing and increase milliamp (mA) output until evidence of capture has occurred.
   H. Increase at increments of 20 mA for unconscious patients and 5 mA for conscious patients.
      a. Use minimal mA needed for mechanical capture.
   I. Run a rhythm strip and save.
   J. Assure adequate electrical and mechanical capture.
      a. Electrical:
         1. Visible pacer spike immediately followed by wide QRS and broad T waves.
      b. Mechanical:
         1. Palpable Pulses, improved LOC; improved BP; improved patient color.
   K. If mechanical capture is not obtained, contact medical control. Perform CPR if appropriate.
3. Contraindications
   A. Wet environment
   B. Burns to the chest (relative)

VI. Special Considerations for Electrical Therapy:

1. Electrical therapy may not be successful in hypothermic patients.

Electrical Therapy
Double Sequential Defibrillation (MCA Optional Protocol)
Paramedic Only Protocol

Aliases: Dual sequential defibrillation

☑ Medical Control Authorities choosing to adopt this supplement may do so by selecting this check box. Adopting this supplement changes or clarifies the referenced protocol or procedure in some way. This supplement supersedes, clarifies, or has authority over the referenced protocol.

MCAs will be responsible for maintaining a roster of the agencies choosing to participate and will submit roster to MDHHS

Note: Double sequential defibrillation is considered an "off-label" intervention that is supported by scientific evidence, including a large randomized controlled trial which reported improved outcomes with this technique compared to standard defibrillation and was not found to be damaging to defibrillators.[1] While not currently indicated in the manufacturers' instructions for use for defibrillators typically used in Michigan, it is not known to be specifically prohibited in the instructions for use.

I. Indications

1. Consider for refractory ventricular fibrillation or pulseless ventricular tachycardia where ≥ 3 defibrillations have been delivered (including AED)
   AND
2. Availability of second defibrillator (may include 1 semi-automatic AED)
   Do not delay defibrillation while awaiting second defibrillator

II. Contraindications

1. Rhythm other than refractory ventricular fibrillation/pulseless ventricular tachycardia
2. Three (3) or more defibrillations not delivered.
3. Unable to place 4 defibrillation pads on patient without overlap of pads.

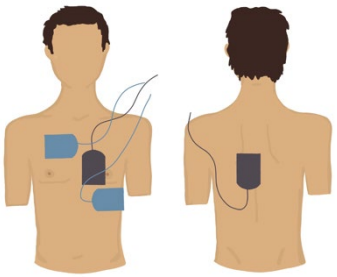
III. Procedure

1. Follow General Precautions per **Electrical Therapy-Procedure Protocol**
2. Ensure ongoing high-quality CPR that is interrupted only when absolutely necessary (and for ≤10 seconds) and anti-arrhythmic medication is

[1] Cheskes S, Verbeek PR, Drennan IR, McLeod SL, Turner L, Pinto R, Feldman M, Davis M, Vaillancourt C, Morrison LJ, Dorian P, Scales DC. Defibrillation Strategies for Refractory Ventricular Fibrillation. N Engl J Med. 2022 Nov 24;387(21):1947-1956. doi: 10.1056/NEJMoa2207304. Epub 2022 Nov 6. PMID: 36342151.

administered per Cardiac Arrest protocol.

3. Prepare sites for second pad set attachment and apply defibrillation pads as per the VF/VT protocol.
   A. Defibrillator 1: Pads in anterior/posterior (AP) position, with anterior pad just to patient's left of sternum (brown pads in diagram)
   B. Defibrillator #2: Pads in anterior/lateral (AL) position, with anterior pad to patient's right of sternum and lateral pad at the patients left anterior axillary line (blue pads in diagram)



   C. Consideration for pad placement – Assure optimal contact.
      1) Shave excessive chest/back hair, as needed.
      2) Assure pads are firmly in place.
      3) Ensure pads are not in contact with one another.
      4) For patients with implanted pacers/defibrillators, avoid placing paddles or pads directly above device.
4. Set the appropriate energy level and assure controls for both defibrillators are accessible to **single paramedic performing defibrillation**.
5. Charge the defibrillators to the selected energy level;
   A. Continue chest compressions while the defibrillator is charging (may be limited if AED).
   B. If second defibrillator is an AED, allow the AED to analyze rhythm and charge while manual defibrillator charging, continuing chest compressions, as AED device permits.
6. When both defibrillators have reached selected energy setting:
   A. Assure that no one is touching the patient.
   B. Defibrillate patient with **single paramedic depressing the "shock" button in rapid sequence with short delay (<1 second) between shocks.** If AED used, AED shock should be delivered first)
   C. Immediately resume chest compressions.
   D. Repeat defibrillations at 2-minute intervals if the patient remains in a shockable rhythm per protocol.
   E. Continue to treat the patient according to the appropriate protocol.

IV. Documentation

1. Document as 2 defibrillations within the procedures (same time)
2. The words 'double sequential' or 'dual sequential' must be included in the narrative.

V. QI/QA Process

1. A 100% of the calls utilizing this protocol will be reviewed by the MCA.

Airway Management

MCA'S are responsible for training on all airway devices, techniques, securing methods and documentation. All pediatric advanced airway interventions will have a 100% review by the MCA. All cricothyroidotomy procedures will have a 100% review by the MCA.

	MFR	EMT	EMT-A (Specialist)	PARAMEDIC
Basic Airway				
Oropharyngeal Airway	X	X	X	X
Nasopharyngeal Airway	X	X	X	X
Bag-Valve-Mask Ventilation	X	X	X	X
Oral Suctioning	X	X	X	X
CPAP		X	X	X
Advance Airway-Supraglottic				
i-Gel (Adult sizes)	MCA Selection Required	X	X	X
i-Gel (Pediatric sizes)				X
Air-Qsp3 or AirQsp3G (Adult sizes only patients > 35 kg)		X	X	X
LMA Supreme (Adult sizes ONLY)		X	X	X
King (Adult sizes ONLY)		X	X	X
Advance Airways Paramedic Only				
Oral Endotracheal Intubation				X
Needle / Surgical Cricothyroidotomy				MCA Selection Required
Tracheal Suctioning				X
Monitoring				
Waveform capnography		MCA Selection Required	X	X
Numeric capnometry		X	X	X
Colorimetric capnometry	X	X	X	X

Management Overview

1. Maintain a patent airway
2. Provide effective oxygenation and adequate ventilation using the least invasive possible method to achieve those goals paired with pulse oximetry and end-tidal capnography (EtCO2) data
3. Anticipate, recognize, and alleviate respiratory distress
4. Provide necessary interventions quickly and safely to patients with the need for respiratory support
5. Anticipate, identify, and plan for a potentially difficult airway
6. Optimize the patient for any advanced airway attempt

Indications

1. Airway obstruction
2. Need for positive pressure ventilation
   a. Respiratory or cardiac arrest (including agonal respirations)
   b. Respiratory failure (inadequate respiratory rate/volume)
3. Airway protection, such as an unconscious patient without a gag reflex.
4. Trauma patient with a Glasgow Coma Score of 8 or less.
5. Patients with signs of severe respiratory distress/respiratory failure
6. Patients with evidence of hypoxemia or hypoventilation with medical or traumatic etiology

Contraindications

1. Presence of a gag reflex may be a contraindication to some specific airway interventions.
2. Specific supraglottic airways may have contraindications due to caustic ingestion or known esophageal varices.

Pediatrics

1. Pediatric patients should not be intubated UNLESS efforts to manage the airway from least invasive methods (OPA, NPA, BVM) to more invasive airways (supraglottic airways) are ineffective.
2. Refer to MI MEDIC cards for device sizes.

AIRWAY MANAGEMENT
(Basic Airway Management)

1. In cases of foreign body airway obstruction, refer to **Foreign Body Airway Obstruction-Treatment Protocol.**
2. Patients with significant respiratory distress should have continuous pulse oximetry.
3. Patients with significant respiratory distress should have waveform capnography monitoring for both assessment and for guiding therapy.
4. UNCONSCIOUS PATIENTS
   a. When the airway is not self-maintained, open the airway using basic maneuvers (chin lift or jaw thrust). Patients with a potential cervical spine injury should have a modified jaw thrust performed attempting to minimize neck flexion and extension.
   b. Perform oral pharyngeal suctioning as needed to remove body fluids and minimize risk of aspiration. When possible, suctioning should be limited to no more than 15 seconds and should not extend beyond the pharynx.
   c. In unconscious patients without a gag reflex, insert a properly sized oropharyngeal airway. Immediately remove upon return of gag reflex.
   d. In unconscious patients with gag reflex, consider insertion of a properly sized nasopharyngeal airway, using water-soluble lubrication when available.
5. CONSCIOUS PATIENTS
   a. CPAP should be considered early for patients with severe respiratory distress that do not improve with supplemental oxygen administration (see **Oxygen**

Administration – Procedure Protocol) in accordance with the **CPAP-Procedure Protocol**

(Positive Pressure Ventilation)

6. In patients requiring bag-valve-mask ventilations, consider inserting both oral and nasopharyngeal airways to optimize ventilations.
7. For patients with respiratory arrest or significant respiratory depression (e.g., adult patient with respiratory rate less than 8 per minute) perform bag-valve-mask (BVM) ventilations.
    a. Note: BVM ventilations should be performed by 2 rescuers whenever possible. Use supplemental oxygen and reservoir system, focusing on adequate chest rise and ventilations that are not too forceful.
8. Ventilate at an appropriate rate. Avoid hyperventilation. Generally appropriate rates for ventilation are:
    a. Adults >8 y/o 10 breaths / minute
    b. Children 1-8 y/o 20 breaths / minute
    c. Infants < 1 y/o 25 breaths / minute
9. A pocket mask or face shield is an acceptable alternative for single rescuer ventilations.
10. When caring for patients with stomas, use pediatric masks over the stoma to achieve seal.
11. For patients with a tracheostomy tube and home ventilator connect BVM (without mask) directly to tracheostomy tube and ventilate at appropriate rates.

(Advanced Airway)

12. Use of sedation to facilitate advanced airway placement is prohibited.
13. In the adult patient (> 14 years of age), providers may consider continuing basic airway management techniques (instead of advanced airway) if the airway is able to be maintained adequately.
14. In the pediatric patient (≤ 14 years of age), providers must continue basic airway management, unless the airway is unable to be adequately maintained at which time the provider must move to an advanced airway.
15. Advanced Airways must be:
    a. Placed in accordance with manufacturer's instructions and/or MCA approved training.
    b. Confirmed by positive end-tidal CO_2. Refer to **End Tidal Carbon Dioxide Monitoring-Procedure Protocol**
    c. Confirmed by auscultation for absence of gastric sounds and presence of bilateral lung sounds.
        i. Additional clinical findings consistent with a properly placed advanced airway include chest expansion, improvement in patient's color, and improvement in pulse oximetry.
    d. Re-confirmed at frequent intervals throughout the care of the patient, and after each patient movement.

16. Advanced Airways **MUST** have the following documented:

DEVICE SPECIFICS/PLACEMENT	CONFIRMATION	ADDITIONAL
Type of Device: ET/King/i-gel, etc., specify make of device when more than one option approved in the MCA (e.g., Air-Qsp3 vs AirQsp3G)	Type of end tidal CO2 monitoring used: (waveform capnography, numeric only capnometry, colorimetric capnometry)	Method for securing device
Size of Device	Serial readings of capnography/capnometry	Any complications encountered
Visualization of vocal cords (ET only)	Chest rise with ventilation	Gastric decompression if applicable
Number of attempts to place device	Equality of lung sounds	Tracheal suctioning if applicable
Tube measurement (cm) at teeth for ET and all other devices with measurement markings	Absence of epigastric sounds	
Which tube used for ventilation (Combitube)	Ventilation compliance	

17. Supraglottic Airways (SGA) (may be MFR skill per MCA selection)
    a. Each MCA must select at least one state-authorized supraglottic airway for use in their system.
    b. MCAs are responsible for training for all airway devices selected.
        i. Training MUST include:
            1. Procedures, indications, contraindications and securing for the specific device.
        ii. Training must be submitted to MDHHS.
    c. MCAs selecting more than one supraglottic airway device must maintain and submit to MDHHS, a roster of agencies utilizing non-primary devices.
        i. A roster of all MFR agencies utilizing i-Gels (regardless if primary MCA SGA) must be maintained by the MCA and submitted to MDHHS.

MCA Selection of SGA Device (Must select at least one and a primary)

Primary MCA SGA	Allowable MCA SGA	
Select ONLY ONE	Select AT LEAST ONE	
☑	☑	i-Gel
☐		☑ MFR use of i-Gel
☐	☐	Air Qsp3/Air Qsp3G
☐	☑	King
☐	☐	Combitube
☐	☐	LMA Supreme

18. Orotracheal Intubation under direct laryngoscopy should be considered when less invasive methods are ineffective, or inappropriate.
    a. Adult patients (> 14 years of age) who do not have a gag reflex, are unable to protect their own airway, require sustained positive pressure ventilation, or are in cardiac arrest.
    b. Pediatric patient (≤ 14 years of age) **MUST** meet **ALL** the following criteria:
        i. Do not have a gag reflex and are unable to protect their own airway.
        ii. Require sustained positive pressure ventilation and all basic airway techniques have been exhausted or proven inadequate (2-person mask ventilation with oropharyngeal airway and/or nasopharyngeal airway, suctioning)
        iii. Supraglottic airway is unavailable or has been attempted and proven ineffective.
    c. Pediatric patient (<14 years of age) refer to MI MEDIC cards for airway device sizes.
19. Deep tracheal suctioning may be performed when indicated using sterile technique and suctioning only during withdrawal of catheter.
    a. Maximum suction time:
        i. Adult patients > 14 years of age: maximum 10 seconds
        ii. Pediatric patients ≥ 1 year of age and ≤ 14 years of age: maximum 10 seconds
        iii. Pediatric patients< 1 year of age): maximum 5 seconds

20. Needle and/or other cricothyroidotomy procedure (per MCA selection) may be performed when:
    a. Airway compromise from injury is present that prevents ventilation with basic techniques and makes supraglottic airway insertion or orotracheal intubation impractical.
    b. The patient needs immediate airway management.
    c. A complete airway obstruction that cannot be corrected by any other means (see **Foreign Body Airway Obstruction – Treatment Protocol**)

(Cricothyroidotomy per MCA Selection)

- (●) NO Cricothyroidotomy
- ( ) Cricothyroidotomy (select all that apply below)
    - [ ] Surgical cricothyroidotomy
    - [ ] Needle cricothyroidotomy
    - [ ] MCA approved commercial percutaneous cricothyroidotomy device

21. Sedation for tube tolerance following successful tube placement may be indicated in accordance with the **Patient Procedural Sedation-Procedure Protocol.**

Helmet Removal

Treatment of the injured patient with protective gear presents unique challenges. For preplanned events an emergency action plan that has been discussed prior to the event may provide organized consistent treatment.

1. High Impact Helmets (i.e., motorcycle, car racing)
   A. Whether the helmet is a closed or open-faced style helmet, the helmet must always be removed.
   B. Provide constant spinal precautions.

2. Low Impact Helmets WITH Shoulder Pads (i.e., football, ice hockey, etc.)
   A. In those patients wearing a well-fitted helmet which conforms closely to the patient's head, **unless there is a prearranged agreement between team training/medical staff, EMS providers and the likely receiving facility**, helmet and shoulder pads should be removed as spinal precautions are maintained. Removal of all equipment at the scene provides the best access to the athlete for treatment.
   B. If prearrangement is in place to keep the helmet and shoulder pads in place the procedure would be as follows (or as determined by agreement):
      1. If the patient is awake and able to protect his/her airway, the helmet should be left in place and the patient should have spinal precautions maintained using the helmet to assist with spinal precautions. The face shield must be removed prior to transport.
      2. If the patient has an altered level of consciousness or, for any other reason, is unable to protect his/her airway, the helmet should be left in place and the patient should have spinal precautions maintained using the helmet to assist with spinal precautions. The face shield should be immediately removed to allow access to the airway.
      3. If the face shield cannot easily be removed for any patient, the helmet and shoulder pads should be removed using in-line stabilization.
      4. If the airway cannot be controlled for any reason with the helmet in place, the helmet and shoulder pads should immediately be removed, using in-line stabilization.

3. Low Impact Helmets WITHOUT Shoulder Pads (i.e., baseball, bicycle, rollerblade, etc.):
   A. Whether the helmet is a closed or open-faced style helmet, the helmet must always be removed.
   B. Provide constant spinal precautions.

Impedance Threshold Device (ITD) (MCA Optional Protocol)

☑ Medical Control Authorities choosing to adopt this supplement may do so by selecting this check box. Adopting this supplement changes or clarifies the referenced protocol or procedure in some way. This supplement supersedes, clarifies, or has authority over the referenced protocol.

MCAs will be responsible for maintaining a roster of the agencies choosing to participate and will submit roster to MDHHS

Indications:

1. Cardiopulmonary arrest (medical etiology) in patients > 10 kg (22 lbs.)

Contraindications:

1. Cardiopulmonary arrest related to trauma
2. Patients ≤ 10 kg (22 lbs.)

Procedure:

1. Confirm absence of pulse and begin CPR immediately. Assure that chest wall recoils completely after each compression.

2. Using the ITD on a facemask:
   A. Connect ITD to the facemask.
   B. Connect ventilation source (BVM) to top of ITD. If utilizing a mask without a bag, connect a mouthpiece.
   C. Establish and maintain a tight face seal with mask throughout chest compressions. Use a two-handed technique or head strap.
   D. Do not use the ITD's timing lights during CPR utilizing a facemask for ventilation.
   E. Perform ACLS interventions as appropriate.
   F. Prepare for endotracheal intubation.

3. Using the ITD on an endotracheal tube (ET) or Supraglottic Airway Device (SAD):
   A. Endotracheal intubation is the preferred method of managing the airway when using the ITD.
   B. Place endotracheal tube or SAD and confirm placement with end tidal capnography and standard techniques (see **Airway Management-Procedure Protocol**). Secure the tube.
   C. Move the ITD from the facemask to the advanced airway and turn on timing assist lights (remove clear tab).
   D. Devices should be stacked in this order after tube placement confirmation.
      a. ET/SAD – ITD - EtCO2 - BVM

E. Continue CPR with minimal interruptions:
   a. Provide continuous (no pauses) chest compressions and ventilate asynchronously over 1 second when light flashes
F. Perform ACLS interventions as appropriate.
G. If a pulse is obtained, remove the ITD and assist ventilations as needed.

Special Notes:

1. Always place $ETCO_2$ detector between the ITD and ventilation source.
2. Administer endotracheal medications directly into endotracheal tube, if indicated.
3. Do not interrupt CPR unless absolutely necessary.
4. If a pulse returns, discontinue CPR and the ITD. If the patient rearrests, resume CPR with the ITD.
5. Do not delay compressions if the ITD is not readily available.
6. Initial training and ongoing competency skills shall be monitored by the agency.

Oxygen Administration

Assuring adequate patient oxygenation is a fundamental responsibility of EMS providers at all levels. Supplemental oxygen when clinically indicated and through the proper delivery system can have an important impact on patient outcome.

Indications

1. Real or suspected hypoxia
2. Patients in respiratory or cardiac arrest
3. Respiratory distress
4. Chest pain, stroke, seizures, or altered mental status when pulse oximetry is unavailable or when oxygen saturation is less than 94%
5. General trauma (more than isolated trauma). Regardless of pulse oximeter reading, all patients with significant trauma should receive oxygen administration.
6. Shock
7. Suspected carbon monoxide and/or cyanide poisoning (including smoke inhalation) regardless of pulse oximetry value
8. Complicated childbirth
9. Patients who normally use supplemental oxygen as part of their routine care
10. Any condition in which pulse oximetry (when available) is <94%.

Contraindications

1. There are no absolute contraindications to oxygen administration.
2. In general, supplemental oxygen should be guided by pulse oximetry (when available) to maintain oxygen saturations ≥94%.
3. Patients with COPD may develop a hypoxic drive to breath. High concentrations of oxygen may suppress their respiratory drive. Oxygen should still be administered when clinically indicated. Providers should monitor for respiratory depression and assist ventilations when indicated.

Procedure

1. Assure the patient has an adequate airway or establish an airway in accordance with the **Airway Management-Procedure Protocol** and whenever possible the patient's head should be elevated up to 30 degrees**.**
2. In spontaneously breathing patients administer supplemental oxygen by appropriate means.
    A. Nasal cannula at 2-6 LPM: This is appropriate for most patients with mild to moderate hypoxia and minimal or no respiratory distress. Most patients tolerate nasal cannulas.
    B. Non-rebreather (NRB) mask at 8-15 LPM (adjust flow rate to keep reservoir bag inflated). A NRB should be used on all spontaneously breathing patients with moderate to severe respiratory distress and all patients with suspected carbon monoxide and/or cyanide poisoning (e.g., smoke inhalation).
    C. If continuous positive airway pressure (per **CPAP-Procedure Protocol**) is utilized, using a nasal cannula to supplement oxygenation while a patient is on CPAP is acceptable, if seal remains adequate.

3. In patients not breathing or breathing inadequately
    A. Use a bag-valve-mask with two rescuers when available to provide ventilations with oxygen connected at 15 LPM. See **Airway Management-Procedure Protocol.**
        i. Maintain face seal with one rescuer with two hand technique.
        ii. Utilize second rescuer to ventilate every six seconds.
    B. Passive oxygenation via nasal cannula may be used to augment bag-valve-mask ventilations before advanced airway placement.
4. Augment rapid but ineffective respiration with BVM and/or CPAP as applicable.
5. Pediatric “blow-by” oxygen is an ineffective means of delivering supplemental oxygen to pediatric patients and should be avoided when possible. Pediatric nasal cannulas are well tolerated by most children. When using, blow-by technique, keep mask as close to face as possible and use high flow (e.g., ~15 LPM).
6. When caring for patients with stomas, use pediatric size masks.

Pain Management

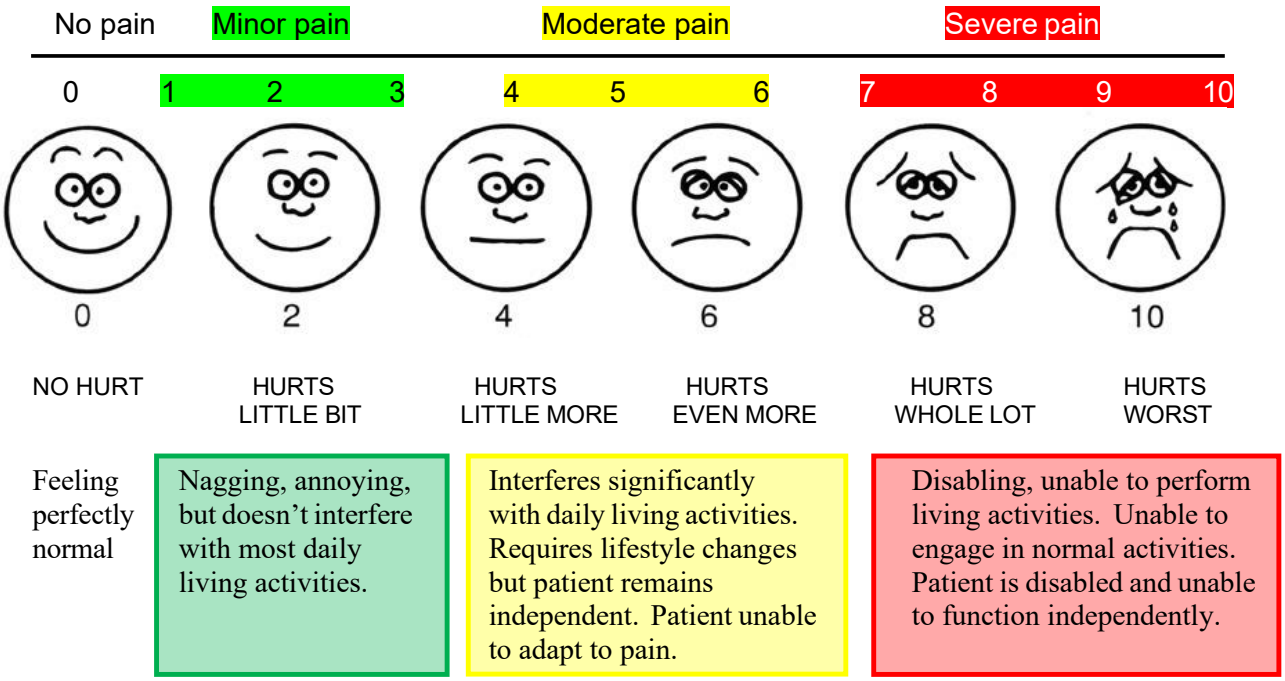
Aliases: Analgesia, pain control, acute pain

For patients with suspected cardiac chest pain, refer to the **Chest Pain/Acute Coronary Syndrome-Treatment Protocol.**

The goal is to reduce the level of pain for patients in the pre-hospital setting.

All pain should be assessed and scored according to the "Wong Pain Scale". Reassessment should be timed according to medication onset of action, changes in patient condition, patient positioning and other treatments. Pain treatment should be based on pain scale but may need modification based on patient assessment or condition being treated.

Wong Pain Scale: Pain Assessment Scale
Choose a number from 1 to 10 that best describes your pain



Note: Medical Control contact is required for patients with labor pains, established care plans that deter opioid pain management, or have established pain management care plans.,

1. Place the patient in the position of comfort.
2. Pediatric patients (≤ 14 years) utilize MI MEDIC cards for appropriate medication dosage. When unavailable utilize pediatric dosing listed within protocol
3. Verbally reassure the patient to control anxiety.

4. Administer BLS interventions per applicable protocol (e.g., positioning, splinting, ice, etc.)
5. If not improved with BLS intervention, consider analgesia.
6. Start an IV if required for medication administration or per applicable treatment protocol being followed. **Vascular Access & IV Fluid Therapy-Procedure Protocol**.
7. Per MCA selection, for mild to moderate pain (described as 1-6 on the Wong Pain Scale), consider non-opioid analgesia.

MCA Selected Non-Opioid Analgesia
(MCA must select at least one)

☑ **Acetaminophen**:
1. Adults (patients > 14 years of age), administer 650 mg PO
2. Pediatrics refer to MI MEDIC cards. When MI MEDIC cards are unavailable refer to dosing table below.

☑ **Ibuprofen**
1. Adults (patients > 14 years of age), administer 400 mg.
    a. Do NOT use in pregnant patients.
2. Pediatrics (patients > 6 months of age and ≤ 14 years of age), refer to MI MEDIC cards. When MI MEDIC cards are unavailable refer to dosing table below.

☑ **Ketorolac** (Toradol ®)
1. Adults (patients >14 years of age), administer 15 mg IM/IV
    a. Do NOT use in pregnant patients
2. Pediatrics (patients > 5 years of age and ≤ 14 years of age refer to MI MEDIC cards. When MI MEDIC cards are unavailable:
    a. administer 1 mg/kg IM/IV (max dose 15 mg)

Children's Elixir Dosing Table			
Child's Weight	Child's Age	**Acetaminophen** 160 mg/5mL	**Ibuprofen** 100 mg/5mL
3-5 kg (6-12 lbs.)	0-2 mos.	1.25 mL (40 mg)	DO NOT GIVE
6-7 kg (13-16 lbs.)	3-6 mos.	3 mL (96 mg)	DO NOT GIVE
8-9 kg (17-20 lbs.)	7-10 mos.	4 mL (128 mg)	4 mL (80 mg)
10-11 kg (21-25 lbs.)	11-18 mos.	5 mL (160 mg)	5 mL (100 mg)
12-14 kg (26-31 lbs.)	19 mos.-35 mos.	6 mL (192 mg)	6 mL (120 mg)
15-18 kg (32-40 lbs.)	3-4 yrs.	7 mL (224 mg)	7.5 mL (150 mg)
19-23 kg (41-51 lbs.)	5-6 yrs.	9 mL (288 mg)	9.5 mL (190 mg)
24-29 kg (52-64 lbs.)	7-9 yrs.	12 mL (384 mg)	13 mL (260 mg)
30-36 kg (65-79 lbs.)	10-14 yrs.	15 mL (480 mg)	15 mL (300 mg)

8. For patients with suspected kidney stone pain of any score, **ketorolac** should be considered first line if available.
9. For patients with severe pain (described as 7 or greater on the Wong Pain Scale), consider **ketamine** if applicable per MCA selection.

MCA Selection for **ketamine** use in pain management

- ☐ **Ketamine** not permitted.
- ☑ Contact Medical Control prior to **ketamine** administration
- ☐ Administer **ketamine**

10. **Ketamine** may be administered IV/IO/IN as outlined below.
    a. **Ketamine** for pain management given IV/IO should be diluted.
        i. Dilution: the patient specific dose mixed with 100 ml **NS** and administer via slow infusion over 5-10 minutes to avoid dissociation symptoms.
    b. Administer **ketamine** IV/IO/IN
        i. Adults (patients > 14 years of age)
            1. 0.2 mg/kg IV/IO (diluted) maximum single dose 25 mg
            2. 0.5 mg/kg IN (undiluted) maximum single dose 50 mg
            3. May repeat after 10 minutes.
        ii. Pediatrics (> 6 years of age and ≤ 14 years of age) refer to MI MEDIC cards. If MI MEDIC cards are unavailable follow below.
            1. 0.2 mg/kg IV/IO (diluted) maximum single dose 7.2 mg
            2. 0.5 mg/kg IN (undiluted) maximum single dose 18 mg
            3. May repeat after 10 minutes.

iii. Pediatrics (> 6 months of age and ≤ 6 years of age) refer to MI MEDIC cards. If MI MEDIC cards are unavailable follow below.
   1. 0.5 mg/kg IN (undiluted) maximum single dose 18 mg
   2. May repeat after 10 minutes.

11. For patients with refractory pain after **ketamine** administration, contact Medical Control prior to opioid administration.

12. If a patient is unable to tolerate **ketamine** or **ketamine** is not available and the patient has significant pain (described as 7 or greater on the Wong Pain Scale), opioid analgesia may be administered per MCA selection.
   a. Patients should receive only one opioid medication.
   b. If an IV is not available a single dose of opioid may be given IM.
   c. Do not administer additional pain medications after IM administration without on-line medical direction.

MCA Selected Opioid Analgesia
(Must select at least one)

☑ **Morphine**

1. Adults (patients > 14 years of age), administer 0.1 mg/kg IV/IO (maximum single dose 5 mg). May repeat three times. Total dose may not exceed 20 mg.
2. Pediatrics (patients > 18 months of age and ≤ 14 years of age), refer to MI MEDIC cards. When MI MEDIC cards are unavailable administer:
   a. 0.1 mg/kg IV/IO (maximum single dose 5 mg). May repeat three times. Total dose may not exceed 20 mg.
3. Do NOT administer Morphine to children ≤ 18 months of age.

☑ **Fentanyl**

1. Adults (patients > 14 years of age and ≤ 65 years of age) administer 1 mcg/kg IV/IO/IN, max single dose 100 mcg, may repeat one time. Total dose may not exceed 200 mcg.

Adults > 65 years of age administer 0.5 mcg/kg IV/IO/IN, max single dose 50 mcg, may repeat three times. Total dose may not exceed 200 mcg.

Pediatrics (patients ≤ 14 years of age), refer to MI MEDIC cards. When MI MEDIC cars are unavailable administer:
   a. 1 mcg/kg IV/IO/IN

If an IV is not available a single dose of opioid may be given IM. DO NOT ADMINISTER ADDITIONAL PAIN MEDICATIONS after IM administration without on-line medical direction.

13. Administer opioids slowly when using IV or IO routes. Systolic BP should be maintained at >100 mm Hg for adult patients and > 80 + (2 x age) mm Hg for pediatric patients.

14. If nausea develops with pain medication administration, refer to **Nausea and Vomiting-Treatment Protocol**
15. For patients with evidence of hypotension or hypoperfusion, contact Medical Control

Medication Protocols
Acetaminophen
Fentanyl
Ibuprofen
Ketamine
Ketorolac
Morphine

Patient Assessment

Scene Size Up and General Impression

1. Recognize environmental hazards to rescuers, and secure area for treatment.
2. Recognize hazard for patient and protect from further injury.
3. Identify number of patients. Follow the **Mass Casualty Incident-Special Operations Protocol** if appropriate.
4. Observe position of patient, mechanism of injury, surroundings.
5. For pediatric patients, utilize the Pediatric Assessment Triangle.
6. Identify self.
7. Utilize universal precautions in all protocols.
8. Determine if patient has a valid Do-not-resuscitate bracelet/order or a valid MI POST.

Primary Survey

1. Airway:
    A. Protect spine from movement in trauma victims. Provide continuous spinal precautions. Follow the **Spinal Injury Assessment-Treatment Protocol**.
    B. Observe the mouth and upper airway for air movement.
    C. Establish and maintain the airway. Follow the **Airway Management-Procedure Protocol.**
    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 Protocol.**
3. Circulation
    A. Check pulse and begin CPR if no central pulse. Follow **Pediatric or Adult Cardiac Arrest-Treatment Protocol** or **Newborn and Neonatal Assessment and Resuscitation-Treatment 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 Protocol** and/or **Bleeding Control-Treatment Protocol.**)
    D. Check capillary refill time in fingertips.
    E. If evidence of shock or hypovolemia begin treatment according to **Shock-Treatment Protocol.**
4. Level of consciousness:
    A. Note mental status (AVPU)
        a. Alert
        b. Verbal stimuli response
        c. Painful stimuli response

d. Unresponsive

B. Measure Glasgow Coma Scale

Patient age > 2 years old		Patient age < 2 years old

Eye opening

Spontaneous	4	Spontaneous
To speech	3	To speech
To Pain	2	To Pain
No response	1	No response

Verbal response

Oriented and talking	5	Smiles, recognizes sounds, follows objects, interacts
Disoriented and talking	4	Cries, consolable, inappropriate interactions
Inappropriate words	3	Inconsistently inconsolable, moaning
Incomprehensible sounds	2	Agitated, restless, inconsolable
No response	1	No response

Motor response

Obeys command	6	Spontaneous movement
Localizes pain	5	Withdraws from touch
Withdraws to pain	4	Withdraws from pain
Flexion to pain	3	Abnormal flexion to pain (decorticate posturing)
Extension to pain	2	Abnormal extension to pain (decerebrate posturing)
No response	1	No response

Any combined score of less than eight represents a significant risk of mortality.

If the patient is not alert and the cause is not immediately known, consider:

A – Alcohol
E – Epilepsy
I – Insulin
O – Overdose
U – Uremia

T – Trauma
I – Ingestion
P – Psych
P – Phenothiazine
S – Salicylates

C – Cardiac
H – Hypoxia
E – Environmental
S – Stroke
S - Sepsis

5. The secondary survey is performed in a systematic manner.

(Steps listed are not necessarily sequential.)

A. Vital Signs:
   a. Frequent monitoring of blood pressure, pulse, and respirations
   b. Temperature as appropriate and as indicated in protocol.
   c. Blood glucose measurement as appropriate and as indicated by protocol. (May be MFR sill, see **Blood Glucose Testing-Procedure Protocol**).
   d. Pulse oximetry as appropriate and as indicated by protocol.
   e. ECG monitoring as appropriate and as indicated in protocol.
   f. 12 Lead as appropriate and as indicated by protocol (Per MCA selection, may be a BLS or Specialist procedure) follow **12 Lead ECG-Procedure Protocol**.
   g. Monitor capnography as appropriate and as indicted by protocol (refer to **End Tidal Carbon Dioxide Monitoring-Procedure Protocol**

B. Head and Face
   a. Observe and palpate for deformities, asymmetry, bleeding, tenderness, or crepitus.
   b. Recheck airway for potential obstruction: upper airway noises, dentures, bleeding, loose or avulsed teeth, vomitus, or absent gag reflex.
   c. Eyes: pupils (equal or unequal, responsiveness to light), foreign bodies, contact lenses, or raccoon eyes
   d. Ears: bleeding, discharge, or bruising behind ears.

C. Neck
   a. Maintain spinal precautions; follow the **Spinal Precautions-Procedure Protocol**, if appropriate.
   b. Check for deformity, tenderness, wounds, jugular vein distention, and use of neck muscles for respiration, altered voice, and medical alert tags.

D. Chest
   a. Observe for wounds, air leak from wounds, symmetry of chest wall movement, and use of accessory muscles.
   b. Palpate for tenderness, wounds, crepitus, or unequal rise of chest.
   c. Auscultate for bilateral breath sounds.
   d. Capnography/capnometry according to protocol

E. Abdomen
   a. Observe for wounds, bruising, distention, or pregnancy.
   b. Palpation.

F. Pelvis
   a. Palpate pelvis for tenderness and stability

G. Extremities
   a. Observe for deformity, wounds, open fractures, and symmetry.
   b. Palpate for tenderness and crepitus.
   c. Note distal pulses, skin color, and medical alert/DNR tags.
   d. Check sensation.
   e. Test for motor strength if no obvious fracture present.

H. Back
   a. Observe and palpate for tenderness and wounds.

Special Considerations:

1. If there is a specific mechanism of injury with only localized injury, a focused exam may be performed in lieu of the full patient survey provided the patient is alert.
2. Follow the appropriate protocol, per patient condition:
    A. **General Pre-hospital Care-Treatment Protocol**
    B. **Newborn and Neonatal Assessment and Resuscitation Treatment Protocol**
    C. **Cardiac Arrest-Treatment Protocol**
    D. **Pediatric Cardiac Arrest-Treatment Protocol**
    E. **General Trauma-Treatment Protocol**
    F. **Spinal Precautions-Procedure Protocol**
    G. **Crashing Adult/Impending Arrest-Treatment Protocol**
    H. **Crashing Pediatric Patient/Impending Arrest-Treatment Protocol**

Documentation and Patient Care Records

Purpose: Patient care records (PCR) are legal documents and a part of a patient's medical record. EMS Personnel must be accurate and thorough in their documentation of EMS incidents. This protocol defines the MINIMUM elements to be included in a patient care record.

I. Completion of records
   A. An electronic EMS PCR must be completed on any request for service to which a life support agency (per MCA selection):

☑ is dispatched ☑ arrives on scene

   Regardless of MCA selection, this includes all emergency and non-emergency EMS incidents and patients, ambulance inter-facility transfers, patient refusals, other patient contact, no patient found and cancellations.
   B. For responses that do not necessitate an EMS PCR, an alternative form of electronic documentation must be maintained (e.g., computer aided dispatch).
   C. If a patient is evaluated and/or treated and is not transported, a Refusal of Treatment and/or Transport Evaluation Form must be completed and a patient signature obtained per **Refusal of Care; Adult & Minor-Procedure Protocol**.
   D. Personnel completing PCRs must do so in a timely fashion. If an electronic record is not transmitted immediately upon leaving the receiving facility, an MCA approved paper form must be left at the receiving facility which includes at least the following:
      1. Patient demographic information
      2. Patient and history or medications obtained
      3. Vital signs and assessment information
      4. Any interventions performed
      5. Any diagnostics performed
   E. Patient care records must be completed within 24 hours of incident conclusion. If changes or documentation must be completed after 24 hours, an addendum to the record noting the circumstances must be created.

II. Documentation
   A. Electronic PCRs must be created on appropriate software as outlined in **Electronic Documentation & EMS Information-System Protocol**.
   B. Non-transporting agencies will turn over an MCA approved written report or field note, if available, to the transporting agency.
   C. Each PCR (regardless of patient type) should include:
      1. All demographic, response and other general information pertinent to the EMS personnel's actions related to the response or transfer.
      2. Patient care information including:
         a. Assessment findings, including EMS obtained vital signs. If a patient refuses EMS vitals, that refusal must be documented in the PCR.

b. Available patient history (including current medications and allergies).
c. Treatment and interventions (including who performed the intervention). For interventions that are performed prior to arrival, document as such, and attribute to appropriate other personnel.
d. Medications administered (including dose, route, and personnel administering). For medications that are administered prior to arrival, document as such, and attribute to appropriate other personnel.
e. Changes in patient status (or lack of change)
f. Narrative including elements and descriptors unable to be documented in other sections of the PCR. *Note: treatments, vitals, interventions, and medications must be included in the applicable data fields (e.g., flowchart), but may also be included in the narrative of the report, as appropriate.

3. Names and licensure level of each responder present on scene.
4. Signature of the personnel responsible for the documenting the encounter.

D. Specific requirements for other types of PCRs include all the above, plus:
1. For transported patients, at least two sets of EMS obtained vital signs based on patient condition and complaint. If less than two sets of vitals are recorded, documentation must be provided justifying the omission.
2. For patients transported with time sensitive emergencies (suspected stroke, myocardial infarction, trauma):
a. Symptom onset time (last know well time, time of injury)
b. Vitals/assessment specific to the complaint:
i. 12 Lead ECG (included as an attachment)
ii. Cincinnati Stroke Scale (or other MCA approved pre-hospital stroke scale)
iii. Physical assessment (noted types and locations of injuries)
iv. Mechanism of injury (including specific elements allowable such as vehicle information), as appropriate
3. Patient transfer of care between life support agencies.

E. If a PCR must first be generated on paper and entered secondarily into an electronic format:
1. Content must be directly copied from the original PCR to the electronic system
2. Ideally, a scanned copy of the paper record must be attached to the electronic PCR. Otherwise, a paper copy must be maintained (according to MCL 333.16213) and available to the jurisdictional MCA or the Department upon request.
3. If someone other than the original caregiver inputs the PCR into the electronic system, it must be noted in the record.

III. Confidentiality

A. The EMS patient care record is a confidential patient care document and is not to be released to anyone other than those involved in the patient's care or the MCA's Professional Standards Review Organization, without the patient's written release of information permission. Refer to **Protected Health Information (PHI)-Procedure Protocol**

Patient Restraint

Purpose: To ensure appropriate and safe restraint of patients whose behavior is suggestive of an imminent physical threat to personnel and/or themselves.

Indications:

1. When an ill or injured person who is behaving in such a manner as to interfere with their examination, care and treatment to the extent they endanger their life or the safety of others.
2. The patient has a clear or suspected inability to understand their medical situation and the need for treatment of a potentially life-threatening injury or illness.
3. Pediatric patients (≤ 14 years) utilize MI MEDIC cards for appropriate medication dosage. When unavailable utilize pediatric dosing listed within protocol

Escalation of Care:

1. Verbal de-escalation
2. Physical management and soft restraints
3. Physical management and pharmacological management

Verbal De-Escalation is defined as the use of communication or other techniques during an encounter to stabilize, slow, or reduce the intensity of a potentially violent situation without using physical force, or with a reduction in force. This should be continued throughout care.

Soft Restraint Procedure

1. When the placement of soft restraints requires physical management that poses risk to the patient and/or personnel, anticipate and prepare for physical management and pharmacological management.
2. Ensure that enough personnel are available to properly control the patient and establish the restraints.
3. Explain the purpose of the restraints.
4. Physically control the patient and apply restraints.
5. Complete primary and secondary assessments.
    A. Restrained extremities should be evaluated for pulse quality, capillary refill time, color, sensory and motor function continuously
        a. Restraints must be adjusted if any of these functions are compromised.
        b. Restraints must not interfere with medical treatment.
6. Attempt to identify common physical causes for patient's abnormal behavior.
    - Hypoxia
    - Hypoglycemia
    - Head Trauma
    - ETOH/ Substances use/ abuse
7. Patient should be secured to a backboard or stretcher only. Patients must never be secured directly to a vehicle or immovable object. Patients must NEVER be secured in a prone position.
8. Transport patient.

9. Inform hospital that restraints are in place and assistance will be necessary to continue restraint of the patient.

Pharmacological Management Procedure

1. Pharmacological management should only be utilized when soft restraint placement alone would pose a safety risk or is ineffective in calming the patient
2. Contact Medical Control prior to medication administration, unless extreme circumstances exist in which delaying administration poses an immediate danger to patient or others.
3. Administer **midazolam** 0.1 mg/kg IM or IN
    a. Adult patients (>14 years of age) maximum dose of 10 mg
        i. Consider lower range of dosing for Geriatric patients.
    b. Pediatric patients (≤14 years of age), administer 0.1 mg/kg IM, maximum single dose 5mg.
4. Monitor vital signs, ECG, pulse oximetry, and capnography.
5. If after 10 minutes additional medication is necessary, contact Medical Control for guidance.

Transport Considerations

1. Patients that are physically restrained and/or pharmacologically managed should be transported to the closest appropriate facility.
2. Receiving facilities should be notified as soon as possible of physical restraint use and/or pharmacological management.

Special Considerations

1. Physical restraints should be of a soft nature (e.g., hook and loop restraints, cravats, sheets, etc.) applied to the wrists and ankles. A restraint may also be needed across the chest and/or pelvis and shall NEVER restrict the patient's chest wall motion.
2. Stay with a restrained patient at all times, be observant for possible vomiting and be prepared to turn the patient onto their side and suction if necessary.
3. Documentation should include:
    A. A description of the circumstance/behavior which precipitated the use of restraints and/or pharmacological management.
    B. Time of application of the restraints.
    C. Type of restraint used.
    D. The positions in which the patient was restrained.
4. When restraint devices are applied by law enforcement officers for patients who are not under arrest:
    A. If a patient is restrained by law enforcement personnel with handcuffs or other devices EMS personnel cannot remove, a law enforcement officer must accompany the patient to the hospital.
    B. If the officer is unable to accompany the patient in the transporting EMS vehicle the patient will be placed in soft restraints. This can only occur if crew safety will not be compromised and the patient can be safely transported with this type of restraint.
    C. The restraint and position must not be so restrictive that the patient is in a

position that compromises patient care.

5. EMS Personnel may NOT use:
   A. Hard plastic ties.
   B. Any restraint device that cannot be immediately removed by the attending EMS provider
   C. Backboards to “sandwich” the patient.
   D. Restraints which secure the patient’s hands and feet behind the back.
   E. Restraints that “hog tie” the patient.
   F. Any device that restricts normal breathing.

6. EMS personnel shall NOT transport a restrained patient in the prone position.
7. Ketamine is NOT to be used as part of this protocol without on-line medical direction.

Medication Protocols
Midazolam

Protocol Source/References:

Authority to Restrain - EMS personnel are able to restrain and treat and transport an individual under authority of Sec 20969 of Public Act 368 which states: *"This part and the rules promulgated under this part do not authorize medical treatment for or transportation to a hospital of an individual who objects to the treatment or transportation. However, if emergency medical services personnel, exercising professional judgment, determine that the individual's condition makes the individual incapable of competently objecting to treatment or transportation, emergency medical services may provide treatment or transportation despite the individual's objections unless the objection is expressly based on the individual's religious beliefs."*

Patient Procedural Sedation
Paramedic Use Only

Purpose: Proper sedation of patients requiring a painful medical procedure.

Indications for Sedation

1. Electrical therapy (cardioversion or transcutaneous pacing)
2. Post intubation sedation
3. CPAP and/or HFNC only under direct Medical Control Order
    i. **Ketamine is NOT to be used for this indication

Contraindications

1. Inability to control the patient's airway
2. As an adjunct for establishing an airway
3. Known allergy to sedation medications

Assessment

1. Evaluate adequacy of airway, ventilation, and oxygenation
2. Monitor vital signs and level of consciousness
3. Monitor ECG
4. Monitor pulse oximetry
5. Monitor capnography

Procedure

1. Maintain airway, provide oxygenation, and support ventilation
2. Obtain vascular access
3. For electrical cardioversion, transcutaneous pacing, and post intubation sedation sedate patient to a level of consciousness where procedure can be performed, per MCA selection
4. Only one MCA authorized sedation medication may be given pre-radio. Medical Control MUST be contacted if a different sedation medication is needed subsequent to initial dose (adults and pediatrics).

Adult Procedural Sedation:
(Titrate to minimum amount necessary)

- ✔ **Midazolam** 1-5 mg (0.05 mg/kg) IV/IO titrated slowly (IN, if available); may repeat once in 5 minutes to a maximum of 0.1 mg/kg.
- ✔ **Diazepam** 5-10 mg (0.1 mg/kg) IV/IO titrated slowly, may repeat every 5 minutes to a maximum of 0.3 mg/kg.
- ✔ **Fentanyl** 50-100 mcg (1 mcg/kg) IV/IO titrated slowly (IN, if available); may repeat every 4 minutes to a maximum of 3 mcg/kg.
- ✔ **Ketamine** 4 mg/kg IM or 1.5 mg/kg IV/IO (IN if available) titrated slowly to sedation (max dose 500 mg). NOT for CPAP/HFNO sedation

5. For pediatrics, administer MCA selected medications per MI MEDIC cards. If MI MEDIC cards are not available administer as follows per MCA selection.

Pediatric Procedural Sedation:
(Titrate to minimum amount necessary)

- ☑ **Midazolam** 0.05 mg/kg IV/IO titrated slowly (IN, if available); may repeat once in 5 minutes to a maximum of 0.1 mg/kg.
- ☑ **Fentanyl** 1 mcg/kg IV/IO titrated slowly (IN, if available); may repeat every 5 minutes to a maximum of 3 mcg/kg.
- ☑ **Ketamine** 4 mg/kg IM or 1.5 mg/kg IV/IO (IN if available) titrated slowly to sedation. NOT for CPAP/HFNO sedation

Medication Protocols
Diazepam
Fentanyl
Ketamine
Midazolam

Pleural Decompression

Paramedic Use Only

Indications

1. Suspected Tension Pneumothorax (not simple pneumothorax) with hemodynamic compromise, severe respiratory distress, unilateral absent or severely diminished breath sounds
2. Considered for patients who remain in PEA after treatment of other reversible causes of PEA have been unsuccessful.
3. Traumatic arrest, refer to **Traumatic Arrest-Treatment Protocol**

Presentation of Tension Pneumothorax

1. A tension pneumothorax will have at least one of the following:
   A. Severe respiratory distress in the conscious/breathing patient with **hemodynamic compromise (hypotension)**.
   B. Difficult ventilation in the hypotensive, unconscious/apneic patient in the presence of a confirmed, correctly positioned endotracheal tube.

Technique

1. Evaluate and maintain the airway, provide oxygenation, and support ventilations.
2. Decompression procedure:
   A. Assemble equipment
      a. Adults (>14 years of age): large bore IV catheter - 14 gauge or larger and at least 3.5 inches in length (catheter should not have any type of flow restricting valve) OR other MCA approved commercial device, per MCA selection.
      b. Pediatrics (≤14 years of age): 18 gauge or 20 gauge over the needle catheter (catheter should not have any type of flow restricting valve) OR other MCA approved commercial device, (per MCA selection).

MCA Approved Commercial Device Use

Adults	Pediatrics
◉ Yes	◉ Yes
○ No	○ No

MCAs will be responsible for maintaining a roster of the agencies choosing to participate and will submit roster to MDHHS

c. Antiseptic swabs
d. Dressing and tape

B. Identify landmarks and insertion site

NOTE: Midclavicular is the preferred site for pediatrics (≤ 14 years of age)

a. Anterior axillary at the fourth intercostal space just above the fifth rib.
b. Midaxillary at the fourth intercostal space just above the fifth rib.
c. Midclavicular (if unable to access axillary) line at the second intercostal space just above the third rib
   i. Midclavicular is the preferred site for pediatric patients.

C. Prep the area with antiseptic swab.
D. Remove flash chamber cap from IV catheter.
E. Insert the catheter over the top of the rib until air rushes out. Advance catheter over the needle. Remove needle leaving catheter in place.
F. Reassess breath sounds and patient's condition (patient's condition should improve almost immediately).
G. Secure catheter with tape.

NOTE: REMEMBER to go just above the rib due to all of the major structures (arteries, veins, and nerves) which lie below the rib. The closer you stay to the top of the rib, the less chance of complication.

Refusal of Care; Adult & Minor

EMS personnel have an affirmative duty to provide care to any patient presenting to them after a report of an emergency situation.

If during an emergency medical situation, EMS personnel, based on clinical judgement, consider a patient to be incapable of making their own medical decisions, that patient may be considered incapable of competently objecting to treatment or transportation under the law. Religious beliefs that lead a patient to refusal of treatment or transport are the exception. EMSMCL 333.20969 states:

> "If emergency medical services personnel, exercising professional judgment, determine that the individual's condition makes the individual incapable of competently objecting to treatment or transportation, emergency medical services may provide treatment or transportation despite the individual's objection unless the objection is expressly based on the individual's religious beliefs."

When EMS personnel, based on clinical judgement, consider a patient to be "capable," that patient may object to treatment and/or transport.

1. **Definition**
   - A. An individual who is capable to make medical decisions is:
     - a. One who is awake, oriented, and is capable of understanding the circumstances of the current situation. This includes risks, treatments, transport, and alternatives.
     - b. Does not appear to be under the influence of alcohol, drugs or other mind-altering substances or circumstances that may interfere with mental functioning.
     - c. Is not a clear danger to self or others.
     - d. Is 18 years of age or older, or an emancipated minor.
   - B. "Emancipated Minor" is one who is married, is on active duty with the Armed Forces of the United States or has been granted emancipation by the court.
   - C. A minor is any individual under the age of 18 and who is not emancipated.

2. **Procedure for an individual who, in the clinical judgement of the EMS provider <u>is capable</u> to object to treatment and/or transport.**
   - A. All patients with signs or symptoms of illness or injury shall be offered assessment, medical treatment, and transport by EMS.
   - B. Clearly explain the nature of the illness/injury and the need for emergency care or transportation.
   - C. Explain possible complications that may develop without proper care or transportation.
   - D. For individuals with signs or symptoms of serious or potentially fatal illness or injury, contact medical control prior to obtaining the patient signature and leaving the scene.

E. Request that the individual sign an EMS Refusal Form. If the individual refuses to sign the EMS Refusal Form, attempt to obtain signatures of witnesses (family, bystanders, public safety personnel).
F. Document assessment and complete approved EMS Refusal Form, including risks of refusal.
G. Inform the individual that if they change their mind and desire evaluation, treatment, and/or transport to a hospital, to re-contact the emergency medical services system or seek medical attention.
H. Inability to obtain a signature does not preclude completion of documentation of a refusal.

3. Procedure for the Individual who, in the clinical judgement of the EMS provider, <u>is not capable</u> to object to treatment and/or transport.

A. Contact medical control as soon as practical. and provide all pertinent findings that lead the EMS provider to believe, in their clinical judgement, the patient is not capable to object to treatment and/or transport.
B. For urgent/life-threatening illness or injury initiate treatment according to applicable protocol and transport for further evaluation and treatment
C. For non-urgent/non-life-threatening illness or injury transport for further evaluation and treatment after consultation with on-line medical control.
D. Seek police assistance if needed.

4. Procedure for the individual who, in the clinical judgement of the EMS provider, <u>gains capability</u> to object to transport after treatment has been initiated,

A. Contact medical control in all cases when a patient (now refusing transport) has been given medications or other advanced treatment by EMS personnel (e.g., glucose, albuterol, naloxone, IV, etc.).
B. Such patients should be strongly encouraged to seek further evaluation and treatment.
C. Comply with Section 2 above and document treatment on a patient care record.

5. Procedure for the <u>minor patient</u> objecting to treatment and/or transport

A. Minor patients are unable to consent or refuse ~~consent for~~ medical care. Such permission can only be provided by the minor's parent or legal guardian.
B. Treatment and transport for potential life-threatening emergencies will not be delayed by attempts to contact the parent or guardian.

C. In events when the minor's parent or legal guardian cannot be reached, Contact medical control .

6. Procedure for <u>parent/guardian objecting</u> to treatment and/or transport of the minor patient

A. All patients with signs or symptoms of illness or injury shall be offered assessment, medical treatment, and transport by EMS.
B. Clearly explain the nature of the illness/injury and the need for emergency care and/or transportation.

C. Explain possible complications that may develop without proper care and/or transportation.

D. For individuals with signs or symptoms of illness or injury, contact medical control.

E. Request that the parent/guardian sign an approved EMS Refusal Form. If the parent/guardian refuses to sign the EMS Refusal Form, attempt to obtain signatures of witnesses (family, bystanders, public safety personnel).

F. Document assessment and complete an approved EMS Refusal Form.

G. Inform the parent/guardian that if they change their mind and desire evaluation, treatment, and/or transport to a hospital, to re-contact the emergency medical services system or seek medical attention.

7. Documentation

A. Document findings that support the clinical judgement of the EMS provider that the patient is capable or incapable to objecting to treatment and/or transport.

Note: A sample EMS Refusal Form has been included on a separate page.

SAMPLE EMS REFUSAL FORM

REFUSAL OF TREATMENT, TRANSPORT AND/OR EVALUATION

PLEASE READ COMPLETELY BEFORE SIGNING BELOW!

Because it is sometimes impossible to recognize actual or potential medical problems outside the hospital, we strongly encourage you to be evaluated, treated if necessary, and transported to a hospital by EMS personnel for more complete examination by a physician.

You have the right to choose to not be evaluated, treated or transported if you wish; however, there is the possibility that you could suffer serious complications or even death from conditions that are not apparent at this time.

By signing below, you are acknowledging that EMS personnel have advised you, and that you understand, the potential harm to your health that may result from your refusal of the recommended care; and, you release EMS and supporting personnel from liability resulting from refusal.

PLEASE CIRCLE THE FOLLOWING THAT APPLY:

I refuse:

EVALUATION **TREATMENT** **TRANSPORT**

☐ IF YOU CHANGE YOUR MIND AND DESIRE EVALUATION, TREATMENT, AND/OR TRANSPORT TO A HOSPITAL, YOU MAY RE-CONTACT THE EMS SYSTEM AT ANY TIME.

Patient's Printed Name _____Age____DOB_____Phone #_____
Patient's Address_____City_____State____Zip_____

Signature_____ Relationship, if applicable_____

Witness Signature_____ Witness Printed Name_____
Date and Time_____

BP_____Pulse_____Resp._____Skin_____Pupils_____LOC_____

1. Oriented to person, place, and time? ☐ Yes ☐ No
2. Coherent speech? ☐ Yes ☐ No
3. Auditory and/or visual hallucinations? ☐ Yes ☐ No
4. Suicidal or homicidal? ☐ Yes ☐ No
5. Able to repeat understanding of their condition and consequences of treatment refusal? ☐ Yes ☐ No
6. Narrative: describe reasonable alternatives to treatment that were offered; the circumstances of the call; specific consequences of refusal; and, names of family or witnesses present:

_____
_____
_____
_____

EMS Agency Name | Printed Crew Names | | Signature of EMS Provider

Spinal Precautions

Indications & General Guidance

1. Refer to the **Spinal Injury Assessment Protocol**. Patients with a positive spinal injury assessment should have spinal precautions maintained during transport.
2. Major trauma patients who require extrication should have spinal precautions maintained using an extrication device (long backboard or equivalent) during extrication. If sufficient personnel are present, the patient may be log rolled from the extrication device to the ambulance cot during loading of the patient.
3. Patients may remain on the extrication device if the crew deems it safer for the patient considering stability, time and patient comfort considerations. This decision will be at the discretion of the crew.
4. Patients with penetrating traumatic injuries do not require spinal precautions unless a focal neurologic deficit is noted on the spinal injury assessment.
5. An ambulatory patient with a positive spinal injury assessment should have an appropriately sized cervical collar placed. Place the patient directly on the ambulance cot in a supine position or position with least amount of elevation to maintain comfort, limiting movement of the spine during the process.
6. Patients, who are stable, alert and without neurological deficits may be allowed to self-extricate to the ambulance cot after placement of a cervical collar. Limit movement of the spine during the process.
7. Patients over the age of 65 with evidence of a head strike mechanism of injury will have a cervical collar applied even if the spinal injury clinical assessment is negative.

Specific Techniques

1. Cervical Collars
    A. Cervical collar should be placed on patient prior to patient movement, if possible.
    B. If no collar can be made to fit patient, towel, blanket rolls, head block or similar device may be used to support neutral head alignment.
    C. The cervical collar may be removed if interfering with airway management or airway placement, or if causing extreme patient distress.
2. Self-Extrication Procedure
    A. Patients, who are stable, alert and without neurological deficits may be allowed to self-extricate to the ambulance cot after placement of a cervical collar.
    B. Limit movement of the spine during the process.
3. Emergency Patient Removal
    A. Indicated when scene poses an imminent or potential life-threatening danger to patient and/or rescuers, (e.g., vehicle or structure fire).

B. Remove the patient from danger while best attempt is made to maintain spinal precautions.
C. Rapid extrication is indicated when patient condition is unstable (i.e., airway or breathing compromise, shock, unconsciousness, or need for immediate intervention).

4. Long Extrication Device (e.g., long backboard, scoop stretcher, basket stretcher)
   A. Indicated when patient requires spinal precautions and the patient condition prevents self-extrication.
   B. Patient's head and cervical spine should be manually stabilized.
   C. Rescuers should place the patient in a stable, neutral position where space is created to place backboard or other long extrication device in position near the patient.
   D. Move the patient to supine position on the long extrication device.
   E. The patient is secured to the device with torso straps applied before head stabilization.
   F. Head stabilization material should be placed to allow for movement of the lower jaw to facilitate possible airway management.
   G. The extrication device is used to move the patient to the ambulance cot.
5. Log Roll Procedure
   A. Cervical collar should be placed when indicated.
   B. Place the backboard or equivalent behind the patient.
   C. Patient is log rolled, maintaining neutral alignment of spine and extremities.
   D. Log roll procedure requires 2 or more personnel in contact with the patient.
   E. If log roll is not possible, patient should be moved to board or equivalent while attempting to maintain neutral alignment spinal precautions.
   F. Patient is secured to the backboard or equivalent for movement to the ambulance cot.
   G. Head stabilization materials such as foam pads, blanket rolls may be used to prevent lateral motion. Pad under the head when feasible.
   H. If sufficient personnel are present, the patient should be log rolled from the extrication device to the ambulance cot during loading of the patient.
   I. When log roll on to the ambulance cot is impractical, secure the patient to the extrication device and ambulance cot for transport.
6. Spinal Precautions
   A. Once the patient is placed on the ambulance cot, if no extrication device is still in place, secure the patient with seatbelts in a supine position, or in position of comfort if a supine position is not tolerated.
   B. Head may be supported with head block or similar device to prevent rotation if needed. Padding should be placed under the head when practical. Do not tape the head to the ambulance cot.

Special Considerations

1. Hypoventilation is likely to occur with spinal cord injury above the diaphragm. Quality of ventilation should be monitored closely with support offered early.
2. Spinal/neurogenic shock may result from high spinal cord injury. Monitor patient for signs of shock. Refer to **Shock-Treatment Protocol**.
3. Spinal precautions in the patient wearing a helmet should be according to the **Helmet Removal-Procedure Protocol**.
4. Manual spinal precautions in the obtunded patient must be initiated and continued until the patient is secured to the ambulance cot.
5. Patients who are markedly agitated, combative or confused may not be able to follow commands and cooperate with minimizing spinal movement. Rigid immobilization should be avoided if it contributes to patient combativeness. Patients may remain on the backboard if the crew deems it safer for the patient, and this will be at the discretion of the crew.
6. Manual in line stabilization must be used during any procedure that risks head or neck movement, such as endotracheal intubation. If manual cervical stabilization is hampering efforts to intubate the patient, the neck should be allowed to move as needed to secure the airway. An unsecured airway is a greater danger to the patient than a spinal fracture.
7. Document spinal precautions techniques utilized.
8. Document the patient's neurologic status before and after establishing spinal precautions when possible.
9. Pediatric Patients and Car Seats:
    A. Infants restrained in a rear-facing car seat may be immobilized and extricated in the car seat. The child may remain in the car seat if the immobilization is secure and his/her condition allows (no signs of respiratory distress or shock).
    B. Children restrained in a car seat (with a high back) may be immobilized and extricated in the car seat; however, once removed from the vehicle, the child should have spinal precautions maintained as for an adult.
    C. Children restrained in a booster seat (without a back) need to be extricated and immobilized following standard procedures.
10. Pregnant Patients
    A. Monitor for decreased venous return and if required displace uterus to the left manually or by patient positioning

Blood Glucose Level Testing

Indications:

1. Altered mental status
2. Indicated in applicable treatment protocol

Contraindications:

1. None

Procedure: (may be MFR skill per MCA selection)

MCA approval for MFR Blood Glucose Level Testing

(•) YES

( ) NO

MCAs will be responsible for maintaining a roster of MFR agencies choosing to participate and will submit roster to MDHHS

1. Obtain and test blood sample according to manufacturer's instructions.
2. Treat patient according to applicable treatment protocol.
3. Document blood glucose level in electronic patient care record.

Tourniquet Application

Indications:

1. Life threatening extremity hemorrhage. An amputation with hemorrhage does not necessitate the use of a tourniquet; most bleeding from these injuries is controllable through use of direct pressure and elevation.
2. Amputation with uncontrolled active bleeding.
3. A mass causality incident may be an indication for the use of tourniquets for temporary control of hemorrhage while the situation is brought under control.

Contraindications:

1. Never use a tourniquet for more than the recommended period of time (product-specific). With any extrication plus transport time of less than 180 minutes, there is minimal risk of developing an ischemic limb.
2. Never apply a tourniquet over an impaled object.

Procedure:

1. If possible, check neurovascular status prior to tourniquet application (pulse, sensation, motor function distal to hemorrhage).
2. Apply tourniquet directly to the skin, proximal to the area of bleeding, at least 2-3 inches (5-8 centimeters) from the wound margins.
3. Secure the tourniquet in place; continue to tighten the tourniquet until arterial occlusion (bleeding stops).
4. A successfully placed tourniquet may cause significant paint. (Refer to **Pain Management-Procedure Protocol**).
5. Document the time the tourniquet was applied.
6. Note neurovascular status every five minutes post application.
7. Notify the receiving hospital that a tourniquet is in place.
8. Do not adjust or remove a tourniquet once bleeding is controlled.
9. A second tourniquet adjacent to the first may be necessary.

Notes:

1. Tourniquets should not be applied over joints. Application over the peroneal nerve (knee or ankle) or ulnar nerve (the elbow) may result in nerve damage or paralysis.
2. Any limb with an applied tourniquet should be fully exposed and the tourniquet should not be covered with any other bandage.
3. Continued bleeding (other than medullary oozing from fractured bones) distal to the site of the tourniquet is a sign of insufficient pressure and a need to tighten the tourniquet further. A second tourniquet adjacent to the first may be necessary. Refer to **Bleeding Control-Treatment Protocol**.
4. A clinically indicated and appropriately applied tourniquet should not be loosened once applied. If clinical judgement indicates that the tourniquet is not indicated, is nonfunctional or is not appropriate, contact Medical Control prior to removal or loosening.

Protocol Source/References: https://books.allogy.com/web/tenant/8/books/b729b76a-1a34-4bf7-b76b-66bb2072b2a7/#ida54cdbed-5555-47f0-b791-2c86de208f76

Vascular Access & IV Fluid Therapy

Indications

1. Patients with potential need for either fluid resuscitation or medication administration.
2. External jugular cannulation should be initiated in patients in whom access is necessary and other peripheral vascular access is not accessible or is contraindicated.
3. IO indications: Adult and pediatric life-threatening situations where venous access using peripheral veins has been unsuccessful. IO access should be considered early in situations where IV access is unsuccessful or technically challenging. Indications include:
   A. Cardiac Arrest
   B. Severe burn injury with shock
   C. Shock
   D. Severe multi-system trauma with shock
   E. For other situations contact Medical Control. Do not delay transport.

Contraindications

1. To peripheral vascular access:
   A. No peripheral sites available
   B. Burns overlying available peripheral sites unless no other sites available
   C. Infection overlying available peripheral sites
2. To intraosseous infusion and placement:
   A. Infiltration of previously placed IO. If infiltration occurs (rare), do not reuse the same bone as fluid will leak out of the original hole; select another site.
   B. Placement in fractured extremity. If the femur is fractured do not use the tibia of same leg.
   C. Burns overlying available peripheral sites unless no other sites available
   D. Infection overlying available peripheral sites
3. To fluid bolus:
   A. Pulmonary edema
      a. Contact Medical Control when pulmonary edema is present yet clinical presentation indicates the need for fluid resuscitation.

Special Considerations (Side effects/Complications)

1. Initiation of vascular access generally should not delay patient transport to the hospital.
2. General side effects or complications: infection, air embolism, catheter shear, hematoma, arterial puncture, and fluid overload.
3. Intraosseous placement:
   A. Complications include subperiosteal infusion, osteomyelitis, sepsis, fat embolism, and bone marrow damage.

Standards for IV attempts

1. Two (2) attempts per provider, maximum 4 attempts.
2. Consider IO early, as indicated above.
3. Document any reasons for deviation.

Needle size for IV placement

1. Adult KVO 18 ga - 20 ga angiocath
2. Adult uncompensated shock or cardiac arrest 14 ga - 18 ga angiocath.
3. Pediatrics 20 ga - 24 ga angiocath

Solutions – Unless otherwise specified, the IV solution may be **normal saline 0.9%** (**NS**) or **lactated ringers** (**LR**). **NS** is to be used for dilution and/or reconstitution unless otherwise specified in applicable protocol.

Flow Rates and Volume

1. Saline lock (KVO) IV is preferred, unless fluid administration is needed.
2. Flow rates, changes in flow rates, and total volume administered must be documented on the EMS Patient Care Record.
3. Fluid Bolus – for fluid resuscitation (i.e., dehydration, hypotension, etc.)
   a. Adults (>14 years of age): 1 liter IV/IO wide open with repeat of 1 additional liter as necessary (maximum total of 2L), unless otherwise noted by protocol.
   b. Pediatrics (≤ 14 years of age): 20 mL/kg IV/IO wide open with repeat of 20 mL/kg as necessary (maximum total of 40 mL/kg), unless otherwise noted by protocol,
4. IV/IO fluid bolus is contraindicated in patients with pulmonary edema.
5. Non-resuscitative fluid administration should be at KVO unless otherwise specified by protocol.
6. Medicated drips should be piggybacked into a **NS** main IV line or saline lock.

IV Tubing

1. Macrodrip is the preferred tubing.

Procedure IV/IO Placement

1. Utilize universal precautions for all IV/IO placements.

Procedure for Peripheral Vascular Cannulation:

1. Gather and prepare equipment.
2. Place the tourniquet on the extremity.
3. Cleanse the skin
4. Make your puncture while maintaining vein stability.
5. Watch for flashback. Once you have a blood return, advance the catheter as per normal IV technique and attach the IV tubing or saline lock tubing and cap.
6. If you have no blood return and you are in the vein, remove the needle hub and attach your syringe to assist in aspirating for blood.
7. Instill 2-3 mL of normal saline if normal saline lock placed.

8. Secure catheter and IV tubing.

Procedure for External Jugular Cannulation:

1. Gather and prepare equipment
2. Position patient supine (Trendelenburg, if possible)
3. Turn head to opposite side of venipuncture (if no C-spine injury is suspected)
4. Cleanse the skin
5. Occlude the vein by using the side of your finger above the clavicle to facilitate filling the vein.
6. Make your puncture midway between the angle of the jaw and the middle of the clavicle.
7. Watch for flashback. Once you have a blood return, advance the catheter as per normal IV technique and attach the IV solution or normal saline lock cap, covering catheter with gloved finger while preparing to attach the IV tubing. If you have no blood return and you are in the vein, remove the needle hub and attach your syringe to assist in aspirating for blood.
8. Instill 2-3 mL of normal saline if normal saline lock placed.
9. Secure IV catheter and tubing.

Procedure for Intraosseous Placement:

1. Have all IO equipment ready prior to bone penetration.
2. Expose the extremity.
3. Stabilize the extremity to minimize motion.
4. Selection of site:
    A. Medial aspect of proximal tibia or proximal humerus.
    B. In children less than six years of age, the preferred site is the proximal tibia.
    C. In cardiac arrest, the preferred site is the proximal humerus.
5. Insertion:
    A. Follow the manufacturer's recommendations for IO insertion with the above indications.
6. Scrub the insertion site with alcohol prep/chlorhexidine. Strict adherence to aseptic technique is essential.
7. Insert the IO needle.
8. Attempt to confirm marrow placement by removing the stylet and aspirating blood and/or bone marrow.
    A. If unable to aspirate, attach 10 – 20 mL syringe with **NS** and gently infuse fluid .
    B. Observe for normal saline leakage or SQ tissue swelling.
        a. If neither occurs, proceed.
        b. If either occurs, select a different site.
9. Connect the appropriate IV equipment (normal saline locks not indicated in IO placement).
10. Administer the appropriate fluids and/or drugs.
11. Stabilize the entire intraosseous set-up as if securing an impaled object.
12. In conscious patients experiencing pain with IO infusion, consider **lidocaine 2%,**

a. Adult 20 mg IO
b. Pediatrics 0.5 mg/kg, IO maximum dose of 20 mg.

13. If the IO is unsuccessful after 2 attempts, contact Medical Control

Medication Protocols
Lidocaine

End-Tidal Carbon Dioxide Monitoring (Capnometry and Capnography)

Aliases: ETCO2, End Tidal, Capnography

Definitions: For the purpose of all protocols the mention End Tidal Carbon Dioxide monitoring, these are the definitions:

1. Capnography is a graphic representation of exhaled carbon dioxide displayed as a waveform along with a numeric (quantitative) representation.
    a. Capnography is mandatory for endotracheal tube airway confirmation.
    b. Capnography via nasal cannula is mandatory during certain medication administrations per applicable protocol as it is also a valuable assessment tool in critically ill patients.

MCA approval to utilize capnography.

☑ EMT

MCAs will be responsible for maintaining a roster of BLS agencies choosing to participate and will submit roster to MDHHS

2. Capnometry is a numeric representation of exhaled carbon dioxide.
    a. A colorimetric (qualitative) end tidal carbon dioxide monitor is a rudimentary form of capnometry and is acceptable for use in MFR and BLS applications.
    b. Capnometry that includes a numerical (quantitative) read out is preferred to colorimetric capnometry.

Indications:

1. Determining appropriate placement of an airway has taken place.
    A. Capnography **must** be utilized to confirm endotracheal tube placement.
    B. Capnography or Capnometry **must** be utilized on all supraglottic airways per licensure level requirements.

2. Continuous monitoring of the integrity of the ventilatory circuit.
    A. Capnography **may** be utilized in patients receiving assisted ventilations without advanced airways (used between the face mask and the bag-valve).
    B. Capnography **must** be used for patients on transport ventilators.

3. Monitoring severity of pulmonary disease (bronchospasm) and evaluating response to therapy
    A. Capnography **may** be utilized in patients with respiratory distress, or with signs and symptoms suggestive of acidosis.

4. Monitoring therapy intended to increase coronary blood flow, reflected in CO_2 elimination

A. Capnography **may** be utilized in patients receiving CPR (even without advanced airway placement), cardiac pacing, or when receiving medications that are intended to increase cardiac output, as a means to determine the physiological effectiveness of interventions
B. Capnography **must** be utilized for critically ill patients and for patients with ROSC in ALS/LALS units.

Contraindications:

1. There are no absolute contraindications to Capnography/Capnometry

Procedure:

1. Attach the colorimetric device to airway device (supraglottic or between facemask and BVM)
2. Note presence or absence of color change.
    a. If no change in color on device, verify placement of device.
3. Document findings in patient chart.
4. When ALS arrives, switch to capnography (if available) from capnometry.
5. Attach the CO_2 sensor to the monitoring device and to the advanced airway, or between the mask and the bag valve in the ventilated patient that does not have an advanced airway placed or using the nasal cannula style sensor for patients not receiving assisted ventilation.
6. Note the CO_2 level and waveform characteristics
7. Any loss of CO_2 detection or waveform may indicate an airway or ventilation problem and should be investigated, corrected and documented.
8. Document the use and results in the Patient Care Record (PCR).

Note: If a **"0"** value, no value, or no color change is noted for a patient:

- Ensure that the patient has adequate spontaneous circulation and ventilation, or that effective CPR is being performed
- Verify that the tubing is properly connected to the monitor and that there are no kinks in the tubing.
- If the tubing is found not to be the problem and an advanced airway has been placed, remove the advanced airway immediately and assist ventilations as needed with manual ventilation techniques.

Michigan Physician Orders for Scope of Treatment (MI-POST)

Aliases: POST

Purpose: The purpose of this policy is to provide a guideline to prehospital providers, who under certain circumstances may accommodate patients who do not wish to receive and/or may not benefit from certain interventions. This protocol is drafted in accordance with Public Act 154 of 2017. This protocol is intended to facilitate kind, humane, and compassionate service for patients who have executed a valid MI-POST under the law.

I. Definitions
   A. Attending health professional – means a physician, physician's assistant, or certified nurse practitioner, who has primary responsibility for the treatment of a patient and is authorized to issue the medical orders on a POST form.
   B. Patient – means an adult with an advanced illness or means an adult with another medical condition that, despite available curative therapies or modulation, compromises his or her health so as to make death within 1 year foreseeable though not a specific or predicted prognosis.
   C. Guardian – means a person with the powers and duties to make medical treatment decisions on behalf of a patient to the extent granted by court order under section 5314 of the Estates and Protected Individuals Code, 1998 PS 386, MCL 700.5314.
   D. Patient Advocate – means an individual designated to make medical treatment decisions for a patient under Section 496 of the revised Probate Code, Act No. 642 of the Public Acts of 1978, being section 700.496 of the Michigan Compiled Laws.

II. Introduction - EMS providers who encounter an approved MI-POST in the field should be aware of the different levels of care in Sections A and B of the form.

III. Procedure for Use of Form
   A. If there are issues with the form, the orders contained therein, or the circumstances of the situation are unclear, personnel may initiate treatment and contact Medical Control for direction.
   B. Section A – Applies to only individuals who do NOT have a pulse and are not breathing upon arrival of EMS personnel or become pulseless or apneic during treatment.
      a. If *Attempt Resuscitation* is checked, provide treatment according to appropriate **Cardiac Arrest-Treatment Protocol.**
      b. If *DO NOT attempt resuscitation* is checked, refer to **Dead on Scene and Termination of Resuscitation-Procedure Protocol** or **Medical Examiner Notification and Body Disposition Protocol** as appropriate.
   C. Section B – For patients who have a pulse and/or are breathing
      a. Comfort-Focused Treatment box is selected:

1. Patients should receive full palliative treatment for pain, dyspnea, hemorrhage, or other medical conditions (including medication by any route) according to applicable protocols.
2. Relief of choking caused by a foreign body is appropriate, but if breathing has stopped and the patient is unconscious, ventilation should not be assisted.
3. Follow appropriate transport and destination protocols as needed.

b. Selective Treatment box is selected:
   1. All patients receive comfort treatment plus:
   2. Treat medical conditions according to protocol including IV therapy, cardiac monitoring, medications, and non-invasive airway support.
   3. Do not use invasive airways (including supraglottic airways).

c. Full Treatment box is selected:
   1. All patients receive comfort treatment, plus:
   2. Full treatment should be provided. This includes, but is not limited to, intubation, other invasive airways, and mechanical ventilation.

d. If no box is checked, Full Treatment is implied.

IV. MI POST Form

A. An example form is contained in this protocol. The original form will generally be pink, but copies of the form are valid (paper or digital).
B. The form must be dated within the last year. Note: reaffirmation dates should be counted as the most recent date, see Section G.
C. The form must be signed by the attending health professional and the patient or the patient advocate/durable power of attorney for healthcare. A verbal order notation is valid for 72 hours.
D. All previous versions of the form are valid, if all the above are true and there are no marks indicating a revocation on the form.
E. The form is voluntary and may be revoked:
   a. By the patient, at any time when the patient can communicate their wishes.
   b. By the patient advocate/durable power of attorney for healthcare when it is considered to be consistent with the patient's wishes or in the patient's interest when the patient's wishes are unknown.
   c. By the attending health professional when there is a condition change that makes the orders contained on the POST contrary to accepted healthcare standards.

Protocol Source/References: MCL 333.20967, MCL 333.5679, **MCL 333.56**

MDHHS-5836, MICHIGAN PHYSICIAN ORDERS
FOR SCOPE OF TREATMENT (MI-POST)
Michigan Department of Health and Human Services (MDHHS)
(Revised 8-22)

HIPAA permits disclosure of MI-POST to other Health Care Professionals, as necessary. This MI-POST form is void if Part 1 or Section D are blank. Leaving blank any section of the medical orders (Sections A, B, or C) does not void the form and is interpreted as full treatment for that section.

PART 1 – PATIENT INFORMATION

Patient Last Name | Patient First Name | Patient Middle Initial

Date of Birth (mm/dd/yyyy) | Date Form Prepared (mm/dd/yyyy)

Diagnosis supporting use of MI-POST

This form is a Physician Order sheet based on the medical conditions and decisions of the person identified on this form. Paper copies, facsimiles, and digital images are valid and should be followed as if an original copy. This form is for adults with an advanced illness. It is not for healthy adults.

PART 2 – MEDICAL ORDERS

Section A – Cardiopulmonary Resuscitation (CPR)
Person has no pulse and is not breathing. See MDHHS-5837 for further details.

☐ Attempt Resuscitation/CPR (Must choose Full Treatment in Section B).
☐ DO NOT attempt Resuscitation/CPR (No CPR, allow Natural Death).

Section B – Medical Interventions
Person has pulse and/or is breathing. See MDHHS-5837 for further details on medical interventions.

☐ **Comfort-Focused Treatment**
Primary goal of maximizing comfort. May include pain relief through use of medication, positioning, wound care, food and water by mouth, and non-invasive respiratory assistance.

☐ **Selective Treatment**
Primary goal of treating medical conditions while avoiding burdensome measures. May include IV fluids, cardiac monitoring including cardioversion, and non-invasive airway support.

☐ **Full Treatment**
Primary goal of prolonging life by all medically effective means. May include intubation, advanced invasive airway interventions, mechanical ventilation, other advanced interventions.

Section C – Additional Orders (optional)
Medical orders for whether or when to start, withhold, or stop a specific treatment. Treatments may include but are not limited to dialysis, medically assisted provisions of nutrition, long-term life-support, medications, and blood products.

Send form with Patient whenever transferred or discharged.

MDHHS-5836 (Rev. 8-22) Previous edition obsolete. 1

Section D – Signature of Attending Health Professional
My signature below indicates that these orders are medically appropriate given the patient's current medical condition, reflect to the best of my knowledge the patient's goals for care, and that the patient (or the patient representative) has received the information sheet.

Print Name | Date

Signature | Phone Number

Print Name of Collaborating Physician | Phone Number

Section E – Signature of Patient or Patient Representative
My signature indicates I have discussed, understand, and voluntarily consent to the medical orders on this MI-POST form. I acknowledge that if I am signing as the patient's representative, these decisions are consistent with the patient's wishes to the best of my knowledge.

☐ Patient ☐ Patient Advocate/Durable Power of Attorney for Health Care (DPOAHC)
☐ Court-Appointed Guardian

Print Name of Patient | Print Name of Patient Representative

Signature | Date

Information of Legally Authorized Representative
Complete this section if this MI-POST form was signed by a Patient Advocate/DPOAHC or Court-Appointed Guardian.

Address | City | State | Zip Code

Phone Number | Alternate Phone Number

Section F – Individual Assisting with Completion of MI-POST Form

Print Preparer's Name | Title | Date

Preparer's Signature | Organization | Phone Number

Section G – To Reaffirm or Revoke this Form
This MI-POST form can be reaffirmed or revoked at any time, verbally or in writing. See MDHHS-5837 for further details on reaffirmation or revocation. **If this document is revoked or is not reaffirmed, and a new form is not completed, full treatment and resuscitation will be provided.**

Healthcare Provider Name/Collaborative Physician (if applicable) | Healthcare Provider Signature

Patient/Representative Name | Patient/Representative Signature | Reaffirmation Date

Send form with Patient whenever transferred or discharged.
HIPAA permits disclosure of MI-POST to other Health Care Professionals, as necessary.

The Michigan Department of Health and Human Services will not exclude from participation in, deny benefits of, or discriminate against any individual or group because of race, sex, religion, age, national origin, color, height, weight, marital status, partisan considerations, or a disability or genetic information that is unrelated to the person's eligibility.

MDHHS-5836 (Rev. 8-22) Previous edition obsolete. 2

Interfacility High Flow Nasal Oxygen (MCA Optional Protocol)

This protocol is for paramedic use only

Purpose: To outline the process for paramedics who have received MCA approved training, to transport a patient on a high flow nasal cannula during an interfacility transport.

☑ Medical Control Authorities choosing to adopt this supplement may do so by selecting this check box. Adopting this supplement changes or clarifies the referenced protocol or procedure in some way. This supplement supersedes, clarifies, or has authority over the referenced protocol.

In conjunction the MCA must also select the option for Interfacility High Flow Nasal Oxygen on the **Interfacility Facility Patient Transfers Protocol**.

I. Indications
- A. Order from sending facility/physician
- B. Hypoxic respiratory failure, hypoxic respiratory distress, respiratory distress
- C. Availability of an MCA approved high flow nasal cannula device and necessary supplies required to facilitate transport of patient.
- D. Adults (> 14 years of age)
- E. Pediatrics (≤ 14 years of age) per MCA selection for allowance and/or staff requirements.

MCA approval for pediatric HFNO (≤ 14 years of age) WITHOUT accompanying hospital staff

☐ NO – Staff must accompany patient

☑ YES - Enhanced Paramedic or Critical Care Paramedic only

☐ YES – Paramedic who has received additional MCA approved training.

MCAs will be responsible for maintaining a roster of the agencies choosing to participate and will submit roster to MDHHS

II. Contraindications
- A. Inability to provide continuous, humidification using an approved delivery device
- B. Inability to provide therapy through appropriately sized nasal prongs
- C. Insufficient supply of oxygen to complete the transport

III. Procedure

A. Ensure that an adequate supply of oxygen is available for the transport.
   i. Calculate the amount of oxygen needed prior to departure.
   ii. Ensure that you have at least two times the amount of oxygen anticipated.
B. Perform appropriate patient assessment, including obtaining vital signs, pulse oximeter reading, cardiac rhythm, and current device settings
C. Set FiO2 to maintain SpO2 at or above 94% or to patient's targeted baseline oxygen saturation as directed by the sending physician. Utilize facility settings as starting point, if available.
D. Set flow rate in liters per minute (L/min) to decrease work of breathing.
   i. Utilize facility settings as starting point, if available.
   ii. Flow calculation: 2 L/kg/min up to the first 12 kg, plus 0.5 L/kg/min for each kg thereafter, up to a maximum flow rate of 60 L/min.
E. Reassess vitals, work of breathing, mental status, and breath sounds. Reassessment should be continuous, but documentation of vitals must occur at least every five minutes throughout patient contact.
F. Consider the need for escalation of respiratory support if patient remains in respiratory failure on more than 2 L/kg/min of flow or maximum settings for the delivery device.
G. If patient deterioration occurs, terminate HFNO and begin positive pressure respiratory support via CPAP, BIPAP, BVM, or intubation, if necessary.

NOTES:

A. For suspected or confirmed COVID-19 patients, personnel must don respirators, eye protection, gowns, and gloves for transport.
B. Patients with congenital heart conditions may have baseline saturations considerably lower than 90% and driving saturations higher than the target can be harmful for these patients.

Transport of Adult Ventilator-Dependent Patient

The purpose of this protocol is to establish a uniform procedure for using mechanical ventilation for the transport of patients who are otherwise stable and do not meet criteria for MICU or Air Medical transport.

Criteria

A. BLS may transport patients on their own ventilator if:
   a. Patient caregiver trained on the ventilator accompanies patient
   b. Waveform capnography if available per MCA selection in **End-Tidal Carbon Dioxide Monitoring-Procedure Protocol**
      i. If waveform capnography not available, capnometry that includes a numerical (quantitative) read out is required.
   c. One of the following conditions:
      i. Scheduled transport (interfacility, facility to home, home to appointment, etc.) OR
      ii. Low acuity 9-1-1 that requires BLS level care.

B. ALS (non-Critical Care, non-Enhanced Paramedic) in which all agency paramedic personnel are trained on and carry ventilators.

Procedure

A. Always keep a bag valve mask resuscitator close by in case of ventilator failure.

B. Patients who are ventilator dependent may be transported on their own ventilator (home ventilator) if desired. Assure the BVM is available for back up use if transporting with a home ventilator. Patient caregiver trained in the use of ventilator should attend during transport if possible.
   1. Verify tube placement with waveform capnography.
   2. Patient lung sounds should be checked and documented. Tube placement must be rechecked via lung sounds and continuous waveform capnography every time the patient is moved, i.e., stretcher to stretcher or in or out of a vehicle. Continuous monitoring with the pulse oximeter will be used on all patients.

C. Patients on agency supplied ventilator:
   1. Newly vented - Ventilatory status should be established via Venous Blood Gas (VBG) in the newly intubated patient and documented when available. Continuous monitoring with the pulse oximeter and capnography will be used on all patients. If pulse oximetry is not attainable due to poor circulation, an ABG may be used to ensure adequate oxygenation. If unavailable, consider MICU or air medical transport.
   2. Ventilator and circuit must be set up according to manufacturer's recommendations.
   3. Patient should be placed on the ventilator approximately 5 minutes prior to departure to ensure the patient tolerates the ventilator. Appropriate adjustments should be made prior to departure.
   4. Assist Control (AC) and Synchronized Intermittent Mandatory Ventilations (SIMV) are acceptable modes of operation. Set Positive End Expiratory Pressure (PEEP)

and Sigh as established by sending facility. PEEP greater than 5 cmH2O should be referred to MICU or Air Medical Services for transport or appropriate hospital staff must accompany the patient.

a. Verify tube placement with waveform capnography prior to placing the patient on the transport ventilator.
b. Patient lung sounds should be checked and documented. Tube placement must be rechecked via lung sounds and continuous waveform capnography every time the patient is moved, i.e., stretcher to stretcher or in or out of a vehicle. Continuous monitoring with the pulse oximeter will be used on all patients.

Left Ventricular Assist Device

A Left Ventricular Assist Device (LVAD) is an implanted device that pumps blood from the left ventricle into the aorta to support circulation. For some of these patients this device is a bridge to transplant but for others it is a life prolonging therapy if transplant is not an option. Care of patients supported by these devices can present a challenge for care givers in the pre-hospital environment. This document provides guidance for the provision of emergency care for patients in the pre-hospital environment who have an LVAD in place. Contact VAD coordinator/center for devices which you are unfamiliar with or require assistance with.

Contact Information:
Program Name:
Phone: _ Request VAD Coordinator and state patient's name
VAD Pager number:

Contact Information:
Program Name:
Phone: _ Request VAD Coordinator and state patient's name
VAD Pager number:

1. LVAD's create non-pulsatile flow; it may be difficult to obtain vital signs using standard equipment and or methods. Utilize skin color, mental status and capillary refill to assess the patient.
2. The device supports left ventricular function and is dependent on some right heart function and adequate circulating volume. Even minor volume depletion may cause diminished perfusion and require fluid administration.
3. All LVAD patients are anticoagulated.
4. LVAD's are powered electrically, a driveline exits the body, connects to a "controller" which in turn is connected to a power source. Proper functioning of the device is dependent on the integrity of these connections. Exercise caution related to the drive line, which exits through the skin in the upper abdomen. Do not cut, pull or damage it in any way. It will be secured by some type of binder or other device to protect it.
5. Connections should not be forced together or apart. All connections are secured by a locking device.
6. Generally, patients, their families and caregivers are familiar with the operation of the device and should accompany the patient as a resource for operation of the device if promptly available.
7. All LVAD patients are assigned a hospital-based coordinator who is available by phone and should be contacted urgently.

8. All LVAD patients should have a "go bag" close by which contains an additional power supply as well as an extra controller. This should be brought with the patient to the hospital. This should contain charged batteries, a back-up controller and a power-based unit.
9. If possible, the patient should be transported with four fully charged batteries. Two will be connected to the patient and the other will serve as backups.
10. Most issues will be the result of medical problems rather than device failure.

Procedure

Do NOT use the following devices on an LVAD patient

- AED
- Mechanical Compression Device

1. Assess the patient for signs of life and function of the device
   A. Awake and or alert
   B. Satisfactory capillary refill
   C. Audible whine/hum in the region around the heart and or left upper abdomen
   D. Check all connections, tighten as indicated to be sure they are secure
   E. Identify any alarms that are heard or visible on controller and relay information to VAD coordinator.
   F. If able, begin to assemble components or have the patient's designated LVAD companion gather components that will accompany patient
      a. Extra controller
      b. Extra batteries
      c. Power unit (charger) and or A/C adapter

2. Assess for other medical issues

A. Start an IV and a fluid bolus if volume depletion is felt to be present
B. Control bleeding

C. Attach monitor and assess rhythm
   a. LVAD patients may have life threatening arrhythmias at baseline including VF or VT. Ask the patient, companion, or LVAD coordinator what the patient's baseline rhythm is.
   b. If the patient is unstable and they are in an arrhythmia that is not their baseline treat the arrhythmia
   c. Defibrillation, cardioversion, and external pacing are allowed if indicated. You do not need to disconnect the device.
D. Follow appropriate medical protocol
E. CPR compressions should only be performed as a last resort.

   a. Consult with Medical Control immediately if the device is non-functioning and you are starting CPR.
F. Prepare for transport to MCA approved LVAD hospital

3. Consult with LVAD coordinator
   A. Patient or companion should have emergency contact information
   B. Report information from the controller including any alarms
   C. Change battery or power source as requested
   D. Change controller as requested-be sure patient is laying or sitting down as pump will stop briefly

4. Transport to an MCA approved LVAD Center
   A.
   B.
   C.

Mechanical Chest Compression Device (MCA Optional Protocol)

Manual chest compressions remain the standard of care for the treatment of cardiac arrest. Mechanical chest compression devices may only be used as alternative to conventional CPR in specific settings where the delivery of high-quality manual compressions may be challenging or dangerous for the provider (e.g., limited rescuers available, CPR during hypothermic cardiac arrest, CPR in a moving ambulance).

☑ Medical Control Authorities choosing to adopt this supplement may do so by selecting this check box. Adopting this supplement changes or clarifies the referenced protocol or procedure in some way. This supplement supersedes, clarifies, or has authority over the referenced protocol.

MCAs will be responsible for maintaining a roster of the agencies choosing to participate and will submit roster (including brand name/model number of device) to MDHHS.

Requirements:

1. FDA approved MCA authorized mechanical chest compression devices as listed below (brand name and model if applicable)

☑ LUCAS 3 stryker

☑ AUTOPULSE zoll

☑ DEFIBTECH LIFELINE ARM

☐

☐

2. Providers utilizing the device are trained on use of the device per MCA requirements
3. Follow manufacturer's instructions for use unless otherwise directed by the MCA.

Indications:

1. Cardiac Arrest

Contraindications:

1. Return of Spontaneous Circulation
2. Age and weight restrictions per manufacturers recommendations.
3. Patients with LVAD

Procedure:

1. Perform high-quality CPR while the device is being prepared for use.
2. Utilize device according to manufacturer's recommendations.
3. Refer to **Adult or Pediatric General Cardiac Arrest -Treatment Protocol**
4. Document use of Mechanical Chest Compression Device in patient care record including but not limited to:
    A. Type/brand of device
    B. Applicable times Mechanical Chest Compression Device was in use.
    C. Rate at which the device is set/delivering mechanical chest compressions.